



Centre for Oral Health Strategy
NEW SOUTH WALES

NSW HEALTH

NSW Messages for a healthy mouth



NSW DEPARTMENT OF HEALTH

73 Miller Street

North Sydney NSW 2060

Tel. (02) 9391 9000

Fax. (02) 9391 9101

TTY. (02) 9391 9900

www.health.nsw.gov.au

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Published by Centre for Oral Health Strategy NSW

© NSW Department of Health 2006

SHPN: (COHS) 060102

ISBN: 0 7347 3965 6

Further copies of this report can be downloaded from the NSW Health website: www.health.nsw.gov.au

May 2006

Foreword

NSW Messages for a Healthy Mouth provides key, clear and simple health messages to improve oral health: Eat Well; Drink Well; Clean Well; Play Well; and Stay Well, which will be widely disseminated throughout NSW.

This document reinforces the notion that oral health is an integral and essential part of ‘general’ health and that oral disease has a multifaceted impact on an individual’s health and well-being with wide-ranging effects resulting in high health service usage and significant personal costs.

This strategy has been developed by a range of people demonstrating a commitment to a partnership model to improve the health of the NSW population. I would like to sincerely thank those committed people, and the organisations they represent, who have been involved in the development of this document.

The Hon John Hatzistergos MP
Minister for Health
May 2006

Robyn Kruk
Director General
NSW Department of Health
May 2006

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Acknowledgements

For decades oral health messages have been developed independently across NSW by Area Health Services, non-government organisations and the corporate sector. The purpose of *NSW Messages for a Healthy Mouth* is to provide evidence-based, consistent oral health messages, which will help to improve the health of the NSW population.

NSW Messages for a Healthy Mouth has been produced by the **NSW Oral Health Messages Working Group** on behalf of the **NSW Oral Health Promotion Network**. Refer to [Appendix A](#) for further information about the key stakeholders involved in the development of the document.

The NSW Oral Health Promotion Network wishes to show appreciation to:

- *Australia's National Oral Health Plan 2004-2013: Healthy mouths healthy lives* (National Advisory Committee on Oral Health 2004).
- the *Consensus Conference on the use of Discretionary Sources of Fluorides* (Australian Research Centre for Population Oral Health [ARCPOH] (2006), which has provided up to date, evidence-based guidelines on the use of fluoride to prevent dental caries.
- the draft *Oral Health Guidelines for Victorians* (Department of Human Services, Victoria 2003), which has provided a format for this document.
- *Colgate*TM for the development of the accompanying poster for the messages.
- *State Oral Health Executive*.
- Other health professionals who provided extensive information and expert opinion.
- The Australian Dental Association (NSW Branch) and *Colgate*TM who provided assistance with the launch of the document and poster.

Executive Summary

NSW Messages for a Healthy Mouth reinforces the notion that oral health is an integral component of 'general' health and that promoting good health and preventing ill-health is a shared responsibility between organisations, communities and individuals. The clear and simple messages include: Eat Well; Drink Well; Clean Well; Play Well; and Stay Well. These messages emphasise the belief that oral health education is a responsibility of significant importance and must be approached with the same dedication that is applied to the treatment of oral disease.

The information in this document can be widely dispersed by a variety of people in a range of settings. For example:

- parents/carers in a home setting
- health professionals in health clinics
- early childhood professionals in preschools and day care centres
- education personnel in schools and tertiary education facilities
- aged care professionals in residential facilities

It can also:

- promote the inclusion of oral health in 'general' health promotion programs and activities;
and
- assist advocacy groups with well-documented evidence-based information pertaining to oral health.

1. Introduction

Promoting good health and preventing ill-health is a shared responsibility between organisations, communities and individuals. The *NSW Messages for a Healthy Mouth* includes key oral health messages with supporting evidence. These messages reinforce the belief that oral health education is a responsibility of significant importance and must be approached with the same dedication that is applied to the treatment of oral disease (Health Development Agency [HDA] 2001).

Messages for a Healthy Mouth has been developed as part of the implementation of the *NSW Oral Health Promotion Framework for Action 2010* to “increase the awareness of the importance of oral health” (NSW Department of Health 2005a, p. vii), which is mirrored in the draft *NSW Oral Health Strategic Plan 2005-2010* (NSW Department of Health 2005b).

The aim of the messages is to provide clear and easy to understand information that can be widely used by an extensive range of organisations, communities and individuals across NSW, in a variety of settings, with the ultimate goal of contributing to the improvement of overall health for all people in NSW.

2. Rationale

The mouth is the entrance to the body and reflects general health and well-being. The most predominate infectious diseases relating to the mouth are dental caries (tooth decay) and periodontal (gum) diseases; both of which ultimately lead to tooth loss if left untreated. However, they are largely preventable and reversible if identified and treated early (Australian Health Ministers Advisory Council [AHMAC] 2001).

Oral health is not simply the absence of oral disease but is a state of wellbeing in which an individual can eat, speak and socialise without discomfort or embarrassment. Oral health is about the ability of individuals, groups and populations to have opportunities to make healthy oral choices promoting positive and sustainable wellbeing and contributing to general overall good health¹. Poor oral health has a range of consequences including pain, difficulty in eating certain foods, impaired speech, loss of self-esteem, restricting social and community participation, and impeding the ability to gain employment. Generally, a person’s overall quality of life is affected (Watt 2005).

There is no one single factor that can prevent oral conditions. Rather, there are ranges of factors, which either favour the initiation and progression of the disease, or prevent or control the progression of disease. Most oral diseases involve long-term, chronic disease processes and a complex relationship between body resistant factors, personal hygiene, behavioural factors and social environments. Although continued research is still required to completely understand interactions of the causal and preventive factors in these diseases, the current level of scientific evidence permits us to identify key foundations for prevention (Department of Human Services, Victoria [DHSV] 2003). This approach is represented in the *NSW Messages for a Healthy Mouth*.

¹ This definition is adapted from the World Health Organisation [WHO] (1984) definition of ‘health’, and the UK Department of Health (1994) definition of ‘oral health’ cited in AHMAC (2001).

3. NSW Messages for a Healthy Mouth

1. EAT WELL

- Enjoy a wide variety of nutritious foods
- Enjoy healthy snacks
- Avoid snacking on sugary & sticky foods & sweets between meals
- Milk foods help protect your teeth
- Chew sugar-free gum to help protect your teeth

2. DRINK WELL

- Tap water is the best drink between meals & at bedtime
 - Avoid drinking acidic & sugary drinks between meals
 - Choose sugar-free medicine
- Children**
- Breastfeed your baby until at least 6 months
 - Always hold your baby when bottle feeding & take the bottle away when they've had enough
 - Putting a baby to bed with a bottle can cause tooth decay
 - Encourage your baby to drink from a cup at 6-8 months

3. CLEAN WELL

- Brush twice a day with fluoride toothpaste, especially before bed
- Brush your teeth and gums gently and properly
- Use a toothbrush with soft bristles and a small head
- Floss properly to clean between your teeth
- Clean your dentures properly every day

Children

Brush your child's teeth:

- when they 1st appear to 17 months – WITHOUT TOOTHPASTE
 - 18 months to 5 years – pea-sized smear of LOW FLUORIDE TOOTHPASTE
 - 6 years & older - pea-sized smear of STANDARD FLUORIDE TOOTHPASTE
- Assist your child with brushing at least once a day until he or she is 8 or 9 years old

4. PLAY WELL

- Wear a professionally fitted mouthguard when you are playing and training for any sport
- Provide a safe environment for your child, in the home and in the playground
- Adult supervision helps to prevent childhood injuries

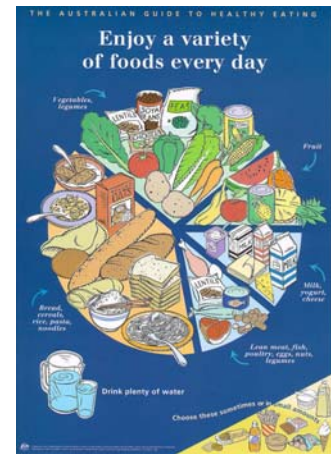
If an injury occurs seek professional advice immediately

5. STAY WELL

- First dental visit by 1st birthday
- Dental checkups are especially important during pregnancy
- Have regular dental check-ups - don't wait for a problem
- Check with a dental professional to see if your child needs sealants or a fluoride treatment
- If you have dentures you still need a regular dental check-up
- Don't smoke & limit alcohol
- Protect your face from excessive sun exposure

3.1 Eat Well

Eating a wide variety of nutritious foods is important for good health and well-being. The *Australian Guide to Healthy Eating* provides guidance on the types of foods that can be included in a typical Australian diet to meet the dietary guidelines and the recommended dietary intakes (Department of Health and Family Services 1998).



The relationship between sugar (sucrose) and dental caries has been confirmed in numerous studies (Burt et al. 1988; Zero 2004). Foods high in extrinsic sugars are the most damaging to the teeth, while intrinsic sugars are considered to be less important as a cause of dental decay (British Nutrition Foundation 1999). To avoid decay it is recommended a person should consume no more than 16 kilograms of sugar per year (Hancocks 1999). Along with increasing caries risk, increased consumption of sugar-sweetened beverages and snack foods has also been linked to obesity (Ludwig et al. 2001).

Healthy snacks between meals include cheese, vegetable sticks, fresh fruit, yoghurt, custard, wholegrain sandwiches and soups (National Health & Medical Research Council [NHMRC] 2003). Foods such as cheese or milk that contain casein can assist in the prevention of dental decay (Herod 1991; Jensen 1999).



Xerostomia (dry mouth) results from reduced or absent saliva flow and is a symptom with various causes including: medication; radiotherapy to the head or neck; mouth breathing; anxiety; dehydration; and Sjögren's Syndrome. Both xylitol and sorbitol have been shown to have a preventive effect on dental caries (Lam et al. 2000) by improving saliva flow (Edgar 1998), with xylitol-containing gums providing superior efficacy in reducing caries rates in high-risk populations (Gales & Nguyen 2000).

3.2 Drink Well

Fluoridation of public water supplies is recommended because of its effectiveness in protecting teeth against decay in all age groups. It benefits the community regardless of socioeconomic status, educational achievement, individual motivation and the availability of dental personnel (Centers for Disease Control and Prevention 2000). Compared to the cost of restorative treatment water fluoridation actually provides cost savings (Locker 1999; McDonagh et al. 2000). Thus, tap water should be encouraged as the drink of choice between meals, especially if fluoridated (Newbrun 1986).



Tooth surface loss may be purely *physiological*: occurs as a natural consequence of ageing (Flint & Scully 1988), or *pathological* through erosion; abrasion; attrition and abfractions (Davies et al 2002). Erosion is a chemical process where the tooth surface is removed in the absence of plaque (Milosevic 1999). Erosive factors may be either intrinsic or extrinsic. Intrinsic sources include gastro-oesophageal reflux, eating disorders (Valena & Young 2002) and prolonged pregnancy-induced vomiting (Evans & Briggs 1994). Extrinsic sources include acidic drinks² (eg alcohol, citrus-based and other juices, carbonated and uncarbonated drinks, sports drinks and herbal tea) (Health Development Agency 2001), which are particularly harmful when sipped slowly, swished and swilled before swallowing (Murray & Drummond 1996; Sank 1999). In addition, long-term use of paediatric syrup medicines, which have a high concentration of free sugars, can cause tooth decay and gingivitis (Roberts & Roberts 1979).



Exclusive breastfeeding to the age of six months gives the best nutritional start to infants (American Academy of Pediatrics 1997; Michaelsen et al. 2000; Royal Australian College of General Practitioners Council 2000; World Health Organization [WHO] 2001). Early childhood caries (ECC) is a recognised problem in infants and toddlers, characterised by extensive and rapid tooth decay. Pacifying infants by giving them a bottle to suck on for long periods, or allowing them to fall asleep while continuing to feed from a bottle, has been identified as the major cause of ECC (Whitney & Rolfes 1996).

Feeding bottles are best used only for breast-milk or infant formula and no-spill training cups are preferred for liquids other than breast-milk or formula from six months of age (NHMRC 2003). Bottle feeding should cease by the time the child is 12 months old (Griffen & Goepferd 1991).

² Refer to [Appendix B](#) for details of the acidity (pH) level of common substances.

3.3 Clean Well

Plaque plays a crucial role in the cause of dental caries, gingivitis and periodontitis. Effective removal of dental plaque can result in the prevention or reduction of dental caries and gingivitis in children and adults (Hancocks 1999). Tooth brushing and



flossing play a critical role in the prevention of dental caries and periodontal disease. Thorough tooth brushing twice daily with fluoride toothpaste is the most effective method of maintaining healthy teeth and gums (Brothwell et al. 1998). Toothpaste should be spat out, not swallowed and not rinsed (ARCPOH (2006). Most children have insufficient manual dexterity to brush effectively. An adult needs to assist children with thorough brushing at least once a day until they are eight or nine years of age (Cameron & Widmer 2003). Dental care for babies should begin within a few days after birth: right after each feeding, wipe the baby's gums and inside of the cheeks, roof of the mouth and tongue with a clean damp washcloth or wet gauze pad to remove plaque³.



Dental fluorosis is a form of developmental defect of tooth enamel caused by the intake of excessive fluoride. To avoid fluorosis the following recommendations are made by ARCPOH (2006): (i) from the time that teeth first erupt (about six months of age) to the age of 17 months children's teeth should be cleaned by a responsible adult, but **NOT** with toothpaste; (ii) for children aged 18 months to five years (inclusive) teeth should be cleaned twice a day with a small pea-sized amount of low-fluoride toothpaste, under the supervision of an adult. For people aged six years or more, teeth should be cleaned at least twice a day with a standard fluoride toothpaste.



Periodontal diseases are caused by microbial infections, and are plaque-related complex diseases. Prevention and control of gingivitis and periodontitis are achieved directly through the mechanical removal and disruption of dental plaque (Consensus Development Conference 1996) by tooth brushing, flossing and professional dental care (Axelsson et al. 1991; Cutress et al. 1991; Graves et al. 1989; Ronis et al. 1993; Walsh et al. 1989) Pregnant women with severe periodontal diseases are at about seven times greater risk of giving birth to preterm low birth-weight babies (Locker & Matear 2000).

Denture wearers need to ensure they maintain a healthy mouth by safeguarding any remaining teeth. It is important to treat dentures the same as natural teeth. They should be kept as clean as possible to prevent further tooth loss, inflamed gums, or bacterial and fungal infections (MacEntee 1985; Marsh & Martin 1992). Brushing is an ineffective method of denture disinfection (Shay 2000).

³ <http://www.health.nsw.gov.au/topics/babyteeth.html>

3.4 Play Well

The leading causes of oral and craniofacial injuries are sports, violence, falls, motor vehicle crashes, ingestion of foods containing foreign bodies and self-inflicted injury (Kraus and Robertson 1992). Facial trauma that results in fractured, displaced, or lost teeth can have significant negative functional, aesthetic and psychological effects on children (Cortes et al. 2002).



Craniofacial sports injuries occur in contact sports (rugby union, rugby league and Australian rules), team sports (basketball, cricket, hockey, soccer, netball, softball and baseball) and in individual activities (bicycle riding, roller skating/blading, swimming, squash, tennis and gymnastics) (Love et al. 1998). Dental injuries are the most prevalent type of orofacial trauma sustained during participation in sports. The upper front teeth are the teeth most affected (Jolly et al. 1996).

The use of mouthguards during sport reduces oral injuries (Jennings 1990; McNutt et al. 1989; Scott et al. 1994) and programs to increase their usage have been shown to be effective (Jolly et al. 1996). Mouthguards will only be effective if they are fitted properly and worn properly (Newsome et al. 2001; Winters 2001). Some sport and recreational activities such as cricket, squash, skiing and BMX riding may require the additional protection of full faced helmets or face guards which offer greater protection to oral and other facial structures (Nowjack-Raymer & Gift 1996).

Play is integral to children's development of motor and social skills, and while playing on playground equipment is an activity enjoyed by children, it can be hazardous (Altmann et al. 1996). Care in the design of school and public playgrounds is important and must comply with Australian/New Zealand Standards (Martin & Cooper 2005). Children should be taught to play safely and be supervised by a responsible adult (Petridou et al. 2002; Schwebel et al. 2006).

Home is a place for children to explore, to have adventures and to play. Unfortunately, the home is also the most common place for young children to be injured. One of the best ways to reduce the risk of injury is to make some physical changes to the house: either remove something that is potentially dangerous, or add a safety product <http://www.kidsafensw.org/homesafety/index.htm>.



Where a dental injury is sustained, professional dental advice should be sought immediately (Sae-Lim et al. 1999). Knowledge of first-aid strategies for dental trauma is important and recommended (Sprod et al. 1996), in particular training for parents/school and sports staff (Welsh Health Planning Forum 1992) and staff in emergency rooms in hospitals (Holan & Shmueli 2003). *Dentist in a Box™* is recommended by Sports Medicine Australia and the Australian and New Zealand Society of Paediatric Dentistry

http://www.sma.org.au/merchandise/dentist_in_a_box.asp.

3.5 Stay Well

It is recommended that an oral health risk assessment be performed before a child is one year old (American Academy of Pediatric Dentistry 2005). Babies are not born with decay-causing bacteria. Infants and toddlers whose mothers have high levels of mutans streptococci in their saliva, a result of untreated caries, are at risk of acquiring the bacteria (Berkowitz et al. 1981; Loesche 1993). This can happen through kissing, food tasting and cleaning the baby's dummy in their mouth. Therefore, steps to prevent caries should begin prenatally and continue with the mother and young child (Gomez & Webber 2001; Gomez et al. 2001). In addition, adolescents have been recognised as having distinctive oral health needs (AAPD Clinical Affairs Committee 2005-6; Macgregor et al. 1997; National Institute of Health Consensus Development Panel 2001; Pinkham et al. 2005; US Department of Human Services 2000; Yu et al. 2001).



For older adults, good oral health is a pre-requisite of good nutrition. Both oral and systemic diseases can profoundly affect appetite, the ability to eat, and diet choices, compromising overall health and well-being (Brodeur et al. 1993; Chauncey et al. 1984; Ranta et al. 1987). Regular clinical examinations are recommended for all people (with or without their natural teeth): 12 months for patients younger than 18 years, and 24 months for patients aged 18 years and older (National Collaborating Centre for Acute Care 2004).

Pit and fissure sealants are beneficial in preventing the development of caries in the permanent dentition of high risk children (Locker et al. 2003). Fluoride therapies also provide additional protection and remineralisation against acid attacks on the tooth enamel (Singh et al. 2003). Fluoride supplements, in the form of drops or tablets, are not recommended (ARCPOH 2006).



Smoking has been identified as one of the most significant causes of avoidable death and disease (NHMRC 1991).

Relationships have been reported between smoking and oral diseases, such as dental caries, periodontal diseases, gingival recession, oral mucosal lesions and oral cancer (Hirsch et al. 1991; Kassirer 1994; Mirbod & Ahing 2000; Tomar & Asmar 2000; Winn 2001). Motivated individuals can be assisted by advice from health professionals to quit smoking (Smoking Cessation 1998). Regular oral examinations, particularly as people age, for early detection of oral cancers and referral are important (Silverman 1988).

The damaging effects of ultraviolet light (UVL) on the skin (including the lips and mouth) and the importance of photoprotective sunscreen and other sun-protective measures are well documented. *SunSmart* messages, such as sunscreen application, safe levels of sun exposure and wearing protective clothing, should be reinforced (Taylor 2004) and championed in schools (Giles-Corti et al. 2004).



4. Glossary of Terms

Abfractions	(Or stress lesions) a consequence of eccentric forces on the natural dentition
Abrasion	External agents, such as toothbrush bristles and dietary factors, which have an abrasive effect on the teeth.
Attrition	A process in which tooth tissue is removed as a result of opposing tooth surfaces contacting function or parafunction.
Craniofacial	Pertaining to the head and face
Dental caries	Tooth decay
Dentate	Having some or all of one's own natural teeth
Dentition	The development of teeth and their arrangement in the mouth
Denture stomatitis	A recurring inflammation of the soft tissues that support the denture
Early childhood caries (ECC)	Dental decay of the primary teeth of infants and young children often characterised by rapid destruction of the upper and lower incisors (front teeth)
Extrinsic sugars	Sugars that are usually added to foods
Fluoride	A compound of the element fluorine (F), the 13 th most abundant element in nature: used in a variety of ways to reduce dental decay
Gingivitis	An inflammatory condition of the gum tissue, which can appear reddened and swollen and frequently bleeds easily
Intrinsic sugars	Are those naturally present in fruit and vegetables
Periodontal disease	A cluster of diseases caused by bacterial infections and resulting in inflammatory responses and chronic destruction of the soft tissues and bone that support the teeth
Periodontitis	Disease of the gum or bone
Plaque	A sticky bacterial film that coats the teeth
Professional advice	Advice given by registered dental providers including dentists, dental specialists, dental therapists, dental hygienists and dental prosthetists
Sealant	Plastic coatings, which bond to the biting surface of the back teeth, providing protection from dental decay
Sjögren's Syndrome	A chronic, inflammatory, autoimmune disorder characterised by dry mouth (xerostomia) and dry eye (keratoconjunctivitis sicca)
Sorbitol	A naturally occurring sweetener found primarily in fruits and berries
Xerostomia	A condition in which the mouth is dry because of a lack of saliva
Xylitol	Pure xylitol is a white crystalline substance that looks and tastes like sugar

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6. Further information

Australian Dental Association	http://www.ada.org.au
Australian Dental Association (NSW)	http://www.adansw.com.au/
Australian Institute of Health & Welfare Dental Statistics & Research Unit	http://www.who.int/healthpromotion/en/
Australian Research Centre for Population Oral Health	http://www.arcpoh.adelaide.edu.au/
Centre for Oral Health Strategy NSW	http://internal.health.nsw.gov.au/public-health/ohb/
The Cochrane Library	http://www3.interscience.wiley.com/cgi- bin/mrwhome/106568753/HOME
Department of Human Services, Victoria	http://hnp.dhs.vic.gov.au/wps/portal
Dietary Guidelines for Children and Adolescents in Australia	http://www.nhmrc.gov.au/publications/synopses/dietsyn.htm
Fluoride and water fluoridation	http://www.fluoridenow.com.au/
National Health and Medical Research Council	http://www.nhmrc.gov.au/
National Institute for Health and Clinical Excellence (UK)	http://www.nice.org.uk/
South Australian Dental Service	http://www.sadental.sa.gov.au/DesktopDefault.aspx?tabid=1
World Health Organisation	http://www.who.int/healthpromotion/en/

For health promotion training contact your Area Health Service for details on available training courses.

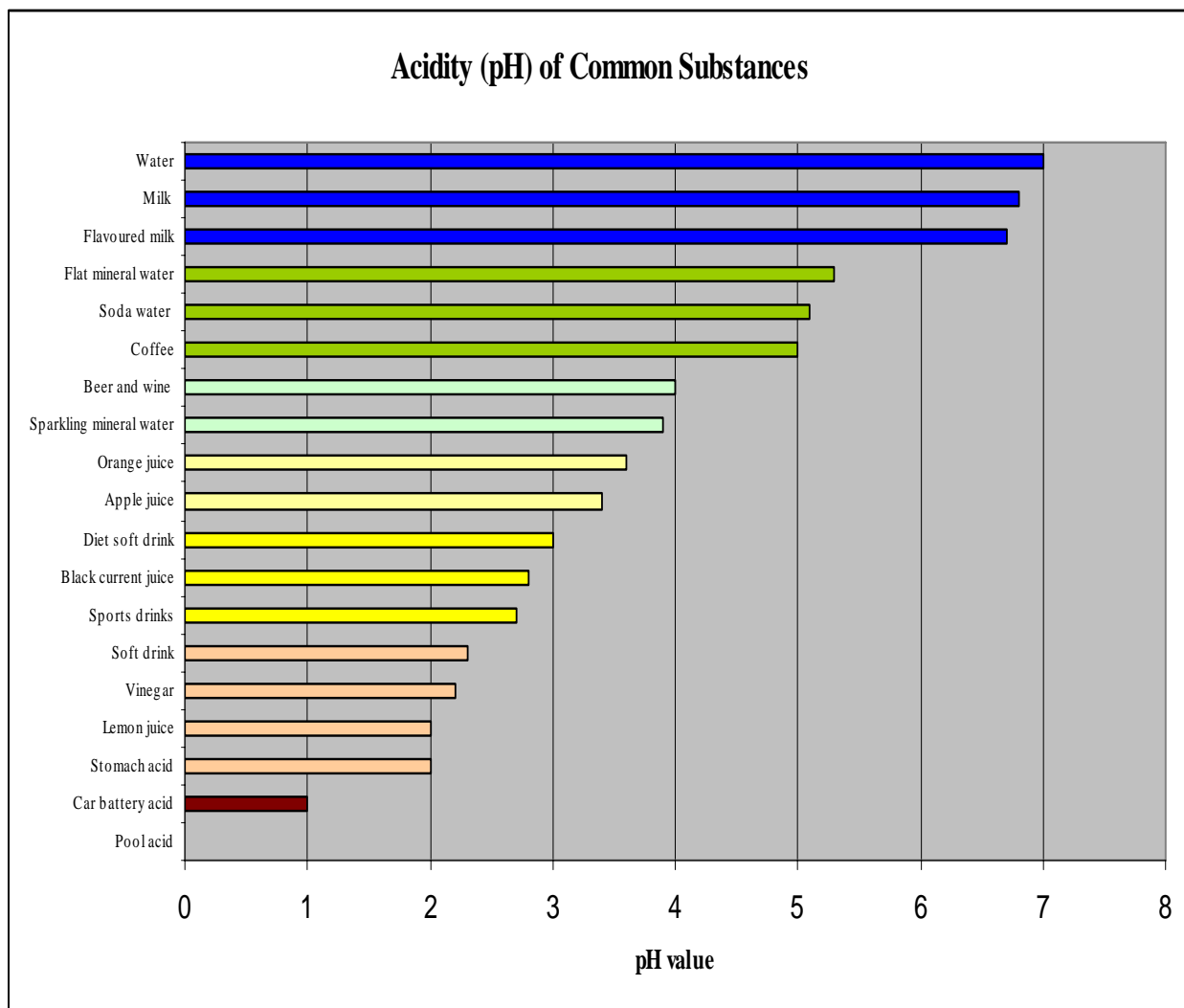
7. Appendices

Appendix A - Key stakeholders

NSW Oral Health Messages Working Group	
Dr Sally Clark	Senior Dental Officer, Sydney South West Area Health Service
Mr John Irving	Project Manager Oral Health, North Coast Area Health Service
Ms Jennifer Noller (Chair)	NSW Oral Health Promotion Coordinator, Centre for Oral Health Strategy NSW
Ms Georgette Roumanos	Administration Officer, Centre for Oral Health Strategy NSW
Mr Bernard Rupasinghe	Policy Analyst, Australian Dental Association (NSW Branch)
Ms Lenore Tuckerman	Professional Relations Consultant, Colgate Oral Care
NSW Oral Health Promotion Network	
Ms Linda Barlow	Dental Therapist, Greater Western Area Health Service
Dr Sally Clark	Senior Dental Officer Wingecarribee Health Service, Sydney South West Area Health Service
Dr Peter Dennison	Director, Bachelor of Oral Health, Faculty of Dentistry, The University of Sydney
Ms Samantha Edmonds	Senior Policy Officer, The Council of Social Services of NSW (NCOSS)
Ms Lisa Fitzgerald	Program Manager Oral Health Service, Hunter/New England Area Health Service
Ms Leonie Green	Oral Health Promotion Coordinator, South Eastern Sydney/Illawarra Area Health Service
Dr Kim Horneman	Manager, Performance & Evaluation Unit, Sydney South West Area Health Service
Mr John Irving	Project Manager Oral Health, North Coast Area Health Service
Ms Bronwyn Johnson	Coordinator, Oral Health Promotion, Sydney West Area Health Service
Ms Meredith Kay	Director, Oral Health Services, Northern Sydney/Central Coast Area Health Service
Ms Debbie Lee	Oral Health Promotion Coordinator, South Eastern Sydney/Illawarra Area Health Service
Ms Helen Lee	Area Dental Program Coordinator, Northern Rivers, North Coast Area Health Service
Ms Angela Masoe	Oral Health Programs Officer, Greater Southern Area Health Service
Ms Jennifer Noller (Chair)	NSW Oral Health Promotion Coordinator, Centre for Oral Health Strategy NSW
Ms Claire Phelan	A/Senior Policy Analyst Oral Health Programs, Centre for Oral Health Strategy NSW
Mr Bernard Rupasinghe	Policy Analyst, Australian Dental Association (NSW Branch)
Ms Georgette Roumanos	Administration Officer, Centre for Oral Health Strategy NSW
Ms Lindy Sank	Dietician, Sydney Dental Hospital
Ms Lenore Tuckerman	Professional Relations Consultant, Colgate Oral Care
Ms Janet Wallace	Senior Dental Therapist/Oral Health Educator, Central Coast Child Dental Services, Northern Sydney/Central Coast Area Health Service
Ms Linda Wallace	Oral Health Promotion Educator, Hunter/ New England Area Health Service
Ms Grace Wong	Senior Dental Therapist, Willoughby Child Dental Clinic, Northern Sydney/Central Coast Area Health Service
Dr Clive Wright	Chief Dental Officer, Centre for Oral Health Strategy NSW

Appendix B – Acidity (pH) level of common substances

Figure 1: Acidity (pH) of Common Substances



More acidic ← **pH** → **Less acidic**
(the smaller the pH the stronger the acid)