Better Oral Health in Residential Care
Final Report

A project funded
by the

Australian Government
Department of Health and Ageing

Under the

Encouraging Best Practice in
Residential Aged Care Program

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Acknowledgments

The expert involvement of the following organisations and individuals is gratefully acknowledged.

Consortium Members

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<td>Central Northern Adelaide Health Service</td>
<td>Adelaide, South Australia</td>
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<tr>
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<td>Resthaven Inc.</td>
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Main Messages

Key Messages

A healthy mouth will improve overall health and wellbeing.

Six of the best ways to maintain a healthy mouth for residents:

1. Brush morning and night
2. High fluoride toothpaste on teeth
3. Soft toothbrush on gums, tongue and teeth
4. Antibacterial product after lunch
5. Keep the mouth moist
6. Cut down on sugar.

It takes a team approach to maintain a healthy mouth, with general practitioners, registered nurses, care workers and dental professionals taking responsibility for one or more of the four key processes:

1. Oral health assessment
2. Oral health care planning
3. Daily oral hygiene

Key Findings

Oral health assessment by non-dental professionals does not replace a dental examination but can be successfully used by general practitioners (GPs) and registered nurses (RNs) to identify residents requiring a dental referral.

RNs can successfully use the oral health assessment tool to inform oral care planning, monitor residents’ oral health and evaluate oral hygiene interventions.

Dentists and other dental professionals can be encouraged to visit residential aged care facilities to deliver dental care if they are supported and have access to portable equipment.

Residents’ oral health status improves rapidly with the implementation of the Better Oral Health in Residential Care Model.

Nursing care can make a significant difference to all residents’ oral health and improve their quality of life. It is not only about dental treatment, it is about the difference daily oral hygiene activities can make.

A simple toothbrush that can be bent easily is the most economic and effective tool for improving oral health.

The Better Oral Health in Residential Care education and training program can be delivered successfully by non-dental health professionals.

An aged care facility’s RN is best placed to become the oral health champion and deliver the training to other staff, following a ‘train the trainer’ model.
Executive Summary

High and often rampant levels of oral disease and conditions are evident in residents living in aged care facilities. Oral disease causes pain, is costly and disfiguring, results in poor nutrition and provides a portal for disease.

Australia's population is ageing. Increasingly older people are retaining their natural teeth and have complex mouths with large numbers of extensively restored natural teeth. As a result, more people in aged care facilities will require increased assistance to care for their natural teeth and maintain their oral health.

Australia's National Oral Health Plan 2004–2013, endorsed by the Australian Health Ministers in 2004, recommended a number of strategies to address the poor oral health of older Australians. These included oral health screening on admission to residential care, developing a simple oral health plan for every resident, maintenance of oral hygiene and timely dental treatment.

In 2005, the Australian Research Centre for Population Oral Health (ARCPOH) of The University of Adelaide, in collaboration with the South Australian Dental Service, received funding from the Australian Government Department of Health and Ageing to develop and trial an oral health screening tool for GPs. Subsequently, it was recognised that further testing was needed for use by other professionals, such as RNs, and that the inclusion of more care planning and oral health product information would be beneficial.

In late 2006, the Australian Government Department of Health and Ageing established the Encouraging Best Practice in Residential Aged Care (EBPRAC) Program. The overriding aim of the EBPRAC Program is to improve evidence-based clinical care for aged care residents and enable a nationally consistent application of clinical practice in residential aged care.

In 2007, a three-state consortium was successful in attracting funding from the EBPRAC Program for a two-year project. The aim of this project, Better Oral Health in Residential Care, was to develop an evidence-based model to promote better oral health within the Australian residential aged care sector.

The Consortium for Better Oral Health in Residential Care was led by the South Australian Dental Service, with partners being the public dental providers in New South Wales and Victoria, ARCPOH, and six diverse aged care homes in the three states. The residential aged care homes were Kara at Newcastle in New South Wales, Sheridan at Kyabram in Victoria and, in South Australia, Umoona at Coober Pedy, Tanunda Lutheran Home at Tanunda, and Helping Hand—Parafield Gardens and Resthaven—Craigmore in Adelaide.

A Better Oral Health in Residential Care Model was developed. It demonstrated a team approach with GPs, RNs, care workers and dental professionals having responsibilities for one or more of four key processes: assessment, care planning, oral hygiene and dental treatment.

The work of the Project was to translate evidence-based oral health research into daily practice. The change in practice was to ensure:

- aged care staff appreciated the relationship between oral health and general health and the impact this has on residents’ quality of life and wellbeing
- a primary oral health approach is used to improve residents’ comfort, wellbeing and quality of life
- maintaining residents’ oral health is a multidisciplinary responsibility.
Simple key messages were formulated to reinforce the change processes:

- A healthy mouth will improve overall health and wellbeing—Good oral health is essential for healthy ageing
- Six of the best ways to maintain a healthy mouth—Protect your residents’ oral health:
  1. Brush morning and night
  2. High fluoride toothpaste on teeth
  3. Soft toothbrush on gums, tongue and teeth
  4. Antibacterial product after lunch
  5. Keep the mouth moist
  6. Cut down on sugar
- It takes a team approach to maintain a healthy mouth—Work together to protect your residents’ oral health.

The framework for implementing changes in oral health practice was based on a protective oral hygiene care regimen, taking into account the influence of residents’ changed behaviours and palliative care considerations on the delivery of oral care.

Better Oral Health in Residential Care Resource Portfolios were designed for national use by a range of aged care health professionals, and were developed with the assistance of leading experts and aged care dental consultants. Oral health care planning and oral hygiene practices are prominent features of the portfolios.

It was demonstrated that RNs could successfully conduct oral health assessments.

Oral health assessments undertaken by GPs and RNs before and following the implementation of the Better Oral Health in Residential Care Model showed significant improvement in oral health status of residents following implementation.

Residents rated their own oral health better following the implementation of the Better Oral Health in Residential Care Model.

RNs were very positive about the Oral Health Assessment Toolkit resources and the contribution of oral health care plans to the overall care in residential aged care facilities. Care workers were also very positive about the education and training program. Their effectiveness and competency in oral care increased following the program.

Seventy-five per cent of aged care staff scored greater than 80 per cent in the post-education questionnaire, compared to 6 per cent of aged care staff in the pre-education questionnaire. No aged care staff scored less than 50 per cent on the post-education questionnaire, compared to 17 per cent of aged care staff in the pre-education questionnaire.

All aged care facilities showed significant improvements in the quality of oral health care plans following the implementation of the Better Oral Health in Residential Care Model.

In 2010, this Model will be implemented in the first Australia-wide Nursing Home Oral and Dental Plan.
Recommendations

1. That the Australian Government Minister for Ageing endorses the Better Oral Health in Residential Care Model developed by this Project.

2. That direct care nurses and care workers in residential aged care receive the education and training program developed by this Project, to support the Better Oral Health in Residential Care Model.

3. That the Better Oral Health in Residential Care Model is incorporated in tertiary and vocational health education curricula, particularly for nursing and care workers.

4. That residential aged care providers are encouraged and supported to:
   • make available and support RNs to participate in a ‘train the trainer’ program
   • make provision for all direct care nurses and care workers to undertake education and training
   • integrate the Better Oral Health in Residential Care Model (for example, oral health assessments and oral health care plans) into operating policies and procedures
   • integrate oral health competencies into ongoing staff training agenda and auditing of skills.

5. That future national dental care models under deliberation by the Australian and state/territory governments need to consider the special needs of aged care residents.

6. That the Australian Government Department of Health and Ageing incorporate funding mechanisms (such as the Medical Benefits Scheme, Aged Care Funding Instrument and the Pharmaceutical Benefits Schedule) for more equitable access to oral health products and aids in residential care.

7. That mechanisms be put in place to provide extra support for the implementation of the Better Oral Health in Residential Care Model for Indigenous residents, residents with a disability and residents with mental health conditions.

8. That the standard for new residential aged care facilities includes provision of a treatment room that is suitable for a variety of health professionals, including a dental professional.

9. That private and public dental providers have access to portable dental equipment to facilitate dental treatment in residential aged care facilities.

10. That an endorsement process to reward good oral health performers in the Residential Aged Care Sector (such as the Food Safe System) be considered, including the development of an oral health audit tool.

11. That the implementation of the national Nursing Home Oral and Dental Health Plan be evaluated, for example by the collection of statistics on aged care staff training numbers and oral health assessments and referrals.

12. That dissemination of the Better Oral Health in Residential Care Model is undertaken by the Department of Health and Ageing with the support of appropriate national bodies such as:
   • aged care national peak bodies and consumer representative groups
   • GP divisions and networks
   • professional associations, such as the Australian Dental Association
   • public dental providers
   • National Oral Health Promotion Committee.
1 Introduction

1.1 Background

Be they independent, frail or in residential care, older people need to be able to eat and talk comfortably, be happy with their appearance, stay pain-free and maintain self-esteem in their oral hygiene and care.\(^1\)

1.1.1 Oral Health Challenges

Australia’s population is ageing and it will continue to age. In twenty years’ time, the population aged over 65 is projected to be growing at three times the rate of the population aged between 15 and 64 years.\(^2\) Accompanying this, is a significant trend towards the retention of natural teeth amongst older people. In the past, it was common for older people to be toothless (edentulous) and to wear full dentures. The percentage of people who wear full dentures in the age group 75 plus years had reduced from 78.6 per cent in 1979 to 35.7 per cent in 2005. This decline is projected to continue to approximately one in three people by 2010 and approximately one in four people by 2020.\(^3\)

These trends are expected to cause increased degenerative oral problems such as tooth wear, tooth fracture and root decay.\(^4\) Increasingly, older people will have complex dental requirements with large numbers of extensively restored natural teeth aided by restorative dentistry (such as crown and bridgework, partial dentures and implants). As a result, more people in aged care facilities will require increased assistance to care for their natural teeth and maintain their oral health.

The more complex the mouth, the more difficult it is to maintain good oral health when the older person becomes increasingly frail and dependent. Oral diseases are usually progressive and cumulative. The most recent National Survey of Adult Oral Health (2004–2006) identified more than 90 per cent of people aged 60 and over suffered from gum (periodontal) disease.\(^5\) The seminal 1990s research work of the late Dr Jane Chalmers found that poor maintenance of oral hygiene before admission to residential aged care resulted in high and often rampant levels of oral disease and conditions that quickly deteriorated after admission to residential care.\(^6\)

The increased incidence of oral disease and conditions in older people is complicated by:

- higher levels of functional dependence
- physical frailty
• existing general illnesses and chronic diseases
• multiple prescribed medications (polypharmacy)
• cognitive impairment and associated communication and behavioural difficulties with oral care management or refusal to open the mouth.

Oral health problems, in particular dental pain, can dramatically affect a resident’s wellbeing and quality of life. The interrelationship between oral health and general health is particularly evident amongst residents who suffer from dementia.

Poor oral health impacts upon the resident’s quality of life by affecting:
• the ability to chew and eat
• nutritional intake
• body weight
• speech
• hydration
• general behaviour
• appearance
• social interactions.

Poor oral health also increases the resident’s risk of general health problems. Of concern is the very high incidence of reported dental decay and dental plaque levels because:
• plaque accumulation on natural teeth or dentures can contribute to aspiration pneumonia
• gum (periodontal) disease can contribute to cardiovascular and cerebrovascular disease
• chronic infection from poor oral health compromises the immune system and complicates the management of many general illnesses, such as diabetes.

Similarly, the processes of ageing, compounded by existing general illnesses or chronic diseases and the side effects of their treatments, can lead to increased risk of oral diseases.
For example, reduced salivary flow causes dry mouth (xerostomia) which contributes to tooth decay and infections of the mouth as well as altered senses of taste and smell.  

Disturbingly, the relationship between oral health and general health seems to be often misunderstood or overlooked by residents and their families and by aged care staff. Furthermore, the burden of disease caused by poor oral health has economic ramifications for the residential aged care sector and the wider health care system.

### 1.1.2 Australia’s National Oral Health Plan 2004–2013


The Committee acknowledged in its Plan that:

- oral health was an integral part of general health
- a population health approach was required, with a focus on prevention and early identification of oral disease
- all Australians deserve access to appropriate and affordable dental services
- there is a need for education to achieve a sufficient and appropriately skilled workforce and communities which could effectively support and promote oral health.

Action Area Three of the Plan, ‘Older People’, stated that good oral health could be achieved through:

- _multidisciplinary approaches to oral health assessment and support for maintenance of oral hygiene_
- _improved access to affordable, timely and preventively focussed oral health care._

The National Oral Health Plan also listed a number of recommended immediate strategies to address the main objectives for improving oral health of older people, including:

- (3.3) *Ensure that oral screening is carried out … on admission to residential aged care facilities …*
- (3.4) *Require the development of a simple but practical oral health care plan as part of the overall care plan for every person in a residential aged care facility*
- (3.5) *Ensure that support for residential aged care facilities have [sic] the flexibility to implement the oral health component of the overall care plan including maintenance of oral hygiene and timely dental treatment where needed._

### 1.1.3 Oral Health Assessment Toolkit Project

In 2005, the Australian Research Centre for Population Oral Health (ARCPOH) of The University of Adelaide, in collaboration with the South Australian Dental Service, Dr Jane Chalmers and the Joanna Briggs Institute, developed and trialled an oral health screening tool for general practitioners. This was funded by the Australian Government Department of Health and Ageing.

Traditionally, general practitioners (GPs), nursing and care worker staff receive little training in oral health and, in many cases, consider this to be a dentist’s responsibility. With the emerging oral health challenges for residents in aged care facilities, it is becoming evident that the dental workforce cannot undertake the responsibility of this alone.
The Oral Health Assessment Toolkit was designed to assist GPs with the diagnosis of oral conditions so that they could refer residents for dental treatment when necessary. Eight categories of oral health—lips, tongue, gums and tissues, saliva, natural teeth, dentures, oral cleanliness and dental pain—are assessed under the headings of ‘healthy’, ‘changes’ or ‘unhealthy’. The aim was to integrate oral health assessment with the Comprehensive Medical Assessment (CMA). The Toolkit included a CD and resources for self-directed learning. The Project established that GPs could reliably undertake oral health assessments. Recommendations at completion of the Project suggested further testing of the Toolkit for use by other health professionals, such as registered nurses (RNs), should take place and its implementation should widen to a range of aged care settings.

1.1.4 Encouraging Best Practice in Residential Aged Care Program

At the end of 2006, the Australian Government Department of Health and Ageing established the Encouraging Best Practice in Residential Aged Care (EBPRAC) Program. The overriding aim of the EBPRAC Program is to improve evidence-based clinical care for aged care residents and enable a nationally consistent application of clinical practice in residential aged care facilities.

Key objectives include:

- improvements in clinical care of residents
- opportunities for aged care clinicians to develop and enhance their knowledge and skills
- support staff to access and use the best available evidence in everyday practice
- clearer industry focus on improvements to clinical care
- wide dissemination of proven best practice in clinical care
- development of national clinical and educational resources and evidence summaries that support evidence-based practice in aged care and are able to guide the development of accreditation standards
- building consumer confidence in the aged care facilities involved in the EBPRAC Program.

1.1.5 Better Oral Health in Residential Care Project

In 2007, a three-state consortium (South Australia, Victoria and New South Wales) was successful in attracting funding for a two-year project as part of the Australian Government Department of Health and Ageing EBPRAC Program. This Project was called Better Oral Health in Residential Care.

The consortium for Better Oral Health in Residential Care was led by the South Australian Dental Service and joined by the public dental providers in New South Wales and Victoria, Australian Research Centre for Population Oral Health (ARCPOH) of The University of Adelaide and six diverse aged care facilities in the three states. The residential aged care homes were:

- Helping Hand—Parafield Gardens in Adelaide, South Australia
- Kara at Newcastle, New South Wales
• Resthaven—Craigmore in Adelaide, South Australia
• Sheridan at Kyabram, Victoria
• Tanunda Lutheran Home in the Barossa Valley, South Australia
• Umoona at Coober Pedy, South Australia.

Project Aim
The Project aimed to develop an evidence-based, oral health practice model for people in residential aged care facilities that utilised a portfolio of resources, including new educational resources and the existing Oral Health Assessment Toolkit for GPs.

Project Objectives
The Project objectives were to:

• widen the implementation of the Oral Health Assessment Toolkit for GPs, which was developed and trialled in South Australia
• demonstrate that the Oral Health Assessment Toolkit for GPs can be used by other health professionals, such as registered nurses (RNs)
• evaluate the impact of implementing the Oral Health Assessment Toolkit for GPs on oral health care planning within residential aged care facilities
• improve access to information about oral health products and interventions for GPs, RNs and care workers
• develop and evaluate a sustainable national oral health education program for nursing staff and care workers
• provide a national and sustainable framework and pathway for GP referral for dental care when necessary
• raise the profile of oral health and its interaction with general health within the residential aged care sector.

The main emphasis of the objectives was to translate evidence-based research into daily practice—in other words, connecting what we know to what we do.

Bob

Bob’s intellectual disability meant that he was not always reliable about his oral hygiene. His care workers noticed his smelly breath and, on inspection, saw that he had severe tooth decay. A visit to a city dental hospital was organised for work to be done to rectify the situation. Because Bob had a dental phobia and would become extremely agitated, he would need a general anaesthetic so that extractions and a scale and clean could be done.

A week before the trip, the clinic wanted to defer Bob’s appointment because of what they called a ‘high priority case’. However, the clinical manager of Bob’s facility successfully pushed for Bob to retain his appointment because he was also a ‘high priority case’.

Bob returned from his city visit with clean teeth and only a couple of extractions. For several months, he would show anyone who stood still enough his ‘lovely’ teeth. However, this did not last because his teeth started to lose their brilliance and his smelly breath returned. Staff did not know what more they could do to maintain Bob’s oral health.
1.2 Literature Review

1.2.1 Evidence-based Oral Health Care

A comprehensive literature review of oral hygiene care for residents, including those with dementia, in aged care facilities was published by Pearson and Chalmers in 2004.\(^{18}\)

Recommendations from the literature review, including grades of effectiveness developed by the Joanna Briggs Institute, are presented in Table 1.

Table 1: Oral Health Care Recommendations from the Pearson and Chalmers Literature Review\(^{19}\)

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<th>Oral Health Care Recommendations</th>
<th>Grade</th>
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<tr>
<td>Regular toothbrushing with fluoride toothpaste.</td>
<td>A: effectiveness established to a degree that merits application</td>
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<tr>
<td>Drinking and use of fluoridated water with cooking etc.</td>
<td>A: effectiveness established to a degree that merits application</td>
</tr>
<tr>
<td>Application of therapeutic fluoride as an extra strength 5000ppm toothpaste, a mouth rinse (in spray bottle) or gel.</td>
<td>B: effectiveness established to a degree that suggests application</td>
</tr>
<tr>
<td>Reducing intake and frequency of sugar consumption.</td>
<td>A: effectiveness established to a degree that merits application</td>
</tr>
<tr>
<td>Regular dental check up and professional cleaning.</td>
<td>A: effectiveness established to a degree that merits application</td>
</tr>
<tr>
<td>Provision of hand-on oral health training programs for nursing and care staff to improve oral hygiene care provision to residents in residential aged care facilities.</td>
<td>B: effectiveness established to a degree that suggests application</td>
</tr>
<tr>
<td>Use of antimicrobial chlorhexidine gluconate gel or mouth rinse/spray.</td>
<td>B: effectiveness established to a degree that suggests application</td>
</tr>
<tr>
<td>Use of saliva substitutes or regular chewing of sugarless gum where appropriate to reduce dry mouth (xerostomia).</td>
<td>B: effectiveness established to a degree that suggests application</td>
</tr>
<tr>
<td>Regular physical cleaning of dentures, naming of dentures and removal of dentures at night.</td>
<td>B: effectiveness established to a degree that suggests application</td>
</tr>
<tr>
<td>Use of mouth props and modified dental equipment (such as backward bent toothbrush) to help with stabilising the jaw, brake chewing or biting reflexes, improving mouth access.</td>
<td>C: effectiveness established to a degree that warrants consideration of applying findings</td>
</tr>
<tr>
<td>Staff to conduct a dental screening assessment and/or completion of a dental examination by a dentist upon resident’s admission to facility and regularly thereafter.</td>
<td>B: effectiveness established to a degree that suggests application</td>
</tr>
<tr>
<td>Improved relationships between dental professionals and residential care facility staff to ensure the dental team becomes part of the residential care team.</td>
<td>C: effectiveness established to a degree that warrants consideration of applying findings</td>
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<td>Development of specially trained individuals in residential care who are responsible for dental issues such as residents’ oral assessments, monitoring the provision of regular oral hygiene care, staff training in oral health issues and organising dental appointments.</td>
<td>C: effectiveness established to a degree that warrants consideration of applying findings</td>
</tr>
</tbody>
</table>
1.2.2 Oral Health Assessment Screening

Early oral health evaluation and monitoring by non-dental health professions is recommended. Oral epidemiological findings, research findings and clinicians’ observations concur that older people, particularly those with dementia, are at high risk of developing complex oral disease and conditions. The latest Australian National Survey of Adult Oral Health (2004–2006) verifies this. Residents with dementia are compromised by their inability to reliably report their experience of oral health problems and dental pain.

Oral health assessment by non-dental health professionals does not replace a comprehensive examination by a dentist. It is primarily a screening tool to:

- monitor residents’ oral health
- inform oral health care planning
- evaluate oral hygiene interventions
- trigger a dental referral when required.

At the time of the Pearson and Chalmers literature review, there was one validated oral health assessment tool published for non-dental health professionals for use in residential aged care facilities. This was the Brief Oral Health Status Examination (BOHSE) developed in 1995 by Kayser-Jones, Bird, Paul, Long and Schell in 1995. This tool was modified, tested and validated in the Oral Health Assessment Toolkit for GPs project in 2005. Further testing and validation for use by RNs in the residential aged care setting occurred during the Better Oral Health in Residential Care Project in 2007–2009.

1.2.3 Interrelationship between Oral Health and General Health

There is consensus in the literature about oral health being integral to a resident’s general health. Published evidence links aspiration pneumonia with poor oral hygiene practices on natural teeth and dentures. Links between gum (periodontal) disease and systemic conditions such as cardiovascular and cerebrovascular diseases are strongly indicated. In other words, poor oral health may increase a resident’s risk of chest infections, heart attack and/or stroke. Furthermore, chronic infection from poor oral health compromises the immune system and complicates the management of many general illnesses, such as diabetes.

1.2.4 Primary Oral Health Care

Because residents are at high risk of poor oral health, researchers and clinicians agree targeted oral health care must be implemented to improve the residents’ oral status and protect against further deterioration of oral diseases and conditions. Instead of a traditional surgical approach to dental management, primary oral health care with a focus on quality of life issues is the best approach for residents in aged care facilities.
Contemporary minimal intervention dentistry (MID) aims to control oral disease by:

- risk assessment
- early detection and prevention
- external and internal remineralisation (fluoride therapy)
- surgical intervention only when required.²⁷

Minimal intervention dentistry encourages the use of preventative dental products such as high fluoride toothpaste and antibacterial products. These products can be incorporated easily into daily oral hygiene care regimens and improve a resident’s quality of care. Primary oral health care is based on a multidisciplinary care model which identifies responsibilities for key processes involved in maintaining oral health care of residents.²⁸

The three key oral health care components identified by Pearson and Chalmers were:

- oral health assessment
- oral hygiene care
- dental treatment.²⁹

Table 2 presents an example of a primary oral health care framework for residents in aged care facilities. It is based on the principles of the Ottawa Charter, launched by the World Health Organisation in 1968 at the first international conference for health promotion.
Table 2: Primary Oral Health Care Framework for Functionally Dependent Residents in Aged Care Facilities

<table>
<thead>
<tr>
<th>Principles of the Ottawa Charter</th>
<th>Primary Oral Health Strategies for Residents in Aged Care Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build healthy public policy</td>
<td>• Australian Government enforcement of oral health standards</td>
</tr>
<tr>
<td></td>
<td>• residential aged care facility oral health policies and</td>
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<tr>
<td></td>
<td>procedures</td>
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<td></td>
<td>• regular oral health assessment</td>
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<td></td>
<td>• oral health screening on admission to residential age care</td>
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<tr>
<td></td>
<td>• resources for oral hygiene care and dental treatment</td>
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<tr>
<td></td>
<td>• targeting of at-risk residents</td>
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<tr>
<td></td>
<td>• networks between residential aged care facilities and dental professionals</td>
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<tr>
<td></td>
<td>• support for geriatric dentistry teaching and research</td>
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<tr>
<td></td>
<td>• advocacy from community groups</td>
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<tr>
<td>Create supportive environments</td>
<td>• multidisciplinary involvement</td>
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<tr>
<td></td>
<td>• incorporation of dental team into the residential aged care environment</td>
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<tr>
<td></td>
<td>• increase fluoride sources</td>
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<tr>
<td></td>
<td>• increase use of antibacterial agents as appropriate</td>
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<tr>
<td></td>
<td>• oral hygiene care aids</td>
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<td></td>
<td>• addressing issues of nutrition, medication oral adverse</td>
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<td></td>
<td>effects, and swallowing problems</td>
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<tr>
<td></td>
<td>• funding mechanisms to support dental visits to residential aged care facilities</td>
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<tr>
<td></td>
<td>• increase oral health promotion networks to improve access to information for residents and their families, agencies, and residential aged care facilities</td>
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<tr>
<td></td>
<td>• use older community peers in geriatric oral health</td>
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<tr>
<td></td>
<td>promotion activities</td>
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<tr>
<td></td>
<td>• geriatric dentistry directories for the community</td>
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<td></td>
<td>• dissemination of oral health information to community</td>
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<tr>
<td></td>
<td>groups</td>
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<tr>
<td>Develop personal skills</td>
<td>• improve undergraduate, postgraduate and continuing education in geriatric dentistry for dental and non-dental health professionals</td>
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<tr>
<td></td>
<td>• ongoing practical ‘hands-on’ oral health education and</td>
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<td></td>
<td>training and support for residential aged care staff</td>
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<td></td>
<td>• addressing issues of a resident’s dementia and changed</td>
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<td></td>
<td>behaviours and communication problems</td>
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<tr>
<td>Re-orient health services</td>
<td>• use of dental team in residential aged care facilities</td>
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<tr>
<td></td>
<td>• increased domiciliary dental services—public or private</td>
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<td></td>
<td>• increased access to portable dental equipment</td>
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<td></td>
<td>• provision of a range of dental treatment</td>
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<td>• provision of multi-purpose treatment rooms suitable for</td>
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<td></td>
<td>dentists’ use in the residential aged care facility</td>
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<td></td>
<td>• focus on primary oral health care strategies</td>
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<td></td>
<td>• development of professional associations in geriatric dentistry and dental specialty in Geriatric Dentistry/Special Needs Dentistry</td>
</tr>
</tbody>
</table>
1.2.5 Oral Health Care Education and Training

Recommendations from the Pearson and Chalmers literature review included a structured modular education and training program for aged care staff. A comprehensive and practically orientated program rather than a traditional theoretical in-service session was preferred.

Oral health education and training for aged care staff should include:
- information about oral diseases
- oral screening assessment techniques
- hands-on demonstration of oral hygiene techniques and oral health products
- addressing oral hygiene care problems, such as residents refusing oral hygiene, residents not opening their mouths, staff not being able to access the resident’s mouth or dentures, and residents biting the toothbrush.31

It is recognised that passive dissemination of information in the form of lectures or printed materials rarely influences behaviour. Research has shown that education delivered in a participative way is more likely to change behaviour.32

Dental collaborations were also advocated. The regular presence of dental professionals on-site is encouraged so that the dental team can integrate into the workplace—with residents as well as with staff. The identification of a staff member as an oral health champion was recommended.33

Nursing variables such as experience, knowledge and skill level affect the quality of oral health care provided. Barriers and difficulties related to the provision of oral care for residents have been identified in the literature. They fall into three main categories: practical issues, information and training, and psychological barriers.34

Oral care is primarily the responsibility of aged care staff who often have little or no formal training in oral health care. As an activity of daily living (ADL), oral care is often considered an unpleasant task. It is perceived as easy to delegate, burdensome and undesirable. Even though residents may have significant oral care needs, aged care staff, when under time constraints, give oral care less priority than the more obvious areas of washing, dressing, toileting and feeding.35

It is acknowledged aged care staff require education and training to help them to understand oral care is as fundamental to aged care nursing as is restraint reduction and skin care practices. Similarly, residents and their families are often unaware of the implications of poor oral health and should be informed of the interrelationship between oral health and general health.36
1.3 The Nature of the Change in Practice

The work of the Project was to translate evidence-based oral health research into daily practice.

The nature of the change was to ensure:

- aged care staff appreciated the relationship between oral health and general health and the impact this has on residents' quality of life and wellbeing
- a primary oral health approach is used to improve residents’ comfort, wellbeing and quality of life
- maintaining residents’ oral health is a multidisciplinary responsibility.

Simple key messages were formulated to reinforce the change processes:

- A healthy mouth will improve overall health and wellbeing—Good oral health is essential for healthy ageing
- Six of the best ways to maintain a healthy mouth—Protect your residents’ oral health
- It takes a team approach to maintain a healthy mouth—Work together to protect your residents’ oral health.

1.3.1 Protective Oral Hygiene Care Regimen

The framework for implementing change in oral health practice is based on a protective oral hygiene care regimen. The regimen takes into account residents’ changed behaviours and palliative care considerations.

High Fluoride Toothpaste to Strengthen Teeth

Fluoride is the preferred chemical agent for strengthening (remineralising) teeth and creating a surface resistant to decay. It can be easily applied as a toothpaste directly onto teeth when toothbrushing. The practice of ‘spit but do not rinse the mouth after brushing’ allows fluoride to effectively soak into the teeth.  

High strength 5000ppm fluoride toothpaste (for example, Colgate Neutraflor 5000) can be used safely and therapeutically to protect against tooth decay in natural teeth. As only a pea size amount is required, the risk of fluoride toxicity is minimised. Fluoride poisoning is
possible only if more than one tube of 5000ppm toothpaste, or more than the contents of one mouthwash bottle, is ingested at one time.\textsuperscript{39}

**Brushing**

Brushing twice a day is the most economical and effective physical method to remove and control dental plaque. A good brushing technique is necessary for successful removal of dental plaque from gums, tongue, natural teeth and dentures.

For brushing natural teeth:

- A manual toothbrush is an effective and economical tool for oral hygiene.
- A soft toothbrush is recommended as it is gentle on oral tissues.
- Toothbrushes that can be modified are particularly useful for care workers to enable access to residents’ mouths.
- Specially designed manual toothbrushes (for example, Collis Curve) and electric or battery toothbrushes may be easier for either a resident or aged care worker to manipulate but cost and maintenance are a consideration.
- For some residents, particularly those with dementia, use of a vibrating brush can be a problem.
- Oral swabs are useful for applying therapeutic products but do not effectively remove plaque and debris from tooth surfaces.\textsuperscript{40}

---

**Pat**

*Pat, at 90 years, had outlived her husband and then her daughter. Pat was unable to continue living on her own because of multiple health problems so she moved into a hostel.*

*On admission, she was diagnosed with dementia and also assessed by an RN for oral health care. Pat was suffering severe pain from inflamed gums and mouth ulcers. Her dentures were too loose and had no name label. The RN also noticed that Pat’s clothes were loose-fitting, indicating recent weight loss—she weighed just 40 kilograms.*

*Pat was visited by a dentist and a GP, and an oral care plan was prepared by the RN. The plan noted that two main problems needed to be addressed: Pat’s reduced ability to reliably maintain her own oral health, and the potential for Pat’s oral health to become worse because of the pain caused by the gum inflammation, ulcers and loose dentures moving around in her mouth.*

*Staff began a meticulous program of denture and oral care that included application of Curasept Gel ADS 350, brushing of gums and tongue, and disinfection of dentures. Pat also was seen by a specialist gerontological and disability dentist who referred her to a dental technician for new dentures.*

*Pat is now free of pain and infection and has gained some weight. She is much happier and even looks forward to her oral care.*

Residents who wear dentures are at high risk of developing fungal infections such as denture stomatitis. Oral fungal infections can be attributed to the wearing of dentures overnight, poor cleanliness of dentures, denture plaque, the permeability of acrylic denture resin, diet, and pre-existing general health factors such as diabetes.\textsuperscript{41}
For brushing dentures:

- Dentures can be brushed using mild soap and water.
- Denture brushes are designed specifically to clean dentures. Alternatively, and if appropriate, a small scrubbing brush can be used.
- Good brushing technique and correct handling of dentures are necessary to minimise damage to dentures.
- If brushing with soap is unacceptable to the resident, a denture toothpaste can be used. However, toothpastes used for natural teeth should be avoided as they can be abrasive and over time scratch the denture. A scratched denture can be a source of irritation and increase the risk of oral infections.
- Dentures should be taken out overnight to rest gums.
- Cleaned dentures should be stored overnight in a sealed container of clean water.
- Dentures should be permanently labelled with the resident’s name. Ideally, this should be done when the denture is made. A temporary marking procedure is recommended until a permanent method can be used.

Brushing is an effective way to clean dentures but it does not disinfect. A systematic review of denture disinfection is underway by The Cochrane Collaboration with results pending.

For denture disinfection:

- Weekly disinfection is recommended.
- Dentures must be brushed clean, before being disinfected.
- When a resident is being treated for an oral fungal infection, dentures require more frequent disinfection to prevent re-infection.
- Full dentures can be soaked in a denture solution containing bleach, such as sodium hypochlorite (for example, Milton’s Solution).
- Partial dentures with metal parts can be soaked in chlorhexidine, because sodium hypochlorite may cause the metal components to corrode.
- Chlorhexidine can be used to disinfect both full and partial dentures.
- Denture tablets are a popular method of disinfection but the product must state that it is suitable for partial dentures with metal parts.
- Denture tablets containing persulfates have the potential to cause severe allergic reactions. Persulfates are used in most denture cleaners as part of the cleaning and bleaching process.

Prevention of Gum Disease

Dental plaque can lead to gum inflammation (gingivitis) which contributes to gum (periodontal) disease. Chlorhexidine has demonstrated clinical superiority as an antibacterial agent in oral care and its safety has been extensively tested. Chlorhexidine’s effect differs at different concentrations. At low concentrations such as 0.12%, chlorhexidine can be used to reduce the growth of bacteria (bacteriostatic). At high concentrations, it kills bacteria (bactericidal) and is used to treat oral infections. Application of a chlorhexidine gel is more effective than using a chlorhexidine mouthwash.

Chlorhexidine may cause brown staining on teeth or dentures. The product of choice for residents is one that is alcohol free and has a non-teeth staining formula (for example, Curasept). In addition, chlorhexidine can potentially interact with fluoride, especially with toothpastes containing sodium lauryl sulphate. It is recommended they be applied at separate times. For example, chlorhexidine can be applied after lunch, and fluoride in the morning and evening.
Some antibacterial products used for oral care are controversial:

- Hydrogen peroxide has antibacterial properties and permits mechanical cleansing but evidence suggests it harms oral tissue. There is limited evidence with regard to the value of oxygenating agents like hydrogen peroxide in suppressing plaque formation.
- Sodium bicarbonate dissolves mucus and oral debris but has an unpleasant taste and can cause oral tissue damage and irritation if not diluted properly.
- Lemon and glycerine swabs, which have been used extensively in nursing, are ineffective and can be harmful. Lemon reduces the oral pH to 2–4, below the normal which is pH 6–7. Acid conditions can irritate the mouth, cause pain, decalcify teeth, and increase the risk of decay. Lemon may overstimulate and exhaust the salivary glands. Glycerine dehydrates oral tissue and often increases the sensation of a dry mouth.\(^{47}\)

Relief of Dry Mouth (Xerostomia)

Reduced saliva causes the condition of dry mouth (xerostomia). It is a common and uncomfortable condition for residents. Many of the medications taken by residents contribute to dry mouth. In addition, some oral care product ingredients, in particular alcohol, dehydrate the mouth and damage oral tissue.

Natural saliva has antibacterial properties. In the absence of adequate saliva, oral diseases and infection can develop quickly. Published evidence links dry mouth with increased risk of aspiration pneumonia. Saliva substitutes and stimulants are recommended for relief of dry mouth. A variety of clinically proven dry mouth products are available\(^{46}\) (for example, Hamilton Aquae mouth spray, Oral Balance gel or liquid and GC Dry Mouth gel). Studies suggest saliva substitutes are underused in residential aged care. Keeping the mouth moist by frequent sipping of water and reducing the intake of caffeine drinks are useful strategies. Saliva production can also be stimulated by sugar free lollies or, if appropriate, chewing gum.\(^{49}\)

Reduce Tooth Decay

There is abundant evidence to advocate the use of dietary sugar substitutes and the restriction of length and frequency of sugar exposure in older people. The ‘tooth friendly’ symbol identifies dietary sugar substitute products. The dietary substitute recommended by dentists is xylitol. Sugar intake, not only from food but also from medications, should be monitored.\(^{50}\)

Oral Health Care and Changed Behaviours

Residents, especially those with dementia, can behave in ways that makes it difficult for aged care staff to provide oral health care.\(^{51}\)

Changed behaviours include:

- fear of being touched
- not opening the mouth
- not understanding or responding to directions
- biting the toothbrush
- grabbing or hitting out.\(^{52}\)

Recommended strategies for managing changed behaviours include:

- using effective verbal and non-verbal communication
- using behavioural intervention techniques such as bridging, chaining, hand-over-hand, distraction and rescuing
• improving access to a resident's mouth by stimulating the 'root reflex' through stroking the resident's cheek in the direction of the mouth
• using modified oral hygiene aids such as a backward bent toothbrush
• modifying oral care application techniques; for example, using short-term alternatives to brushing, such as spray bottles.

Palliative Care Considerations
Contemporary minimal intervention dentistry for residents in aged care has its focus on quality of life and treatment to relieve symptoms rather than curing disease. This approach coincides with the aims of palliative care.

The protective oral hygiene care regimen aims to maintain the best possible oral health and provide comfort to the resident. This regimen and additional treatments as prescribed by a GP and/or a dentist can be implemented to the end of life. At the end stages, modified oral hygiene aids and modified oral care application techniques can help aged care staff to maintain a resident's oral comfort.

Oral swabs are frequently used in palliative care. They are useful for applying products to treat oral infection. Gentle brushing with a soft or very soft brush, with aged care staff using a backward bent toothbrush to access the mouth, may be more effective than swabs at removing dental plaque. Traditionally, pineapple is used for cleansing the mouth. However, if that level of oral tolerance is present, a more effective way of removing dental plaque is gentle brushing of teeth, gums and tongue.

Discomfort from dry mouth is common at the end stages of life. Dry mouth products are more therapeutic than moistened swabs to hydrate the mouth. Solutions or substances with a pH lower than 5.5 (acid condition) are not recommended as they can irritate the mouth and cause pain. Similarly, citric substances such as lemon may overstimulate and exhaust salivary glands and increase the sensation of dry mouth. Products with alcohol as an ingredient should be avoided as they can also contribute to dry mouth and damage oral tissue.

Daisy
Daisy spent the last three years of her life at a residential aged care facility. She was 83 years old and very frail with late stage Alzheimer's disease. Her chronic mouth ulcers and fungal mouth infections had been treated several times.

Her oral health was judged to be only fair by the RN doing the oral health assessment. Daisy had no teeth, a large painful mouth ulcer, a dry mouth most probably from her medications and constant repetitive talking, and had not worn her dentures for a long time.

Standard protective oral care products were introduced and Daisy’s care plan revised to include twice daily brushing of her oral mucosa, a daily application of chlorhexidine gel, and application of Oral Balance gel to maintain her mouth in a moist condition.

Staff were able to maintain Daisy’s oral health in her last months, without a reoccurrence of mouth ulcers or fungal infection. She accepted the need for oral care and cooperated well, especially when the dry mouth product was applied. She would open her mouth and poke out her tongue in eager anticipation. Even her constant verbalising lessened.
1.4 Context

1.4.1 The Australian Government Accreditation Standards and Guidelines for Residential Aged Care Services

‘Oral and dental care’ is identified as expected outcome 2.15 in the Australian Government’s Accreditation Standards and Guidelines for Residential Aged Care Services.

The expected outcome is that residents’ oral health and dental health are maintained and that policies and practices provide:

- that residents’ oral health is assessed, documented and regularly reviewed and acted upon
- the residents with timely access to treatment for oral and dental conditions
- appropriate procedures for oral and dental care in accordance with the residents’ needs and preferences.

Although the current government Accreditation Standards and Guidelines for Residential Aged Care Services include access to oral health, educational resources and tools to assist aged care staff to achieve these standards were limited and not nationally consistent.

1.4.2 Residential Aged Care Facilities

The residential aged care facilities involved in the Project fulfilled a broad range of criteria with which to develop, test and validate resources. The facilities included outer metropolitan, regional, rural and remote locations.

Helping Hand—Parafield Gardens

Helping Hand—Parafield Gardens is a long-established 100 bed facility in the northern suburbs of Adelaide, providing for high and low care residents, a secure area for memory loss residents, and some respite care. It is near the local primary and high schools and draws on them to promote interaction between the young and the aged. People of Asian heritage are also encouraged to use its facilities so that there is a sharing of knowledge with staff who can use it to help residents. Staff are supported by a large group of volunteers who provide residents with activities and entertainment.

It is run by Helping Hand Aged Care which is a not-for-profit Uniting Church affiliated organisation that has been providing care for older South Australians since 1953, with eight aged care facilities.

Kara Centre for Aged Care

Kara Centre for Aged Care is located in Mayfield in suburban Newcastle. It was built in 1968 by Baptist Community Services, New South Wales and Australian Capital Territory—one of the largest providers of residential aged care in NSW and the ACT, with more than 20 residential aged care facilities. Kara caters for 50 high level care and 26 low level care beds, including 2 respite beds. The facility has a multicultural staff who are involved in continuing training and education. Nurse educators are available to the facility for 8 hours a week. Some contract care workers are second year nursing students from the University of Newcastle. An independent clinical nurse practitioner is also available.

Resthaven—Craigmore

Resthaven Inc., established in 1935, is a public benevolent aged care community service of the Uniting Church of Australia. There are nine residential aged care facilities across South Australia, all operating in a similar fashion. Resthaven—Craigmore in outer metropolitan...
Adelaide was opened in 2004. It accommodates 44 high and 43 low level care residents, including respite places. Most rooms are single and have en suite bathrooms.

Sheridan
Sheridan, located in the northern Victorian country town of Kyabram, has developed over many years to become a 42 bed high care facility, including one dementia-specific respite bed. It is part of the Kyabram and District Health Services which provide medical and administrative support. Staff are all Registered Nurses Division 1 and 2.

Recent upgrades have resulted in mainly single rooms with en suites and improved landscaping with some outdoor areas under shade sails.

Tanunda Lutheran Home
Tanunda Lutheran Home is in the Barossa Valley, South Australia. Over the 57 years of its existence, it has developed into a 110 bed aged care facility that includes a hostel, high care areas, and a dementia wing. It is staffed by registered and enrolled nurses and care workers. A day centre operates five days a week with an activity program catering for all residents. Worship services are held weekly and more often during special times of the year.

Umoona Aged Care Aboriginal Corporation
The Umoona Aged Care Aboriginal Corporation (UACAC) runs the Aged Care Program in outback Coober Pedy for residents and aged day care. The 12 residents are all Aboriginal and come from Coober Pedy and surrounding areas including Anangu Pitjantjatjara Yankunytjatjara (APY) Lands.

The program stays flexible, responds to community wishes and preferences and involves elders, clients and the general community in every aspect of planning and delivering services.

The Residential Care Facility is close to the Coober Pedy Hospital and has a good working relationship with it. Access to its facilities and medical support is integral to the facility’s operation.
2 Methods

2.1 Model for Change

2.1.1 Development of the Better Oral Health in Residential Care Model

A major advance during the development of the Better Oral Health in Residential Care Model was the recognition and emphasis on four key processes. Pearson and Chalmers had previously described three key components. A strategy identified in the National Oral Health Plan was the development of simple but practical oral health care plans. Consequently, oral health care planning was identified as a fourth key process, along with oral health assessment, daily oral hygiene, and dental treatment.

In addition to the recognition of four separate key processes was the clearer identification and delineation of responsibilities for those processes. This resulted from understanding the roles and abilities of the diverse staff groups involved in delivering care within the residential aged care sector. For example, registered nurses (RNs) are responsible and accountable for care planning. Since the oral health assessment informs the care plan, by inference RNs are professionally positioned to do oral health assessments. Care workers deliver direct care under instruction, and cannot sign off on a care plan, but are well placed to report to an RN if they notice any abnormalities whilst they are providing care.

Figure 1: Flowchart Showing the Better Oral Health in Residential Care Model
The Better Oral Health in Residential Care Model is essentially a team approach with GPs, RNs, care workers and dental professionals having responsibilities for one or more of four key processes: assessment, care planning, oral hygiene and dental treatment.

- Oral health assessment can be undertaken by GPs and RNs using the Oral Health Assessment Toolkit.
- Oral health care planning is primarily undertaken by RNs with GPs and dental professionals possibly contributing.
- Daily oral hygiene is primarily undertaken by care workers.
- Dental treatment is undertaken by dental professionals, which includes dentists, dental hygienists, and dental technicians (known in some states/territories as prosthetists).

Aged care organisational management backing and the availability of public or private dental services are both essential to ensure successful implementation of the Model.

The Oral Health Assessment Toolkit developed in 2005 was designed to be integrated into the Medicare funded Comprehensive Medical Assessment. This ensured a funding mechanism for GPs to undertake oral health assessment, because GPs work on a fee for service basis. In contrast, RNs are employed on a salary funded basis within residential aged care, and oral health assessments can be integrated easily with other general health assessments. The Project planned to have 50 per cent of the assessments undertaken by GPs and 50 per cent undertaken by RNs.

GPs and RNs need to understand the oral health assessment process and have enough knowledge to develop oral care plans. It was important to make the process easy and straightforward for GPs and RNs. There had been a tendency for many staff in residential aged care to regard oral health as the dental sector’s responsibility. Changing that perception and spreading ‘ownership’ through a team approach is a fundamental component of the Better Oral Health in Residential Care Model.

2.2 Stakeholder Engagement

2.2.1 Residents

The Project’s aim was focused on providing better oral health outcomes for residents in Australian residential aged care facilities. Consequently, the residents themselves were the most important stakeholders. At all times, the focus from all other stakeholders was the outcomes for residents.

Ethics approval required residents to consent to be part of the Project. The Project Liaison Officers in each aged care facility approached residents and their families to request consent for participation.

2.2.2 Residential Aged Care Facility Staff

Staff of the residential aged care facilities with direct involvement in the care of residents (that is, RNs, enrolled nurses (ENs) and care workers) were also required by the ethics approval process to consent to participate in the Project.

An information session was held at each aged care facility for RNs prior to Stage Two Implementation. At this information session they were each given a copy of the self-directed
learning package: Oral Health Assessment Toolkit. The accompanying video of the oral health assessment was shown at the information session but no other instruction was given.

2.2.3 Residential Aged Care Facility Management

Managers of the residential aged care facilities first knew of the Project prior to the application for grant funding when they were approached to be part of the consortium. At that time, they were asked to provide a letter committing to the Project, which was included in the application. Once the application was successful, the lead organisation, the South Australian Dental Service, formalised this arrangement with each consortium member with a legal agreement.

2.2.4 Public Dental Providers

At a meeting in 2006 of public dental providers, it was agreed that, if an opportunity became available to further develop the oral health assessment model, the South Australian Dental Service would take the lead.

The other public dental providers in the consortium were the New South Wales state government (Hunter New England Health through the Centre for Oral Health Strategy) and the Victorian state government (though the Department of Human Services). Other state/territory public dental providers were kept informed about the project by the Executive Director of the South Australian Dental Service through the regular meetings held by Australian public dental providers.

2.2.5 Private Dental Providers

Private dental providers were engaged through their professional body, the Australian Dental Association. Their representative, Dr Karin Alexander, was on the Australian Dental Association’s Federal Council as well as delivering the dental treatment at one of the consortium’s aged care facilities, Tanunda Lutheran Home.

**Molly**

*Molly had entered a residential aged care facility with dentures that didn’t fit. When they were made, the dental technician had told her that ‘you’ll grow into them’ after she had complained about the poor fit. Despite this, Molly tolerated them well—so well, in fact, that she did not want to remove them at night. Consequently, an oral health assessment found that she had mouth ulcers.*

*A local special-needs dentist visited Molly and organised a new set of dentures and treatment for her mouth ulcers.*

*In four months, Molly gained 4 kilograms, proving that her badly fitting dentures and subsequent oral pain had been a major factor in her overall health and wellbeing.*
2.2.6 Project Team Members

Only the three full-time members of the team were based in the Project’s office in North Adelaide, South Australia: the Project Director, the Project Manager, and an Assistant Project Officer. All the other team members were part-time and located elsewhere. There was a half-time Project Officer in the Department of Human Services, Victoria and with Hunter New England Health, Newcastle, representing the Centre for Oral Health Strategy, New South Wales. In each aged care facility, a senior nursing staff member was selected as a Project Liaison Officer to work an average of one day per week supporting the Project activities. In four facilities this was an RN and in two facilities the position was held by an EN.

Team members in all cases were selected by their respective employing organisations. The team members were brought together initially for the first compulsory EBPRAC Program meeting in Canberra in December 2007. The team assembled in Canberra the day before this meeting for the first Project team meeting. This pattern was repeated at every compulsory EBPRAC Program meeting. Following this, further team meetings were held in Adelaide in March and May 2008, Melbourne in July 2008, Adelaide in December 2008, Sydney in March 2009, and a final team meeting in Adelaide in September 2009. (The Melbourne and Sydney meetings were prior to compulsory EBPRAC Program meetings.)

Realising the challenges of managing a diverse and scattered team, the Project Director engaged an organisational psychologist to facilitate the Adelaide meeting in March 2008. The Project team was guided through team building and communication issues. At that meeting, a staff member from the South Australian Dental Service taught presenting skills, as part of a ‘train the trainer’ approach. None of the Project Liaison Officers had had any previous experience with delivering training courses.

Regular e-mails and personal telephone calls were used for communicating and engaging with team members throughout the Project.

2.2.7 Expert Consultants

It was planned that Dr Jane Chalmers would be an expert dental consultant. Unfortunately, Dr Chalmers was too ill to participate during the Project and died in late 2008. Since the Project was implementing much of her research, the resources developed were dedicated to her memory, with her family’s permission.

Expert special needs dentist, Dr Peter King, who is based in Newcastle, New South Wales, was actively involved in resource development. His DVD Dental Rescue is incorporated into the first module of the education and training program.

South Australian Dental Service dentists and nurse educators from four of the consortium members were instrumental in the development of the oral care plan example for inclusion in the Oral Health Care Planning Guidelines section of the Professional Portfolio.

2.2.8 General Practitioners

Project Liaison Officers were asked to provide a list of GPs who visited their aged care facility. Personalised letters were sent to the GPs outlining the Project and asking them to do oral health assessments on some or all of their patients who were residents. Those who responded were invited to an information session, similar to the one for RNs. All except one of the GPs who attended agreed to do oral health assessments.
2.3 Partnerships

2.3.1 Consortium

Partnerships were formalised in 2006 with the establishment of the Consortium for Better Oral Health in Residential Care.

The benefits of this partnership approach were:
- collaborative development of the Better Oral Health in Residential Care Model, education and training program and resource portfolios, ensuring a successful national approach for sustainability
- sustainability and general adaptability of the Project
- integration of oral health care and general health care
- policy development initiatives; for example, oral health assessment on admission to residential care
- primary health care focus
- comprehensive dissemination of information
- consideration of reorienting dental service delivery for people in residential care.

2.4 Governance

2.4.1 Steering Committee

To oversee the Project’s management, a high-level Steering Committee was established, including consortium representatives, to ensure Project outcomes were suitable for implementation by all aged care facilities and to provide ‘grass roots’ feedback. This Steering Committee created a powerful forum in which to bring together both government and non-government sectors.

The Steering Committee met every three months and received progress reports and evaluation reports, and considered risk management. The Steering Committee was responsible for reviewing and endorsing all Project plans and final Project recommendations which were prepared by the Project Director and Project Manager. Membership of the Steering Committee is summarised below.

National Bodies
- General medical practitioner representation
- Consumer representation (COTA)
- National Oral Health Promotion
- Aged Care Sector representation, the not-for-profit Aged and Community Services and the private Aged Care Association Australia
- Private Dental Sector representation, the Australian Dental Association

Consortium Members
- Lead: Central Northern Adelaide Health Service—South Australian Dental Service, South Australia
- Centre for Oral Health Strategy, New South Wales Health, New South Wales
- Department of Human Services, Victoria
- Australian Research Centre for Population Oral Health (ARCPOH), The University of Adelaide, South Australia
- Baptist Community Services, New South Wales and Australian Capital Territory
2.4.2 Governance by Department of Health and Ageing

Compulsory progress reports including a financial report were sent to the Department of Health and Ageing every six months. This final report and an audited financial report are due at Project completion.

2.5 Evaluation Methods

The Australian Research Centre for Population Oral Health (ARCPOH) of The University of Adelaide developed the overall Evaluation Plan for the Project, identifying goals, evaluation objectives and strategies for each Project objective. Ethics approval was sought from The University of Adelaide Human Ethics Committee and this was granted in June 2008.

The evaluation had two parts. A Dental Evaluation assessed the impact of the implementation of Better Oral Health in Residential Care Model on oral health care and residents’ oral health and was undertaken by the Australian Research Centre for Population Oral Health.

A complementary Nursing Evaluation by Dr Tony Fallon measured the change in knowledge of nurses and care workers following the education and training program and if changes in the use of evidence in practice were reflected in oral health care plans.

In addition, the Centre for Health Service Development at the University of Wollongong conducted the National Evaluation for the funding body (Australian Government Department of Health and Ageing), which included program sustainability and general adaptability from a national perspective. The Centre for Health Service Development will report separately to the Australian Government Department of Health and Ageing on the Centre’s findings of all the projects funded by the Encouraging Best Practice in Residential Aged Care (EBPRAC) Program.
3 Results

3.1 Process

3.1.1 Project Planning

The Project was planned in three stages, with the first stage of the Project being governance and Project planning. During this stage, the comprehensive Communication Plan was developed and implemented. GPs were approached and recruited to do, as close as possible, 50 per cent of the oral health assessments on consenting residents, with the rest to be conducted by RNs. All Project plans, resource development and the Evaluation Plan were endorsed by the Steering Committee, which met in Adelaide on a determined three monthly basis using teleconference facilities for interstate members. Ethics approval was sought and obtained from The University of Adelaide.

3.1.2 Model Development

The Project brought together an expert dental team (dentists, hygienists, therapists and dental assistants) and aged care staff (RNs, ENs, care workers and nurse educators) to discuss recommendations for the Better Oral Health in Residential Care Model and how to proceed with implementation.

Further recommendations were made in relation to the delivery of oral health care in the residential aged care setting.

3.1.3 Aged Care Practice Considerations

Safety Concerns

It was recommended that aged care staff should be cautioned never to place their fingers between the teeth of a resident. A ‘no finger’ approach to care was favoured to protect aged care staff from being bitten; for example:

- using a ‘pistol grip’ to manoeuvre and support the resident’s chin while at the same time using the thumb holding the chin to roll down the lower lip for better vision and access
- a backward bent toothbrush to retract the resident’s cheek, while another brush is used to clean the teeth
- a backward bent toothbrush to gently remove dentures
- using a toothbrush to apply gels inside the mouth
- spray bottles for antibacterial mouthwash
- no flossing or use of an Interdent (a three-sided tapered stick that looks like a toothpick).

Infection Control

There was an expectation from the dental sector that aged care staff should be gloved, gowned and wear eye protection when performing oral hygiene activities. Aged care sector staff disagreed with this level of standard precaution and recommended that the RN should be responsible for determining standard precautions following risk management assessment on the resident.
As an infection control measure, toothbrushes should be thoroughly rinsed and tapped to remove excess water, then stored in a dry place. They should be replaced with a new one:

- when bristles become shaggy
- with the change of seasons (that is, every three months)
- following a resident’s illness
- when a resident is being treated for an oral fungal infection (replace the toothbrush when the treatment starts and again when the treatment finishes).

To avoid confusion for aged care staff over choice of denture disinfection product for either full dentures or partial dentures with metal components, chlorhexidine was preferred. It can be used for both types of denture and it has proven to have a low allergy risk as compared to other products.

The use of spray bottles for spraying water to hydrate the mouth was not advised because it would be unlikely that aged care staff would know how long the water had been in the bottle and this could increase the risk of pseudomonas infection.

**Toothbrush Choice**

Soft toothbrushes (with handles suitable for bending) were recommended for brushing natural teeth as they are a more practical and a better economic choice than electric or battery toothbrushes. A denture brush was recommended for brushing dentures rather than a nail brush, which may be inadvertently used for other purposes in the aged care setting.

**Water-based Lip Moisturisers**

Petroleum-based lip moisturisers may increase the risk of inflammation and aspiration pneumonia and are contraindicated during oxygen therapy. To avoid confusion for aged care staff, water-based lip moisturisers were recommended.

### 3.1.4 Modification of the Oral Health Assessment Tool

The two-page Oral Health Assessment Tool, previously developed in 2005, was modified during the Project to become a one-page document. This was made possible with the removal of the care planning options and replacing them with the comprehensive oral health care planning guidelines developed as part of a suite of new resources.

The tool is used to assess eight categories of oral health. A ‘healthy’ or ‘changes’ assessment can be managed using the oral health care planning guidelines, whereas an ‘unhealthy’ assessment generally indicates the need for a dental referral for a more detailed dental examination and treatment.

It is recommended a resident should have an oral health assessment performed by a GP or RN on admission to the aged care facility and subsequently on a regular basis and as the need arises. This can be integrated easily into existing general health assessment protocols.

### 3.1.5 Education and Training Program

It was recognised that direct care nurses and care workers require education and training in common oral health conditions to be able to report oral abnormalities to the RN and have the skills necessary to undertake oral hygiene activities.

Aged care sector nurse educators acknowledged that many care workers did not have access to, or the skill required to engage in, on-line delivery or video conferencing.
Therefore, the options of flexible short workshops and ‘hands on’ training in the workplace were recommended. Being mindful of care workers’ level of education and culturally and linguistically diverse backgrounds, the designers of resources needed to make them visually engaging and easy to read. A ‘train the trainer’ model for the delivery of an oral health education and training program for aged care staff was recommended. The RN was identified as the most appropriate person to undertake the ‘train the trainer’ training due to his/her responsibility for oral health assessments and oral care plans, and his/her relationship with the aged care staff and the facility. In this way, the RN also becomes the oral health champion for the residential aged care facility, as recommended in the Pearson and Chalmers literature review. Importantly, this approach embeds oral health care capacity in the aged care facility setting.

3.1.6 Implementation

Stage Two of the Project was implementation in the residential aged care facilities. GPs and RNs conducted oral health assessments during a seven-week period commencing in mid-August 2008. Oral health care plans were developed by RNs as a result of the outcomes of the assessments. During September, October and November 2008, staff participated in the education and training modules which were conducted concurrently in the aged care facilities, except for Tanunda and Coober Pedy. The Directors of Care were provided with oral health product information.

Residents who were identified as needing dental care were given priority dental treatment in all three states. As part of their commitment to the Project, the public dental health providers in South Australia, Victoria and New South Wales agreed to provide or fund dental care. Evaluation activities occurred mostly during this stage.

Stage Three was evaluation and reporting. During this time, the Project team continued to monitor oral health activities in the aged care facilities. Other Project staff activities were wound down during this period. A final team meeting with the whole Project team was held in early September 2009 in Adelaide.

Joan

Joan’s troubles started when she had some surgery done for varicose veins. Complications resulted in an above knee amputation. She returned home after the amputation but her increasing confusion and physical difficulties made it very hard for her husband to cope. She was 83 and her husband was a couple of years older.

She entered a residential aged care facility and an oral health assessment was done. Joan had all her own teeth but two were broken, her tongue was coated, and she had plaque throughout.

A regular visiting dentist attended to two broken fillings, assessed the broken teeth and decided no intervention was required, and did a scale and clean. Joan was provided with an oral health care plan which included brushing teeth and gums twice a day with high fluoride toothpaste, brushing the tongue with a soft toothbrush, and applying Curasept antibacterial gel to the gums after lunch.

An RN did another oral health assessment to find that now Joan has a normal pink tongue and gums, no plaque and no dental pain. Her devoted husband who visits daily is as pleased as his wife.
3.2 New Resources Developed

A suite of three educational resource portfolios, accompanied by a series of posters, resident information and an oral health resource kit, were developed to support the key processes of the Better Oral Health in Residential Care Model.

The Professional Portfolio was developed for GPs and RNs as a self-directed learning resource supporting the key processes of oral health assessment, oral health care planning and dental treatment. It includes the modified Oral Health Assessment Tool.

An education and training program was developed to support the key process of daily oral hygiene. The program is designed to be delivered by RNs under a ‘train the trainer’ system. The program is only three hours in total. It can be delivered in three one-hour modules, in one longer session, or in multiple shorter sessions. A Facilitator’s Portfolio and an oral health resource kit were developed to support the RN trainer. A Staff Portfolio was compiled as a take-home resource for direct care nurses and care workers attending the education and training program. It is highly visual and easy to read.

3.2.1 Professional Portfolio

Figure 2: Cover of Professional Portfolio

Developed for GPs and RNs

**Oral Health Assessment Toolkit for Older People**
- Common oral health conditions experienced by residents
- Oral Health Assessment Tool
- Helpful hints
- CD-ROM with video demonstration of how to perform an oral health assessment, self-directed learning module, useful documents to download

**Oral Health Care Planning Guidelines**
- Protective oral care regimen
- Additional treatments as prescribed by GP or dentist
- Oral care and changed behaviours
- Palliative care considerations

**Dental Referral Protocol**
- Guidelines for a dental visit
- Documents: consent for dental examination, consent for dental treatment, medical history
3.2.2 Oral Health Assessment Tool

The one-page version of the Oral Health Assessment Tool is shown below in Figure 3.

**Figure 3: Oral Health Assessment Tool**

<table>
<thead>
<tr>
<th>Lips</th>
<th>Changes</th>
<th>Unhealthy</th>
<th>Dental Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smooth, pink, moist</td>
<td><img src="image1.png" alt="Image" /></td>
<td>Swelling or lump, red, white/oral ulcer, bleeding, ulcercated at corners</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Dry, chapped or red at corners</td>
<td><img src="image2.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tongue</th>
<th>Changes</th>
<th>Unhealthy</th>
<th>Dental Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal moist, roughness, pink</td>
<td><img src="image3.png" alt="Image" /></td>
<td>Patchy, fissured, red, coated</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Patchy, fissured, red, coated</td>
<td><img src="image4.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gums and Oral Tissue</th>
<th>Changes</th>
<th>Unhealthy</th>
<th>Dental Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moist, pink, smooth, no bleeding</td>
<td><img src="image5.png" alt="Image" /></td>
<td>Swollen, bleeding, ulcers, white/ red patches, generalised redness under denture</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Dry, shiny, rough, red, swollen, sore, one ulcer/sore spot, sore under denture</td>
<td><img src="image6.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oral Cleanliness</th>
<th>Changes</th>
<th>Unhealthy</th>
<th>Dental Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean and no food particles or tartar in mouth or on dentures</td>
<td><img src="image7.png" alt="Image" /></td>
<td>Food, tartar, plaque in 1-2 areas of mouth or on small area of dentures</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Food, tartar, plaque, most areas of mouth, or on most of dentures</td>
<td><img src="image8.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Saliva</th>
<th>Changes</th>
<th>Unhealthy</th>
<th>Dental Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moist tissues watery and free-flowing</td>
<td><img src="image9.png" alt="Image" /></td>
<td>Tissues parched and red, very little/no saliva present, resident thinks they have a dry mouth</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Dry, sticky tissues, little saliva present, resident thinks they have a dry mouth</td>
<td><img src="image10.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dental Pain</th>
<th>Changes</th>
<th>Unhealthy</th>
<th>Dental Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>No behavioural, verbal or physical signs of dental pain</td>
<td><img src="image11.png" alt="Image" /></td>
<td>Verbal &amp;/or behavioural signs of pain such as pulling at face, chewing lips, not eating, changed behaviour</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Verbal &amp;/or physical pain signs (swelling of cheek or gum, broken teeth, ulcer), as well as verbal &amp;/or behavioural signs (pulling at face, not eating, changed behaviour)</td>
<td><img src="image12.png" alt="Image" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Unhealthy signs usually indicate referral to a dentist is necessary

Assessor Comments

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### 3.2.3 Education and Training Program Competency Outline

An overview of the elements of competency and performance criteria for aged care staff participating in the Better Oral Health in Residential Care education and training program is presented in Table 3.

<table>
<thead>
<tr>
<th>Table 3: Competency Outline of the Better Oral Health in Residential Care Education and Training Program</th>
</tr>
</thead>
</table>

#### Module 1
**Good oral health is essential for healthy ageing**

**Purpose**
To inform and raise the profile of oral health and its interaction with general health and wellbeing of residents.

<table>
<thead>
<tr>
<th>Element of competency</th>
<th>Performance criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Identify why residents are at high risk of poor oral health</td>
<td>1.1 Describe the factors contributing to the poor oral health of frail and dependent residents.</td>
</tr>
<tr>
<td>2 Identify the relationship between oral health and general health and wellbeing</td>
<td>2.2 Describe the impact of poor oral health on quality of life and general health.</td>
</tr>
<tr>
<td>3 Assess common oral health conditions experienced by residents</td>
<td>3.1 Identify common oral conditions to check daily and report to the RN.</td>
</tr>
<tr>
<td>4 Provide oral care to residents with changed behaviours</td>
<td>4.1 Demonstrate ways to manage changed behaviours.</td>
</tr>
<tr>
<td></td>
<td>4.2 Demonstrate how to improve access to the resident’s mouth.</td>
</tr>
<tr>
<td></td>
<td>4.3 Demonstrate modified oral care techniques.</td>
</tr>
</tbody>
</table>

#### Module 2
**Protect your resident’s oral health**

**Purpose**
To develop oral hygiene skills required to maintain a healthy mouth and how to use oral hygiene aids and products.

<table>
<thead>
<tr>
<th>Element of competency</th>
<th>Performance criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Provide standard protective oral care</td>
<td>1.1 Describe the six best ways to maintain a healthy mouth:</td>
</tr>
<tr>
<td></td>
<td>• brush morning and night</td>
</tr>
<tr>
<td></td>
<td>• use high fluoride toothpaste</td>
</tr>
<tr>
<td></td>
<td>• soft toothbrush on gums, tongue and teeth</td>
</tr>
<tr>
<td></td>
<td>• antibacterial product after lunch</td>
</tr>
<tr>
<td></td>
<td>• keep the mouth moist</td>
</tr>
<tr>
<td></td>
<td>• reduce sugar.</td>
</tr>
<tr>
<td>Module 3</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>It takes a team approach to maintain a healthy mouth</td>
<td></td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
<td></td>
</tr>
<tr>
<td>Application of reflective practice to situations nurses and care workers meet in their everyday practice.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Element of competency</th>
<th>Performance criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Apply reflective practice to the oral health in residential aged care</td>
<td>1.1 Demonstrate the ability to apply decision-making skills in oral health care.</td>
</tr>
<tr>
<td></td>
<td>1.2 Demonstrate the ability to apply oral hygiene knowledge and techniques to various situations.</td>
</tr>
<tr>
<td><strong>2</strong> Implement team approach to Better Oral Health in Residential Care Model</td>
<td>2.1 Describe the four key processes involved in Better Oral Health in Residential Care Model.</td>
</tr>
<tr>
<td></td>
<td>2.2 Identify nurse and care worker roles in providing daily oral hygiene.</td>
</tr>
</tbody>
</table>
3.2.4 Facilitator Portfolio

Developed for Registered Nurse Facilitators

The Facilitator Portfolio provides all the necessary information for RNs to deliver the Better Oral Health in Residential Care education and training program:

- Principles of adult learning
- Presentation tips
- Competency outlines
- Session plans
- Facilitator notes
- An accompanying DVD (*Dental Rescue*)
- CD with PowerPoint presentation, pre and post quiz with answer sheets to download
- Resource kit
- Posters.

3.2.5 Staff Portfolio

Developed for Direct Care Nurses and Care Workers

**Module 1: Good Oral Health is Essential for Healthy Ageing (knowledge)**
- Better Oral Health in Residential Care Model
- Common oral health conditions experienced by residents, daily checks, documentation and reporting to the RN
- Oral health care and changed behaviours

**Module 2: Protect your Residents’ Oral Health (skills)**
- Six of the best ways to maintain a healthy mouth
- Care of natural teeth
- Care of dentures
- Prevention of gum disease
- Relief of dry mouth
- Reduce tooth decay

**Module 3: It Takes a Team Approach to Maintain a Healthy Mouth (reflective practice)**
- Oral health scenario
3.2.6 Posters

Poster 1: Key Message

A healthy mouth will improve overall health and wellbeing.

Reinforces the interrelationship between oral health and general health:

- impact on quality of life
- increased risk of aspiration pneumonia, heart attack and/or stroke.

Poster 2: Key Message

Six of the best ways to maintain a healthy mouth.

Protective oral hygiene care regimen:

1. brush morning and night
2. high fluoride toothpaste on teeth
3. soft toothbrush on gums, tongue and teeth
4. antibacterial product after lunch
5. keep the mouth moist
6. cut down on sugar.

Poster 3: Key Message

It takes a team approach to maintain a healthy mouth.

GPs, RNs, care workers and dental professionals are responsible for one or more of four key responsibilities:

1. oral health assessment
2. oral health care planning
3. daily oral hygiene
3.2.7 Resident Information

Two versions of oral health information for residents and their families were prepared. One is a printed three-page folded brochure to reinforce the importance of oral health and general health and how the six best ways to maintain a healthy mouth can help residents. The other is an abbreviated one-page format for downloading from the internet.

Figure 9: Resident Information (Printed Three-page Folded Brochure)

A healthy mouth will improve overall health and well-being.

Simple daily mouth care and regular checks will help protect you.

When your mouth is not clean, germs from the mouth may enter the airways and cause chest infections such as pneumonia.

The same blood that goes through infected gums also goes through the rest of the body. This may cause infections far away from the mouth and may increase the risk of having a heart attack, or even a stroke.

Weight loss from not being able to eat properly also weakens the body’s ability to cope with infections and other illnesses.

Six of the best ways to maintain a healthy mouth

1. Clean your mouth every morning and every night.
2. Use only a pea-sized amount of high fluoride toothpaste to protect your teeth. Spit but do not rinse after brushing so the fluoride can sink into your teeth.
3. Use a soft toothbrush to brush your teeth and to clean your gums and tongue.
4. If you require help, a carer may sometimes use an extra toothbrush, which is best, so that they can see inside your mouth.
5. Replace your toothbrush with a new one with the change of seasons (every three months).
6. If you wear dentures, clean them by brushing with a denture brush using soap and water. Keep well disinfected dentures once a week. Dentures should have your name on them.
7. Protect your gums by applying a small amount of antibacterial gel daily.
8. If you wear dentures, take your dentures out overnight to rest your gums. Soak your cleaned dentures in a container of cold water.
9. Keep your mouth moist by sipping water. A lip moisturiser may be helpful.
10. Try to reduce the amount of sugary drinks, juices, tea and coffee you drink.
11. Cut down on sugar by using sugar substitutes for sweetening drinks, particularly between meals.

Look for the happy tooth symbol on bolks and treats.

Good oral health is essential for healthy ageing.
Six of the best ways to maintain a healthy mouth

Clean your mouth every morning and every night.

Use only a pea-sized amount of high fluoride toothpaste to protect your teeth.

Spit but do not rinse after brushing so the fluoride can soak into your teeth.

Use a soft toothbrush to brush your teeth and to clean your gums and tongue.

If you require help, a carer may sometimes use an extra toothbrush, which is bent, so that they can see inside your mouth.

Replace your toothbrush with a new one with the change of seasons (every three months).

If you wear dentures, clean them by brushing with a denture brush using soap and water. Rinse well. Disinfect dentures once a week. Dentures should have your name on them.

Protect your gums by applying a small amount of antibacterial gel daily.

If you wear dentures take your dentures out overnight to rest your gums. Soak your cleaned dentures in a container of cold water.

Keep your mouth moist by sipping water. A lip moisturiser may be helpful.

Try to reduce the amount of sugary drinks, juices, tea and coffee you drink.

Cut down on sugar by using sugar substitutes for sweetening drinks, particularly between meals.

Look for the ‘happy tooth’ symbol on lollies and treats.
3.3 Impact

Supporting data from the separate evaluation reports have been extracted and abbreviated to describe the impact of the Better Oral Health in Residential Care Model on:

- the use of evidence
- residents
- staff
- residential aged care facilities
- economic considerations.

Table 4 presents a data summary of oral health assessments and dental referrals for residents. The number of participating residents decreased throughout the Project. For example, out of 312 residents who consented to be involved in the Project, 294 received a baseline oral health assessment, 13 residents died, 1 transferred and 4 declined to participate.

Table 4: Oral Health Assessment and Dental Referral Data Summary

<table>
<thead>
<tr>
<th>Oral Health Assessments and Dental Referrals</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consenting Residents</td>
<td>312</td>
<td></td>
</tr>
<tr>
<td>Baseline oral health assessments</td>
<td>294</td>
<td>94%</td>
</tr>
<tr>
<td>• Assessment by RNs</td>
<td>178</td>
<td>61%</td>
</tr>
<tr>
<td>• Assessment by GPs</td>
<td>116</td>
<td>39%</td>
</tr>
<tr>
<td>Dental referrals</td>
<td>137</td>
<td>47%</td>
</tr>
<tr>
<td>Follow-up oral health assessments</td>
<td>232</td>
<td>79%</td>
</tr>
<tr>
<td>• Assessment by RNs</td>
<td>141</td>
<td>61%</td>
</tr>
<tr>
<td>• Assessment by GPs</td>
<td>91</td>
<td>39%</td>
</tr>
<tr>
<td>Dental referrals</td>
<td>39</td>
<td>17%</td>
</tr>
</tbody>
</table>

3.3.1 Impact on the Use of Evidence

... there’s been an improvement in oral health I think because with the brushing, its being done more regularly and the residents are becoming more comfortable with it and especially the ones who have been neglected for years you can actually begin to see an improvement.\(^{58}\)

All aged care facilities showed significant improvements in the quality of oral health care plans following the implementation of the Better Oral Health in Residential Care Model. Post-audit care plans were well-presented and easy to read and understand. They appeared conducive to the provision of optimal oral care and often contained resident-specific instructions.

GPs reported that they were influenced in their prescribing practices by information about medications that cause dry mouth (xerostomia) and that they previously had had limited oral health knowledge.

Nursing staff recognised that the Better Oral Health in Residential Care Model was a better system that ensured consistency and encouraged or enforced the provision of routine oral health care.\(^{59}\)
3.3.2 Impact on Residents

... expectations about their [residents] own comfort seem to have changed, they’re more aware and realise they don’t have to live with it [discomfort or pain].

Altogether, 312 (73 per cent) residents in the six aged care facilities consented to participate in the Project and 94 per cent of those consenting had an oral health assessment.

Oral health assessments undertaken by GPs and RNs before and following the implementation of the Better Oral Health in Residential Care Model showed significant improvement in oral health status of residents over the life of the Project.

Residents appreciated receiving dental treatment in the residential aged care facility rather than having to face the challenges involved with travelling offsite for care. Many had not received dental care for years.

The quality of life measures for residents who suffered impacts from poor oral health improved significantly following implementation of the Better Oral Health in Residential Care Model.

Residents' improvement in oral health had a significant contribution to their wellbeing and general health. It was reported that residents:

- had more positive social experiences
- showed higher levels of interpersonal confidence and self-esteem
- realised they did not have to live with discomfort or pain
- smiled more often
- enjoyed eating
- had a better appearance.

Residents themselves considered that their oral health had improved following the implementation of the Better Oral Health in Residential Care Model.

Figure 11: Changes in the Percentage of Participants Rating the Residents' Oral Health as Very Good/Good or Fair/Poor/Very Poor Pre- and Post-intervention.

![Figure 11: Changes in the Percentage of Participants Rating the Residents' Oral Health as Very Good/Good or Fair/Poor/Very Poor Pre- and Post-intervention](image-url)
3.3.3. Impact on Staff

Altogether, 267 aged care staff members in the six aged care facilities consented to participate in the Project and 78 per cent completed all three education and training modules.

Table 5: Education and Training Program Staff Attendance Data Summary

<table>
<thead>
<tr>
<th>Aged Care Staff Attendance</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consenting Staff</td>
<td>267</td>
<td></td>
</tr>
<tr>
<td>Module 1</td>
<td>241</td>
<td>90%</td>
</tr>
<tr>
<td>Module 2</td>
<td>218</td>
<td>90%</td>
</tr>
<tr>
<td>Module 3</td>
<td>187</td>
<td>78%</td>
</tr>
<tr>
<td>Completed all three modules</td>
<td>187</td>
<td>78%</td>
</tr>
</tbody>
</table>

For evaluation purposes, staff completed questionnaires and attended focus groups.

* I no longer rinse, I just spit and I have caught myself brushing longer*

Aged care staff indicated an increased understanding of the relationship and impact of oral health on general health and that this impacted on their motivation to deliver oral health care for residents. They also willingly transferred this increased understanding to themselves and their home environment.

Aged care staff realised their previous knowledge and insight about oral health had been limited, and that the care they had previously provided was inadequate.

Overall, RNs did 60 per cent of the oral health assessments and were very positive about the Oral Health Assessment Toolkit and other resources.

Oral health assessments done by RNs were closely followed up by an expert dentist and comparisons showed that RNs could do oral health assessments successfully.
Care workers were also very positive about the education and training program. Their effectiveness and competency in oral care increased following the program.

Aged care staff reported that they learnt how to identify good oral health and felt confident about identifying problems as they arose. They felt more confident referring residents for dental care.

Aged care staff also reported increasing confidence and ability to perform the activities of daily oral hygiene.

Seventy-five per cent of aged care staff scored greater than 80 per cent in the post-education questionnaire, compared to 6 per cent of aged care staff in the pre-education questionnaire. No aged care staff member scored less than 50 per cent on the post-education questionnaire, compared to 17 per cent of aged care staff in the pre-education questionnaire.

Staff reported that the time taken to deliver oral health care increased but that they were committed to maintaining consistent oral hygiene care because of the positive outcomes on residents’ oral health.  

### 3.3.4 Impact on the Residential Aged Care Facilities

Although the Project required the aged care facilities to do oral health assessments on residents only prior to and following Project implementation, as the benefits of the Model became apparent, one by one the aged care facilities started incorporating assessments into their normal operating procedures.

During November 2008, near the completion of the education and training program, the Director of Care at the Tanunda Lutheran Home advised:

*… we are forwarding our oral health procedures and looking to introduce the oral health assessment tool into our everyday practice for new admissions and during care plan review or acute issue assessment*  

At Kara, the Project Liaison Officer and the nurse educator developed an audit process to ensure the oral health procedures were being documented and followed.

In all aged care facilities, except Coober Pedy, a dental team provided care on-site within the facility. At Coober Pedy, the close proximity of the new dental clinic facilitated dental treatment.

The provision of dental care within a facility was new to the consortium facilities, except Tanunda Lutheran Home, where this had been occurring for some years as part of an established Nursing Home Program organised by the South Australian Dental Service.

The provision of dental care within the facilities in the Project demonstrates to the wider residential aged sector and to public and private dental sectors that this is achievable. Dental care is not the sole responsibility of the dental team. The Dental Referral Protocol within the Professional Portfolio includes information on how to arrange and make suitable provision for a dental team to visit the facility. With suitable provision, encouragement and support, the managers of aged care facilities will find willing dental professionals.
3.3.5 Economic Considerations

Overall, 47 per cent of residents who had an oral health assessment prior to Project implementation required a referral for dental care. A much lower 17 per cent of residents who had a repeat oral health assessment following Project implementation needed a dental referral.

Of the residents who required dental treatment, the four most common services were diagnostic, restorative, prosthodontic and preventive services, which reflected the need for timely diagnosis, prevention and dental treatment. On average, residents receiving dental treatment had approximately two dental visits with the average cost of treatment being $386 (using the Department of Veterans Affairs fee scale). The cost for preventive dental treatment was lower than other types of treatment.66

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**Tom**

Tom’s independence is remarkable given his physical difficulties. He has had a hip replacement, lost his left lung to cancer, is legally blind from macular degeneration, has very impaired hearing, and pulmonary hypertension. At 95 years, he is living in a low care unit and needs help only with his showering and making his bed.

Tom’s sense of independence resulted in him trying to remove a troublesome tooth with multigrip pliers. His confession to staff quickly brought a visit by the dentist who noted that there were only roots on one molar and another had caries. Both teeth needed to be extracted in a city dental hospital. Tom did not like the idea of going to the city, firstly because of the cost of the taxi fare and, secondly, he would have to go alone.

Tom’s anxiety about the trip was alleviated by a taxi driver who was friendly and compassionate and took responsibility to see Tom home again after the appointment.

The two teeth were taken out successfully and in the following week some follow-up treatment was done by a visiting dentist. Tom seemed much happier about the on-site treatment.

As a result of the Better Oral Health in Residential Care Project, Tom received some education to help maintain his oral health, and his care plan was amended to include the use of a soft toothbrush with Neutrafluor toothpaste morning and night, and Curasept 0.12 antibacterial gel after lunch. He was also encouraged to rinse his mouth with water after meals. Consequently, he is very happy with his teeth and no additional problems have occurred.
All the Directors of Care were asked to provide comparisons of the cost of oral health products before and after Project implementation. This proved difficult and the actual expenditure on oral health products was not established.

An example of the type of difficulty encountered is the requirement that aged care facilities provide toothpaste and toothbrushes for high care residents, with residents in low care responsible for purchasing their own products.

A key mechanism to instigate change to improve resident’s oral health care is to increase the awareness of oral health issues in the eyes of the residential aged care facility’s management and senior nursing staff. Poor oral health of residents can impact financially on the aged care facility.68

The use of preventative oral hygiene products (such as high fluoride toothpaste and antibacterial products) and release time for oral health education and training of aged care staff can result, potentially, in cost savings for the residential aged care facility and the wider health sector.

Information was provided to the directors of the residential aged care facilities on the cost of oral health products recommended in the Oral Health Care Planning Guidelines, together with supplier information. The cost of oral health products was calculated for four types of residents: residents with natural teeth, residents with natural teeth and partial dentures, residents with full dentures and residents without teeth and who do not wear dentures. For example, the provision of oral health products for residents with natural teeth was costed at approximately $55 a year, consisting of two tubes of high fluoride toothpaste, eight soft toothbrushes, two tubes of antibacterial gel and one water-based lip moisturiser. All product costs were based on prices direct from the manufacturer or importer and were calculated on using only a pea-sized application of products.

Expenditure attributable to poor oral care can be estimated by costing the need for oral and dental treatments and the associated general health complications and medical treatments including hospitalisation. Hospitalisation may involve oral surgery and a general anaesthetic, which is an additional risk for frail residents. Hospitalisation may also be the result for residents with aspiration pneumonia, heart attack or stroke. The expense of treatments and medications required to manage the complications of poor oral care also includes the
nursing hours required to administer the treatment and/or medications. Importantly, the cost of pain and suffering of residents with gum disease and infections related to poor oral care and the impact on their quality of life should not be underestimated.\textsuperscript{69}

Simply stated, expenditure on oral hygiene products is considerably lower when compared to the possible high cost outcomes associated with poor oral health: aspiration pneumonia, heart attack, stroke, and problems associated with the management of other medical conditions such as unstable diabetes.\textsuperscript{70}

### 3.4 Dissemination

A Communication Plan was developed at the commencement of the Project to ensure that not only would the consortium member organisations and staff be kept informed of Project progress but also that progress and results could be disseminated to other interested bodies.

#### 3.4.1 Information Sheets and Posters

At the beginning of the Project, an information sheet was prepared to introduce the Project and the Project team to prospective consortium members. This information sheet was updated and lengthened as the Project progressed, covering the aim and objectives, background, method and consortium membership, and was distributed when information was requested. Specific information sheets were prepared and distributed for the Project’s participants: residents, GPs, RNs, nurses and care workers.

During the Project’s implementation, the Project posters with messages aimed at both the residents and staff were displayed throughout the facilities. These posters were released in a scheduled order to present key messages that coincided with the education and training modules.

#### 3.4.2 Conference Presentations

The Better Practice Conferences, conducted by Australia’s Aged Care Standards and Accreditation Agency, were the ideal forum to disseminate information to the aged care sector. These conferences, held annually in every Australian state and territory, are attended by management and senior staff of residential aged care facilities. At each conference, a different Project Liaison Officer, together with the Project Director and Project Manager, presented case studies highlighting the residents’ journeys with the Project. Some of their case studies are featured throughout this report. The conference presentations generated a great deal of interest, with many of the audience members expressing keenness to implement the Better Oral Health in Residential Care Model in their own facilities.

Other notable presentations were given at the Australian Association of Gerontology National Conferences 2007 and 2009.
3.5 Sustainability

As the benefits of the Better Oral Health in Residential Care Model became apparent, one by one management from the aged care facilities embedded the four key processes into their everyday practice. The most challenging of the four key processes to embed into practice was the provision of dental treatment.

3.5.1 Australia’s National Nursing Home Oral and Dental Plan

In March 2009, the Minister for Ageing, The Hon. Justine Elliot MP, announced Australia’s first Nursing Home Oral and Dental Plan.71 The Plan is designed to strengthen oral and dental care in residential aged care facilities from the initial Aged Care Assessment Team (ACAT) assessment through to oral health care planning and management. It aims to provide an increased awareness of oral hygiene issues for staff in daily contact with residents. In 2010, the Better Oral Health in Residential Care Model will be included in the Nursing Home Oral and Dental Plan.
4 Discussion

The work of the Project was to translate evidence-based research into daily practice. Importantly, it aimed to connect what we know with what we do and initiate transformational change within the aged care and the dental sectors.

The principles of the Ottawa Charter (build healthy public policy, create supportive environments, develop personal skills and re-orientate health services) are used here to describe how the Better Oral Health in Residential Care Project successfully implemented a primary oral health care framework for residents in a range of aged care facilities.

4.1 Implementation of a Primary Oral Health Care Framework

4.1.1 Build Healthy Public Policy

The Better Oral Health in Residential Care Model encourages a nationally consistent integration of oral health into policy and strategy development from the perspectives of both government and residential aged care facilities.

All residential aged care facilities involved in the Project developed oral health policies and procedures based on the Better Oral Health in Residential Care Model.

- Oral health assessment takes place on admission, on a regular basis and as the need arises such as following an acute incident.
- Residents’ oral health care plans are based on a standard protective oral health care regimen.

The Model strengthens public oral health policy because it implements the recommendations and requirements of:

- Australian Government Accreditation Standard 2.15.

Significantly, the Better Oral Health in Residential Care Model has informed new developments in oral health policy and provided the resources required for the first national Nursing Home Oral and Dental Plan.

4.1.2 Create Supportive Environments

Comprehensive involvement of aged care staff in the participating residential aged care facilities built organisational capacity to use evidence-based strategies to improve oral health in the aged care sector, and provided a nationally consistent framework for oral health assessment, oral health care planning and dental pathways.

The Better Oral Health in Residential Care Model implemented a multidisciplinary team approach with GPs, RNs, care workers and dental professionals responsible for one or more of four key processes: oral health assessment, oral health care planning, daily oral hygiene and dental treatment.

There was an improvement in the quality of oral health care plans. Residential aged care facilities developed oral health care plans and daily oral hygiene practices based on the six of the best ways to maintain a healthy mouth and to protect a resident’s mouth.
Residents and their families received oral health information and were better informed about the six best ways to maintain their oral health.

4.1.3 Develop Personal Skills

The Project’s promotion of stewardship by the participating residential aged care facilities offers opportunities for mentoring and role modelling of residential aged care facilities at a national level.

GPs and RNs were provided with a Professional Portfolio which consisted of self-directed learning resources to help them develop their knowledge and skills in relation to oral health assessment, oral health care planning and dental referral protocols.

The competencies of direct care nurses and care workers in oral health care significantly increased following the practical ‘hands-on’ oral health education and training program. A Staff Portfolio for direct care nurses and care workers to support this was developed and implemented.

Selected RNs took part in a ‘train the trainer’ program to prepare them to train aged care staff at their facility. A Facilitator Portfolio and resource kit was developed and provided.

4.1.4 Re-orient Health Services

Shared learning amongst the government dental providers involved in the Project initiated changes in the provision of dental services.

- The Goulburn Valley dental team that provided dental treatment for the Kyabram residents purchased portable dental equipment to service other aged care facilities in their district.
- For the first time, Hunter New England Health provided a dental chair and purchased portable equipment for an aged care facility. Kara Centre for Aged Care has planned for continuation of dental care for their residents by arranging a local dentist to provide dental care. In addition, it is intended to provide dental care for aged care staff and to neighboring residential aged care facilities with the use of the Hunter New England Health’s portable dental equipment. Hunter New England Health is also planning to purchase more portable equipment and extend services across its region.
- Three of the aged care facilities in South Australia were given surplus dental chairs by the South Australian Dental Service, facilitating the provision of on-site dental care.
- Staff from the South Australian Dental Service are continuing to develop their relationship with residents at Umoona by visiting the facility during their regular visits to Coober Pedy.

4.2 Challenges

One of the conditions of funding by the Department of Health and Ageing was that aged care facilities were to be accredited and must not have notices of non-compliance issued against them. Early in the Project, two of the participating aged care facilities received sanction notices. They were replaced and no further issues of this nature were encountered.
A Project Liaison Officer resigned in May 2008. Extra support was provided by the Project team until the aged care facility made a new appointment to the position.

Funding and delivery of dental treatment was identified as the most challenging barrier to the Project’s aims. It is essential that public and private dental providers and the professional dental associations such as the Australian Dental Association carefully consider how to support dental services to aged care facilities.

4.3 Successes

In addition to successfully implementing the Better Oral Health in Residential Care Model, the Project team was asked to review the third edition of the *Australian Medicines Handbook Drug Choice Companion: Aged Care*. Dr Peter King undertook this on behalf of the Project.72

Other successful outcomes for the Project can be demonstrated by the many awards achieved by the people and the aged care facilities involved in the Project.

- Kara in New South Wales won a third Better Practice Award for Oral Health.
- The Project Liaison Officer at Kara was presented with a leadership award by Baptist Community Services for his role in the Project.
- Kyabram and District Health Services were awarded a Victoria Premier’s Award (Rural Health Service of the Year) in September 2009.
- The Project Liaison Officer at Kyabram was presented with an Excellence Award.
- The South Australian Dental Service is a finalist in the 2009 South Australian Premier’s Awards.
- The Project Manager was awarded a Central Northern Adelaide Health Service Fellowship in October 2009 to present the Project outcomes internationally.

Mary

As Mary aged, she underwent a hip replacement, was diagnosed with heart problems and began a slow decline into dementia. Her family could no longer cope with her care needs and she entered a residential aged care facility. At first this was just hostel care but eventually, at 90 years, she was placed in ‘high care’. Mary, at this stage, had been in the facility for 7 years and no-one had checked inside her mouth. She was unable to do most things for herself, her dentures clacked around in her mouth, she was losing weight and she cried a lot.

The facility’s RN did an oral health assessment and discovered that, in addition to the loose dentures, Mary had sore and bleeding gums, a build-up of plaque and tartar on her dentures, and a dry mouth most of the time due to her medications.

After the assessment, staff were able to improve Mary’s oral health by increasing their care of her dentures, using Polident to secure the dentures in her mouth, disinfecting the dentures regularly, and using Curasept Gel on the gums and Kenalog for the ulcers. Care workers encouraged Mary to eat more and to drink more fluids. They applied Carmix to her dry lips.

Improvements in Mary’s oral health came quickly. Her ulcers healed, her gums no longer bled, and she reported no pain. She started to gain weight and, best of all, she no longer cried.
4.4 Conclusion

What’s another word for guilt? ... Maybe a sense of shame, despair or something ... we should have been on to this a long time ago, disappointment really, especially for something that is so basic.\textsuperscript{73}

Implementing the Better Oral Health in Residential Care Model has shown that it results in significant and measurable gains in residents’ oral health status. RNs successfully undertook 60 per cent of the oral health assessments during the Project and developed effective oral health care plans. Care workers efficiently delivered daily oral hygiene care following participation in an education and training program. Residents and their families noticed marked improvements in their quality of life. Dental care was successfully delivered in residential aged care facilities in three states.

The Better Oral Health in Residential Care Model will continue beyond the life of the Project due to its adoption by the Australian Government Department of Health and Ageing for the national Nursing Home Oral and Dental Plan.

As long as enthusiasm is generated by all stakeholders associated with the provision of oral health care in residential aged care facilities in Australia, the Model’s success is guaranteed.

\textit{Some of them actually look at you with their eyes as if in a thank you.}\textsuperscript{74}
References

1 Introduction
1.1 Background


1.2 Literature Review


30. Table 2: The authors modified some of the language to suit the context of the Better Oral Health in Residential Care Model. J. M. Chalmers’ version of Table 2 was modified from the work of C. Wright and D. Harrison.


1.3 The Nature of the Change in Practice


43. F. Hugo, Adjunct Professor, Department of Preventative & Social Dentistry, Federal University of Rio Grande do Su, Cochrane Oral Health Group, e-mail, 8 September, 2008.

   F. Hugo, Adjunct Professor, Department of Preventative & Social Dentistry, Federal University of Rio Grande do Su, Cochrane Oral Health Group, e-mail, 8 September, 2008.

45. P. King, Specialist Dentist, Consultant for Better Oral Health in Residential Care Project, e-mail, 4 June 2009.


52. J. Grealy, Dementia Consultant for Better Oral Health in Residential Care Project, e-mail, 28 October 2008.


J. Grealy, Dementia Consultant for Better Oral Health in Residential Care Project, e-mail, 28 October 2008.


1.4 Context


3 Results

3.3 Impact


66. F. Hage, Director of Care, Tanunda Lutheran Home, SA, e-mail, 19 November 2008.


3.5 Sustainability

71. J. Elliot (Minister for Ageing), Australia’s First Nursing Home Oral and Dental Plan, media release, Department of Health and Ageing, Canberra, 1 March 2009.

4 Discussion

4.3 Successes

72. The authors were invited by Prof. Felix Bochner, Chairman of the AMH Editorial Advisory Board, e-mail 2 November 2009, to be reviewers of the Australian Medicines Handbook Drug Choice Companion: Aged Care (3rd Edition). Dr Peter King, Geriatric Dental Specialist for the Better Oral Health in Residential Care Project undertook this review, based on the primary oral health care approach advocated by the Project.

4.4 Conclusion
