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*What options do we have for
organising, providing and funding
better public dental care?*

A John Spencer
Adelaide University

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Abstract

Public dental care for adults in Australia is struggling to avoid being labelled ‘poor dentistry for poor people’. Policy development to improve adult oral health and dental care has been restricted by attitudes that regard oral health as separate from general health, oral disease as preventable (and therefore an individual responsibility) and dental care as having limited dependency. Each attitude needs to be challenged to create a more constructive policy environment. In contrast to children, Australian adults have comparably poor oral health outcomes and many adults have limited access to dental care. Public dental care, as a means-tested residual program, is a torn and tattered safety net, characterised by institutionalised scarcity and harsh rationing of personal dental treatment. With many adults receiving only ‘emergency’ dental care and many teeth being extracted, little is being invested to improve adult oral health or wellbeing. Organising public dental care has become a ‘buck-passing’ problem between different levels of government. An agreement between the Commonwealth and States and Territories is required so that discussion on public dental care can be policy-shaping not political, long-term not immediate, creative not negative. Numerous issues can be identified in providing better public dental care. There is an imperative to add a public health role for the whole population to the present concentration on the provision of personal dental treatment. Instead of any further narrowing of eligibility, extended but reduced subsidy should also be considered for the ‘working poor’. Public–private mixes for the provision of public dental care seem inevitable, but both need to be actively researched for what works and does not work. Public dental care needs to move from emergency to general dental care; extraction to restorations of teeth; and treatment to prevention of oral disease. Altered approaches to emergency dental care and incremental approaches to maintenance care need to be implemented and evaluated. Dental care is the least subsidised area of health care. The subsidy for public dental care for adults is approximately \$176.7 million. Indirect subsidy via the dental expenses taxation rebate is \$23.2 million, while the private dental insurance rebate is approximately \$316–\$345 million. When disaggregated by income the total public subsidy for dental care follows a J-curve, with an initial high tail among low income adults, a trough among the working poor and high levels of subsidy among high income adults. This pattern is highly unjust and unfair. Higher income adults using private dental insurance and dental care may receive nearly five times the subsidy received by an aged pensioner seeking public dental care. Public dental care is not reaching many of the poorest and most in need Australian

adults. For the performance of public dental care to approach that of dental care for non-eligible adults, funding needs to increase from \$176.7 million to between \$446.4 and \$610.7 million. Estimates are most sensitive to the percentage of eligible adults who use public dental care. Demand among older adults (55–64, 65–74, 75+) is increasing and will create an additional pressure for funding for public dental care. Other contributions to the funding of public dental care may come from patient co-payments and contributions from private dental insurers. There is a way to move forward. Opportunities exist to address the fundamental issues in public dental care so that it contributes positively to people's oral health and wellbeing in Australia.

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Introduction

Dental care in Australia provides a number of paradoxes. A sizeable minority of Australians of higher education, occupation and income (including policy decision-makers) enjoy ready access to more and more technically advanced private dental care. The quality of such care and its ability to improve the wellbeing of its recipients is widely accepted. At the same time, a sizeable minority of Australian adults of middle to low income are deprived of such care through their inability to afford to purchase it or the savage inequalities of a torn and tattered safety net of free public dental care for means-tested eligible adults (Capilouto, 1991; Jones, 1998). Public dental care struggles daily to avoid being simply 'poor dentistry for poor people', but it is a struggle it is losing.

All States and Territories have programs of universally available, free or reduced cost school-based dental care. Such care is seen as a collective responsibility and an investment in the nation's future oral health. This investment in children's oral health is matched by strong commitment to water fluoridation. Water fluoridation enjoys both majority community and political support as a population preventive measure (Spencer and Stewart, 1997). As a result of water fluoridation, other preventive self-care measures and school-based dental care, Australian children enjoy a level of oral health among the best in industrialised countries. Yet, once of adult age there is little attention and apparently even less community will in maintaining the oral health gains among children and adolescents.

These paradoxes in policy within dental care and their contrast to the more egalitarian, whole-of-life perspective that pervades health care must be explainable. If left unexplained, the attitudes and expectations that have shaped these paradoxical policy outcomes will persist, effectively blocking any serious consideration of how to improve oral health and deliver better dental care. Young Australians' oral health and the investment made in achieving that outcome will continue to steadily depreciate as they age. The opportunity for oral health to contribute positively to individual general health and wellbeing in adulthood will be squandered.

The aim of this paper is to explore options for organising, providing and funding better public dental care. Public dental care has two central characteristics. It is largely or exclusively funded out of general taxation revenue and it is an identified program area within health and human services. After a brief examination of oral health and dental care, three separate issues

that set the context for considering policy options for public dental care are discussed: separateness, preventability, and limited dependency. The nature of the problem in public dental care is then examined. Child oral health and dental care is reviewed, both to illustrate what can be achieved for Australians and to warn us of potential problems. However, it is *adult* oral health and *public* dental care that are the central focus. Australian adults are in worse oral health than those in many comparable countries and adults eligible for public dental care have inadequate and deteriorating access to dental care, including public dental care. Options exist for organising, providing and funding better public dental care. Agreement between the Commonwealth and State or Territory governments would support reconstruction of the policy environment surrounding public dental care. Discussion is required on what type of activities are needed, for whom and how, where and who will provide them. Not only are there questions on the quantum of funding required, there are also major issues on the equity of the distribution of public subsidy for public and other dental care. Finally, a way forward is briefly outlined.

Oral health and dental care

Oral ill-health

Oral diseases and disorders have recently been described as the ‘silent epidemic’ (US Surgeon General, 2000). Oral diseases, including dental caries and periodontal diseases, are among the most prevalent diseases in the community. Dental caries (decayed teeth) is the most prevalent, while edentulism (total tooth loss) and advanced periodontal (gum) disease are the third and fifth most prevalent health conditions in Australians (AIHW, 2000a). New decayed teeth and advanced periodontal diseases are also among the ten most common new health conditions each year (AIHW, 2000a). Their consequences consistently rank dental problems among the most frequently reported illness episodes by Australians, and their treatment costs constitute a large part of the \$2.6 billion spent on dental care each year. The impact of dental caries and periodontal diseases on people’s everyday lives is subtle but pervasive, influencing eating, sleep and rest, and social roles. It is the prevalence and recurrence of these subtle impacts that creates the silent epidemic. Disorders like malformations (cleft lip/palate, malocclusion) and dental trauma are of lower prevalence, but higher impact with consequences in self-image and esteem, social relations and employment.

The oral cavity is also a portal for the entry of disease and a mirror of general health. Loss of teeth is associated with impaired eating and reduced nutritional status, disorders like anaemia and gastrointestinal disturbances and to diet-related ill-health. A growing body of scientific evidence suggests an association between oral infection (eg viruses, bacteria, yeasts) and systemic diseases (eg atherosclerosis, cardiovascular disease, cerebrovascular disease, premature and low birth weight babies, pulmonary diseases and disorders, otitis media and delayed growth and development), and between systemic diseases (eg arthritis, diabetes, HIV, osteoporosis) and oral, dental and craniofacial diseases and disorders (Slavkin, 1998).

Collectively oral diseases and disorders create substantial pain and suffering, disability, and in certain cases, death. The problems of improving oral health and providing better dental care are far from solved and warrant attention as public health issues. Oral health problems share many risk factor characteristics with wider general health problems and their solutions like health promotion and access to primary care for special groups including rural and remote dwellers, indigenous people, migrants, the aged and the deprived. For oral health to contribute

to public health in Australia, an improved understanding of oral health and dental care is required. This is a prerequisite for the development of informed oral health policy.

Oral health has been seen as a separate part of health, managed by a separate profession with limited interaction with other health care professions. Oral health has been left to the dental profession. This has also supported a separation in health policy. Key oral diseases (dental caries and periodontal diseases) have also been regarded as largely preventable and, therefore, an individual responsibility. This has supported a dominant culture of victim blaming and a mean spirited residual welfare approach to public dental care (Heloe, 1988). Only in the area of children's oral health has there been another perspective. The dependency of children on others has created a willingness to take collective responsibility in prevention through water fluoridation and access to school-based dental care. However, dependency for oral health and dental care has not been widely recognised among adults, creating an institutionalised neglect of their deteriorating oral health and inappropriate dental care. Each of the constructs of separateness, preventability and limited dependency needs reassessing, the results of which create an opportunity for a fresh perspective on public dental care.

Separateness

The separateness of oral health from general health probably has its origins in the history of the emergence of dentistry as a profession alongside, but not supervised by, the medical profession. Dental schools provided dental professional education and dental hospitals provided clinical experience and service juxtaposed to, but independent from, their medical counterparts. With some exceptions like oral medicine, pathology and surgery, the oral cavity was not seen as a domain of the medical profession.

The medical profession, sometimes dealing with life and death issues, often through large technologically advanced institutions and backed by biomedical research and related industry, has been content to leave oral health alone. As a result, most major policy debates about health in Australia rarely consider oral health. The principle of universal access to medical care has led to an acceptance of a community responsibility exercised through policies and performance monitoring, while policy with regard to dental care has hardly been considered. Yet, how different is infection and tissue destruction, developmental anomalies or trauma in the oral cavity from other body parts?

People don't see pain and discomfort from a decayed tooth as inherently different in the desirability of its prevention or treatment from pain due to a middle-ear infection or conjunctivitis. Developmental anomalies of the face and the oral cavity evoke wide community sympathy and support for treatment. People see the distress of facial and oral trauma similarly. However, the similarities to individuals' responses to signs and symptoms and the close anatomical proximity belies the gulf between these body parts in how they are approached in health policy. While the value of aids to restore function is seen similarly by the community for hearing, vision and eating, one area, aids for eating, has been largely excluded from health policy.

Not only does our commonsense and individual experience question this policy separateness, there are fundamental relations that make an inclusive approach with regard to the mouth and teeth in national health policy and programs more appropriate. These relations are illustrated in Figure 1 and are discussed below.

- Oral and general health and disease share risk factors. The family of oral diseases and disorders are associated with factors including inappropriate diet, smoking, alcohol, stress, injuries and poor hygiene. Most of these factors are common to a number of other chronic diseases such as heart disease, cancer and strokes. Therefore, it has been argued that it is rational to use a common risk-factor (or integrated) approach in programs to reduce risk and promote health (Sheiham and Watt, 2000).
- Oral and general disease often occur together in co-morbidity, both the result of nutritional deficiency or impairment of the immune system. Nutritional deficiency, like vitamin C deficiency, is associated with periodontal disease as well as general disease. Impairment of the immune system is associated with oral and general infections. An example is periodontal destruction associated with HIV-AIDS (Fenesy, 1998).
- Oral and general health and disease are associated with one another. An increasing list of associations between oral and general disease have been observed. Although there is a possibility of these associations being spurious, either due to shared risk factors or as a result of generalised diminished host response associated with inflammatory or immune system impairment, a number of associations have been reproduced across studies and have biological plausibility. Periodontal diseases have been associated with cardiovascular disease (Beck et al, 1996); cerebrovascular disease (Grau et al, 1997);

pre-term, low birth weight babies (Offenbacher et al, 1998); and aspiration pneumonia (Loesche and Lopatin, 1998). A greater extent and severity of periodontal diseases have also been associated with diabetes (Grossi and Genco, 1998), osteoporosis (Jeffcoat, 1998) and rheumatoid arthritis (Greenwald and Kirkwood, 1998; Mercado et al, 2000). While a null finding has recently gained attention in the link between periodontal diseases and cardiovascular disease (Hujoel et al, 2000), the literature is more notable for the reproducibility of associations and growing breadth of links being explored. At the least, these associations indicate that oral health needs to be included under the wider general health umbrella and not compartmentalised.

- The successful treatment of oral disease or general disease may be dependent on the treatment of the other. This has seen the emergence of medically necessary dental care (Rutkauskas, 2000). Medically necessary dental care has been defined as ‘oral health care that is a direct result of, or has a direct impact on, an underlying medical condition and/or its resulting therapy’. Medically necessary dental care has been suggested to be integral to comprehensive treatment to ensure optimum health outcomes for patients undergoing chemotherapy; having heart valve and other heart surgery; transplantation; suffering from diabetes, hepatitis C and HIV infection; and living with long-term renal dialysis and haemophilia (Rutkauskas, 2000).

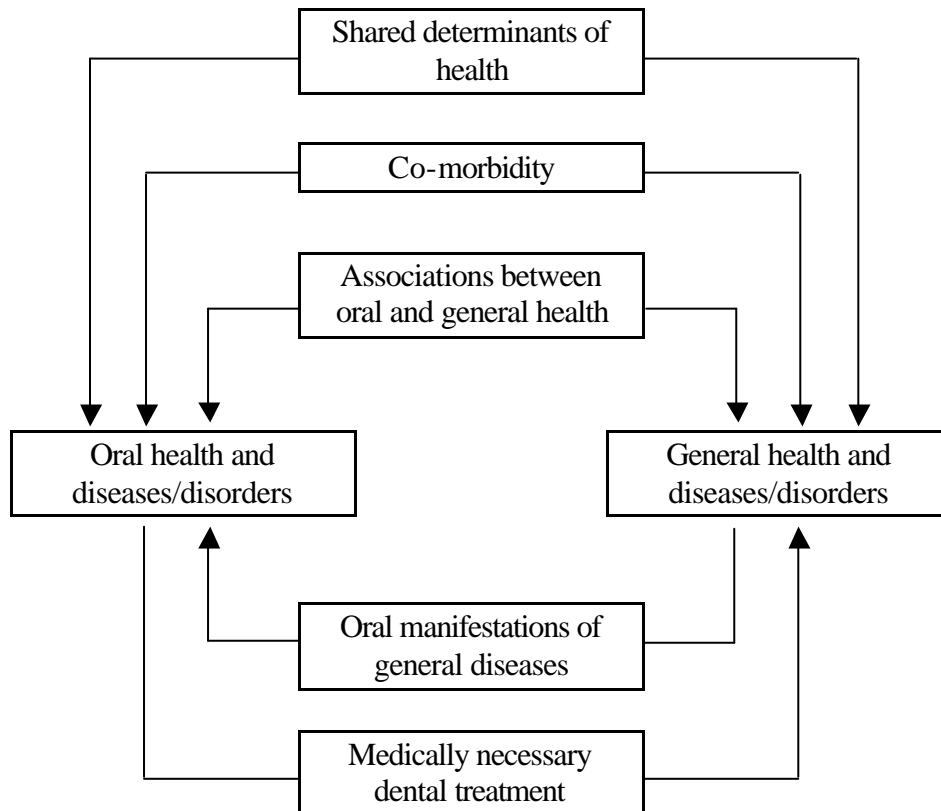


Figure 1. The relationship between oral and general health and diseases/disorders

Recognition that oral health is not separate to general health calls for actions on both sides of the existing divide. Dentistry cannot claim to be an integral part of health and desire to be integrated into wider health approaches if it does not seek greater interaction with the medical and other health professions. Dentists need to strengthen their role as oral health physicians through changes in education, research and service. Equally, the medical profession needs to become more aware of, and willing to interact with, dentists through changes in education and service. All of these efforts need to be developed in a supportive policy environment. Oral health and dental care should not be seen as separate. Instead, oral health should be seen as an integral aspect of general health and dental care as a component of health care.

Preventability

Preventability has also emerged as a construct that shapes policy on oral health and dental care. The strong commitment of the dental profession to prevention, seen in the support for periodic check-up visits and efforts at engaging people in preventive dental behaviours like

toothbrushing and flossing, may seem to lend support to the preventability of oral diseases like dental caries and periodontal diseases. However, research on risk prediction for these diseases clearly indicates that either less is known or can be measured about what places people at risk of these diseases than is desirable for these diseases to be regarded as highly preventable.

Neither caries nor periodontal disease individual risk prediction models have reached sufficiently high specificity or sensitivity that they are acceptable predictors of who will or won't develop disease (Hausen, 1997; Salvi et al, 1997). This is hardly surprising given the existence of a random event model for caries initiation (Manji et al, 1991) and a random burst model for periodontal diseases (Manji and Nagelkerke, 1989). Within the risk prediction models for both caries and periodontal diseases, stronger associations have been found for biological factors such as bacterial infections or morphological factors such as tooth shape than for lifestyle or personal preventive dental behaviours.

Personal behavioural factors do have associations with both dental caries and periodontal diseases. Both diseases share an aetiology bound up with dental plaque, which is influenced by oral hygiene procedures and dietary patterns. A range of factors may modify the oral environment and host response. For instance, salivary flow and buffering capacity can modify bacterial plaque acidity, and fluoride concentrations at the plaque–tooth interface alter the dynamics of acid demineralisation and remineralisation of the mineral hydroxyapatite of tooth enamel (Mellberg and Ripa, 1983; Newbrun, 1989). But what is less well appreciated is that tooth brushing frequency or between meal snacking by individuals can be difficult or impossible to associate with caries development in studies among children (Disney et al, 1992). If key personal behaviours are either weakly or not even associated with the development of disease, then holding the belief that oral disease is highly preventable through those behaviours is inappropriate.

Of course, some of the failure to find positive associations between personal behaviours and oral diseases can reflect misclassification issues. These include the extent to which the behaviours are practised, problems of point estimates of behaviours versus oral health outcomes that are years in their initiation and progression to clinically detectable disease, and a lack of variation in behaviours such that sufficient people are positioned below and above key thresholds of plaque accumulation or refined carbohydrate substrate availability. It is for this reason that more diffuse, composite measures of lifestyle may be associated with oral

disease, yet a single personal behaviour may not. Notwithstanding these concerns, there should be doubts over the extent to which common oral diseases like caries or periodontal diseases should be regarded as highly preventable by personal preventive dental behaviours.

There is a reasoning that because oral diseases have been labelled 'preventable' through personal behaviours that individuals are therefore responsible for their experience of oral disease. The fraying of the link between personal behaviours and oral diseases calls into question the frequent extension from preventability to individual responsibility.

The notion of individual responsibility is further undermined by the complex interplay between lifestyle and life circumstance. Lifestyle can be variously considered a pattern of chosen personal behaviours or an expression of social and cultural circumstances that constrain individual decisions and ultimately behaviours (Green and Kreuter, 1990). The latter view is gaining wider acceptance. Lifestyle is shaped by life circumstance. Choice of healthy personal behaviours is constrained by material and social deprivation (Locker et al, 1997). The causal pathway does not begin at personal behaviour, but rather with social factors. The personal behaviours are seen 'as indicators of other factors which are more straightforwardly related to the social structure, and which are the true aetiological agents' (Blane, 1985). This turns the focus to why unhealthy lifestyles have originated (Kickbusch, 1986) and away from victim-blaming approaches.

The individual is less able to change personal behaviours than some may wish. The serious problems of modifying personal behaviours without tackling the larger and more pervasive socio-cultural changes that are the preconditions of such change have been illustrated by the repeated failure of health education and behavioural modification projects. Gochman (1997; pxiii) notes:

attempts to change individual health behaviors, either through individual therapeutic interventions or through larger-scale health promotion or health education programs, have been less than impressive. Many attempts are purely programmatic, hastily conceived, and lacking in theoretical rationale or empirical foundation. A major reason for this is the lack of basic knowledge about the target behaviors, about the contexts in which they occur, and about the factors that determine and stabilize them.

The unreasonableness of expecting individuals to change personal behaviours in the face of unsupportive socio-cultural circumstances is made more pronounced for personal dental preventive behaviours given the failure to demonstrate their close association with the severity of the two most common oral diseases.

Ultimately the importance of the issue of preventability and its relationship to individual responsibility lies with how this influences public policy. Two perspectives are important. If individuals are held to be *less* responsible for their own health and experience of disease is *more* a chance event, then the community is more attuned to making access to health care a right rather than a reward. On the other hand, if individuals are held to be *more* responsible for their own health and experience of disease is *less* a chance event, then the community is more attuned to making access to health care a reward rather than a right. This latter view sits comfortably with individualistic perspectives and can be used to minimise a wider community responsibility or justify a mean-spirited approach to an individual's oral suffering. Given the difficulties with notions of individual preventability, this extension has little foundation.

In contrast to individual preventability, greater success has been obtained in preventing dental caries through population strategies like fluoridation (Spencer et al, 1996). Interestingly, the success in population preventive strategies lends support to a collective perspective and community responsibility for the prevention of oral diseases and disorders.

Limited dependency

Historically public dental services have been directed towards two separate sub-populations: children and disadvantaged adults. Services for children began after World War I, but were extremely limited until the late 1960s. They were then targeted as an investment in the nation's future oral health (Altman et al, 1998) and dramatically expanded through school-based dental services. Children's dependency on others for their dental services and a desire to maximise their oral health opportunity irrespective of their families' social circumstances and dental history was a driving force behind the Commonwealth government's adoption of the Australian School Dental Scheme. The Commonwealth government maintained block grants to the States and Territories for nearly a decade and subsequently, in 1981, broadbanded the funding within health allocations.

There has not been a parallel development of public dental care for adults. This may reflect the strong link of preventability with individual responsibility, but it also reflects a more limited concern with the circumstances of adults than with children (Donabedian, 1973; Jenny, 1980). Yet many adults are in circumstances where they are dependent on public dental care.

The Australian Bureau of Statistics estimated that in 1999 there were:

- 1,716,000 aged pensioners (65.5 per cent of persons 65 and over);
- 577,700 disability support pensioners; and
- 384,800 single parent payment recipients,

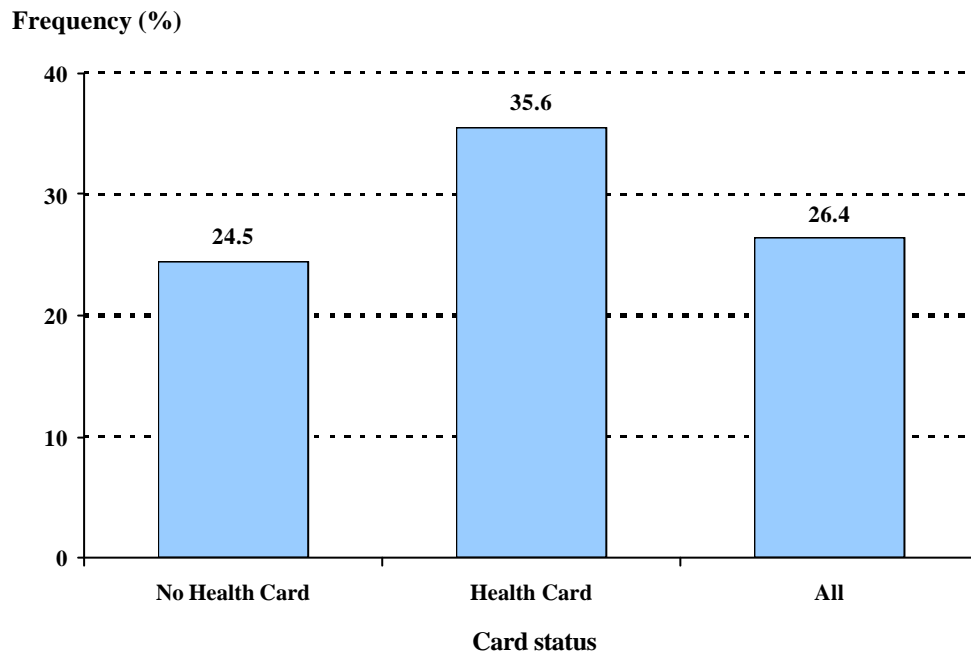
totalling 2.68 million people receiving pension income support in Australia (Australian Bureau of Statistics, 2000). This is reasonably close to the number of Pensioner Concession Cards (2.80 million) and the number of adults covered by a Pensioner Concession Card (2.86 million) reported by Commonwealth Department of Social Security as at March 1999.

There were also a further 745,900 adults receiving a labour market allowance (unemployment benefit) (Australian Bureau of Statistics, 2000). However, the number of Health Care Cards (1.75 million) and adults covered by a Health Care Card (1.90 million) reported by the Commonwealth Department of Social Security is considerably greater than those receiving labour market allowances (Commonwealth Department of Social Security, 1999). In total some 4.76 million adults in Australia are dependent on income support. Special target groups add character to this substantial dependency. These groups include:

- people with disabilities including mental, intellectual and physical disabilities;
- people housebound or in residential care;
- people in remote locations;
- Indigenous Australians;
- refugees and recent migrants; and
- prisoners.

It might reasonably be expected that higher percentages of people receiving income support face affordability and hardship issues in purchasing private dental care. At the very least, difficulty in paying for treatment is likely to lead to avoiding or delaying dental visits or to preventing recommended treatment proceeding. Over one quarter of adult Australians avoid or delay visiting because of cost. Avoidance or delay is most frequent among 25–44 year old

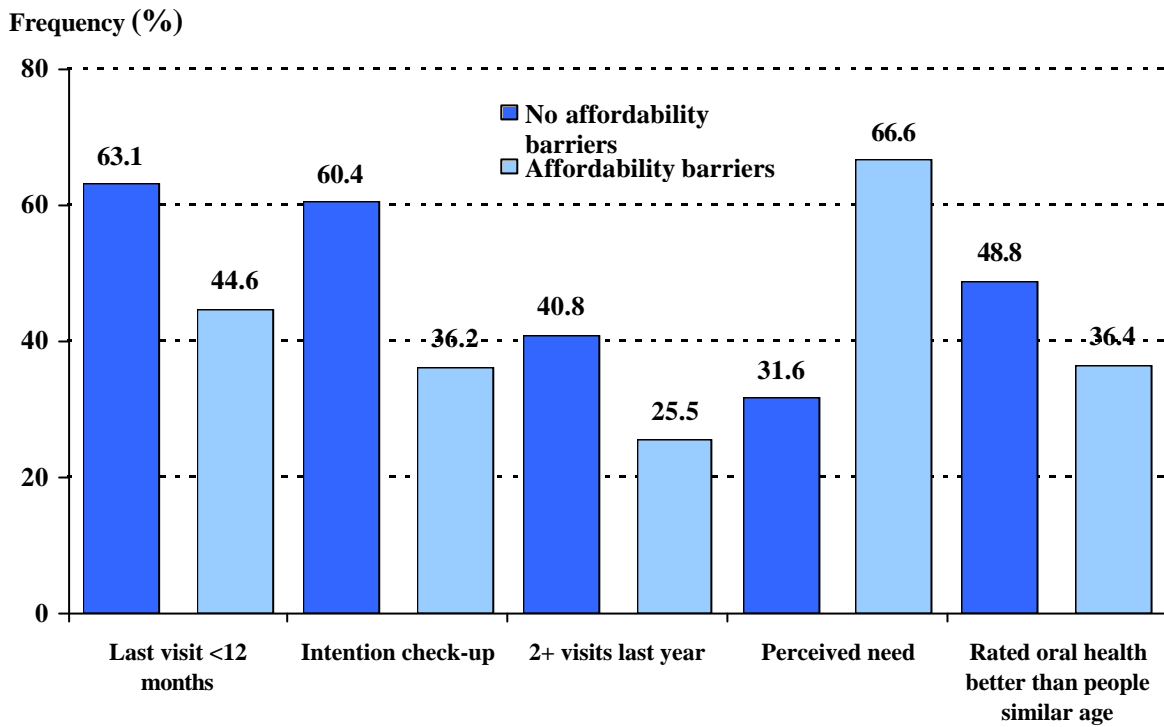
adults, those with annual household incomes between \$12,000–\$30,000 and Health Card holders. Health Card holders, faced with scarcity of public dental care, are forced frequently to seek dental care in the private sector. Here Health Card holders were nearly half as likely again to avoid or delay visiting because of cost compared to non-Health Card holders (Figure 2).



Source: Spencer, 1993a

Figure 2. Avoiding or delaying dental visiting because of cost

Similar percentages of Health Card holders report cost preventing dental treatment which was recommended or wanted. Australian adults who avoid or delay visiting because of cost or for whom cost prevented dental treatment which is recommended have reduced access to dental care. This is illustrated in Figure 3. They are less likely to have recently visited, less likely to visit for a check-up and less likely to have two or more visits in the last 12 months. Twice the percentage of Australian adults who avoid or delay visits because of cost perceive a need for dental treatment and 25 per cent fewer rated their own oral health better in comparison to other people of similar age compared to those without affordability concerns (Spencer, 1993a).



Source: Spencer, 1993a

Figure 3. Affordability and access to dental care

Many adults dependent on income support experience affordability and hardship barriers in purchasing private dental care, which creates a dependency on public dental care. This is not a limited residual group of Australian adults. It represents some 33.5 per cent of all Australian adults. Policy which shapes their oral health and dental care opportunities affects a sizeable minority of adults and ultimately is reflected in the oral health and dental care enjoyed by Australian adults in comparison to other industrialised countries. This creates the breadth of dependency on public dental care and its importance among adults. It is a dependency which is simply not grasped or responded to in current policy on public dental care.

The problem

Child oral health and school-based dental care

In any comparative sense Australian children enjoy high levels of oral health and access to dental care that has proven to be affordable and efficient. Using the internationally accepted comparison age and indicator for child oral health reveals Australian children with the second lowest number of permanent teeth with dental decay experience (Decayed, Missing and Filled Teeth score — DMFT) at age 12 years among OECD countries (see Table 1).

Table 1. Child oral health: caries experience of 12 year olds among OECD countries — top 10

Country	Year	DMFT
Luxemburg	1998	0.7
Australia	1996	0.9
	1997	0.86
Denmark	1999	1.0
Netherlands	1999	1.0
Sweden	1997	1.0
Finland	1997	1.1
UK	1997	1.1
Iceland	1995	1.5
Ireland	1995	1.5
Greece	1993	1.6

*Source: OECD, 2000
Australia updated from Armfield et al, 2000*

Even among the ‘top 10’ OECD countries for child oral health there is a two-fold difference in the number of teeth with experience of dental decay. This difference extends to four-fold when the best and worst oral health of children in the 29 OECD countries is compared.

Australian children’s favourable position in oral health is matched by good access to dental care. Data show a high percentage of Australian children visiting for dental care within the

last year (85.9 per cent) or two years (94.7 per cent) (AIHW DSRU, 2000a; K Roberts-Thomson. Personal Communication, 16 January 2001). Comparisons with European countries reveal that this favourable situation is achieved with a low investment in child dental care in Australia (Riordan, 1997). This positive outcome reflects the presence of population oral health strategies like water fluoridation and a no-frills, largely dental therapist staffed, preventive or oral health promotion-oriented school-based dental care system.

While health policy on child oral health and dental care has been largely a success in Australia, it would be a mistake to assume that all is well in oral health and dental care for all children.

First, there is a substantial social gradient in child oral disease that perpetuates a small disadvantaged group of children who experience a disproportionate share of:

- early childhood caries (or nursing caries);
- decay in the deciduous teeth; and
- decay in the permanent teeth (Spencer and Puzio, 2000).

Second, while school-based dental care has been able to diminish the social gradient of oral disease among school age children (Allister et al, 1995), school-based dental care is not equally available or accessible in all States and Territories. Very marked differences in accessing school-based dental care exist across the States and Territories, with the most populous States severely disadvantaged (see Table 2).

Table 2. State and Territory comparison of access to school-based dental care (School Dental Service — SDS) or any dental provider among Australian primary school children

States/ Territories	Primary school children			
	Visited SDS		Visited a dental provider	
	Last 12 months	Last 24 months	Last 12 months	Last 24 months
NSW	34.2	40.0	76.3	89.3
Vic	33.0	40.4	85.1	94.9
Qld	64.3	67.2	93.7	98.2
SA	69.4	76.7	90.2	98.4
WA	76.0	78.5	96.3	99.6
Tas	71.8	76.1	94.4	100.0
ACT	61.0	65.9	90.2	97.6
NT	81.5	85.2	96.3	100.0

*Source: AIHW Dental Statistics and Research Unit, 2000a
K Roberts-Thomson. Personal Communication, 11 December 2000*

The reasons for this inequality stretch back to the funding of the Australian School Dental Scheme from 1973. An unequal base existed when that scheme began, with a number of States with already existing dental therapy training programs and school-based dental care which had been developing since the late 1960s. New South Wales and Victoria were late starters in dental therapy training and later in capitalising their field school dental clinics. By the time the Commonwealth began reducing identified recurrent funding and subsequently capital funding to the States in the late 1970s and the beginning of the 1980s, these States were still languishing behind in the development of infrastructure for school-based dental care (Palmer, 1982; Spencer, 1983). Despite commitments from each State to the gradual expansion of their school-based dental care, the gap by which the services in New South Wales and Victoria lagged behind others was sizeable. By the early 1990s competition within public dental care for resources was also intense, consolidating the disadvantage these States have experienced in their investment in child oral health.

Third, the seemingly favourable position of school-based dental care in most States and Territories obscures other problems that are emerging. There is a depreciating capital infrastructure for school-based dental care. Training schools for dental therapy and school-based clinics are reaching the end of their working life and many need infusions of capital. The competition for scarce public dental care resources has led to the transfer of resources out of child and into adult dental care, with commensurate requirements for greater efficiency in school-based dental care. This has seen the rate of children per clinical operator rise to very high levels and productivity pushed to maximum achievable levels. Resources are rationed by dilution using a risk identification and management strategy, mainly associated with the withholding of care from low- and moderate-risk children through extended recall intervals (Chartier, 1997). At some point such efficiency through rationing exceeds the level at which either children and their parents, or providers find it acceptable. There is some recent evidence that satisfaction with school-based dental care has fallen in at least one state (Luzzi et al, 2000).

Therefore, while children's oral health and dental care have not attracted negative attention in recent times, it should be recognised that public dental care still has real or emerging problems among children:

- pockets of high risk children exist;
- inequalities in access to school-based dental care exist across States and Territories;
- capital stock is at the end of its working life with a need for re-investment to maintain safety and quality of care; and
- resources have been thinned and stretched across greater numbers of children to the extent that the quality of care as judged by parents, children and providers may be diminishing.

However, these absolute problems seem less substantial when compared to the nature and magnitude of the failures in public dental care for adults. As this failure among adults is both more dramatic and disturbing, the remainder of this discussion will concentrate on the problem and how we can organise, provide and fund better public dental care for adults.

Adult oral health, disease and disability

Public dental care is falling short in its contribution to maintaining or sustaining the investment made in the oral health of Australian children as they move into and through adulthood.

Australia was positioned third to last in the rank order of oral health among 35–44 year olds in 21 of the 29 OECD countries with comparable data. Australian adults were in a group with near maximal scores of 20+ Decayed, Missing and Filled teeth (Canada 20.0, Norway 20.5, Australia 20.8, New Zealand 20.9, Denmark 22.9). Australia's position has deteriorated from near top of the list for 12 year olds to near bottom of the list for oral health in 35–44 year olds (see Table 3).

Table 3. Adult oral health: caries experience of 35–44 year olds among OECD countries — top 10¹ and Australia²

Country	Year	DMFT
Korea	1991	4.5
Italy	1995	9.4
Portugal	1984	10.9
Spain	1993	10.9
Turkey	1987	11.6
USA	1991	13.6
Japan	1993	13.7
France	1994	14.6
Hungary	1991	15.0
Greece	1985	15.8
Australia	1990 ²	20.8

¹ 8 OECD countries listed no recent DMFT data

² Australian entry is most likely the NOHSA 1987–88 not 1990

Source: WHO, 2000

It should be emphasised that this change in rank order occurs across a couple of decades of age difference using the same oral health outcome measure, the number of teeth with experience of dental decay. The movement from among the best to the worst in comparative oral health reflects a complex array of person, time and place issues between countries. What

remains readily apparent is that the characteristics of public dental care which have brought such success among children are missing from middle-aged Australian adults.

The deterioration of the comparative position of Australians' oral health in the passage from childhood into adulthood is further accentuated by the relatively high level of edentulism (total tooth loss) among 65+ year olds. In the comparison of edentulism of 65+ year olds from OECD countries, Australia ranked tenth, with a twofold higher percentage of edentulism than those countries with the best levels of natural tooth retention (see Table 4). Edentulism reflects access to dental care, expectations of people and acquiescence of dental providers, rather than oral disease per se. It is a consequence of decisions about the management of oral disease rather than disease experience. In this sense it extends the comparison of poor oral health among middle-aged adults to include an outcome of how oral disease experience is managed by dental care.

Table 4. Adult oral health: edentulism of 65+ year olds among OECD countries — top 10

Country	Year	% edentulous
Czech Republic	1997	19.9
Japan	1993	20.5
Sweden	1997	21.5
Germany	1997	24.8
USA	1997	29.8
Austria	1990	30.0
Hungary	1990	30.0
Spain	1994	31.3
Norway	1995	33.0
Australia	1996	39.1

Source: OECD, 2000

Oral diseases and disorders, like dental caries and advanced periodontal disease, are frequently experienced with clinical consequences that are well understood: destruction of the hard tissues of teeth and infection of the soft tissues of the pulp and tissues surrounding the tooth root apex, or infection and inflammatory responses in the tissues of the supporting gums and bone with progressive destruction of deeper supporting tissues. Infection and tissue

destruction are frequently associated with cycles of pain and discomfort. Both diseases can be controlled by personal and professional care, and professional care can restore function.

Other oral diseases and disorders, while less common, are also associated with clinical consequences ranging from infection (oral mucosal conditions) through to neoplasm (oral cancers), minor malalignment of teeth (malocclusion) to malformation of the teeth or jaws, self-inflicted minor trauma (cheek biting) to severe oral and facial trauma (motor vehicle and other accidents).

Collectively the family of oral diseases and disorders are numerous and widespread in the community. Untreated disease has a range of non-clinical consequences in which activities of daily living can be interrupted to a lesser or greater extent. Most are treatable, but many are recurrent and treatments also need maintenance.

It is not surprising, therefore, that oral diseases and disorders are a substantial burden on the community. The burden manifests itself at both individual and societal levels. Recent exploration of the burden of disease in Australia has found dental caries, periodontal diseases and tooth loss account for approximately 1

per cent of disability adjusted life years (Mathers et al, 1999). Research on oral wellbeing indicates that much of the disability will be acute episodes of pain or discomfort, and functional limitation in daily activities such as eating, talking and smiling. Physical, psychological and social disability, even handicap, also occur, but among low percentages of the community. For example, individuals report that their teeth, mouth or dentures lead to:

- people misunderstanding some of their words in conversation;
- sleep being interrupted;
- avoiding going out; and/or
- being unable to work to their full capacity (Slade and Spencer, 1994).

There has been little recognition of the impact of oral diseases and disorders on the study or work of Australians. Spencer and Lewis (1988) reported that in 1983 over 600,000 days were lost from schooling and 1,100,000 days from work due to dental problems. Some 16 per cent of Australian workers report taking time off work for a dental problem in the last year, with an average of 2.2 hours lost. However, nearly 30 per cent report working despite a dental problem, with one-fifth of these indicating that the problem affected their work (Yanga-

Mabunga, 1997). Oral diseases and disorders indirectly cost the Australian community millions of dollars in lost productivity.

The social impact of oral diseases and disorders is inadequately captured in global measures of disability like the SF36 index (Allen et al, 1999). Therefore, it is uncertain whether the comparative assessment of disability across diseases in Australia has adequately reflected the many subtle oral impacts. Further, the multiple sites (teeth, tooth surfaces, etc) at which dental caries and periodontal diseases can occur and their recurrence, or the failure of treatments, are inadequately captured in conversions of prevalence data to estimates of incidence rates for modelling disability.

There is also an indication that disability may be higher than estimated when it is compared to cost of illness data. The presence of the cost of oral disease and disorders has long been recognised as propelling the gastrointestinal system to the head of the system comparisons of cost of illness. In Australia this was confirmed by disease cost estimates which allocated over 90 per cent of the total recurrent health expenditure in 1993–94, or just over \$31 billion. Six disease groups account for most health expenditure, with cardiovascular and digestive system diseases both accounting for \$3.7 billion or 11.8 per cent of total health system costs. The digestive system diseases group is an expensive one, in part because of the large expenditure on dental services (\$1.8 billion in 1993–94) (AIHW, 2000).

Adult access to public dental care

There is inadequate access among those who are eligible for public dental care. Savage inequalities exist in access to dental care (Jones, 1998) and these inequalities are widening as the public dental care safety net becomes so tattered that most eligible Australians' oral health is not sustained or supported.

The divide between Health Card holders eligible to use public dental care and the more affluent in Australia, those with household incomes above \$40,000, with dental insurance and residing in a high socio-economic area, is substantial and entrenched.

Table 5 presents a comparison of access to dental care between a more affluent group of Australian adults and Health Card holders across 1994–96. The data for the comparison were

drawn from the National Dental Telephone Interview Surveys of 1994, 1995 and 1996 (AIHW Dental Statistics and Research Unit, 2001a).

Table 5. Adult access to dental care in Australia

Performance indicator	1994–96		1999
	Affluent*	Health Card holders	Health Card holders
Perceived a need for treatment (%)	18.4	43.6	40.6
Experienced a toothache in last 12 months (%)	11.8	20.9	26.1
Visited dentist 5+ years ago (%)	3.1	6.9	7.8
Last visited for a problem (%)	33.6	75.1	71.8
Avoided or delayed because of cost (%)	14.0	34.1	38.2
Waited more than 6+ months for appointment (%)	0.6	25.9	18.9
Cost prevented recommended treatment (%)	13.0	28.2	39.3
Received extraction(s) in last 12 months (%)	7.5	21.2	26.7
Received fillings at last visit (%)	50.1	59.3	43.9

* 'Affluent' persons had an income above \$40,000 with dental insurance and residing in a high socio-economic area.

Source: Stewart et al, 1998; AIHW Dental Statistics and Research Unit, 2001a; 2001b

The comparison indicates that Health Card holders were:

- more likely to perceive a need for treatment;
- more likely to have experienced a toothache in the last 12 months;
- more likely to have visited a dentist 5+ years ago;
- more likely to have visited for a problem;
- more likely to have avoided or delayed visiting because of cost;
- more likely to have waited 6+ months for an appointment;
- more likely to have reported that cost prevented recommended treatment;
- more likely to receive extractions in the last 12 months; and
- more likely to receive fillings at the last visit.

Health Card holders are in greater need of treatment. Their visiting pattern is less favourable and they receive more extractions which diminish their oral health and wellbeing. Yet this

comparison is softened by the use of private dental care by a majority of Health Card holders and its reflection of the apparently better access enjoyed under the Commonwealth Dental Health Program (1994–1996).

Subsequent data collected in the National Dental Telephone Interview Survey in 1999 show a further deterioration in access to dental care among Health Card holders (AIHW DSRU, 2001). Experience of toothache, avoidance or delay in visiting because of cost and cost preventing recommended treatment were all more likely among Health Card holders in 1999 than 1994–96. The consistently high level of last visits for a problem, coupled with a reduction in the likelihood of waiting 6+ months for an appointment, indicate a possible move of more Health Card holders out of public dental care into private dental care. The higher percentage of Health Card holders visiting 5+ years ago indicates a small increase in the numbers of those effectively lost to any dental care. However, despite the consistently high perceived need and even higher symptom experience, fewer restorations were received at last visit and receipt of extractions increased. The gap in access to dental care between the more affluent and Health Card holders was substantial and access among Health Card holders deteriorated between the mid- and late-1990s.

Public dental care in Australia has long faced decisions about the allocation of scarce resources (dental providers' time) in circumstances where supply is constrained. Public dental care is rationed, first at the national level by decisions on Federal government involvement in the provision of dental services, and then at a State and Territory level by decisions on program budgets. These are the macro decisions which constrain the budgets to meet demands for public dental care. In addition to setting the total funding allocation, Federal, State and Territory governments may also influence its distribution to client groups or to specific services, (eg denture services for aged pensioners). These macro-rationing decisions limit and shape public dental care. Given the constraints introduced by these macro-rationing decisions, providers of public dental care are forced to make their own harsh decisions on who gets what dental care within the budgetary limits which have been set (Klein et al, 1996).

It is at the reception counter that the harshest rationing decisions are made. Foremost among the rationing strategies employed in the public dental services has been rationing by delay through its ultimate symbol, the waiting list. Approximately 500,000 adults are on the waiting lists for general dental care from public dental services in Australia. The veracity of the numbers of people on these waiting lists is not infrequently questioned. However, even

massive discounting for death, eligibility changes, residential movement, and the seeking of alternative dental care still leaves waiting lists that have grown to absurd lengths. As a consequence, demand for urgent dental services has increased leading to a predominance of emergency dental services. Such dental services are limited in scope and depth, leading to quicker visits by orally sicker people. This is rationing by dilution. Dental care is offered, but people get less care. As the probability of any visit in the foreseeable future declines, there is more and more demand for, and more resources devoted to, emergency dental visits, until this is the dominant nature of diluted public dental care. The system becomes trapped in a vicious cycle.

A more recent addition to public dental care has been rationing by price through the introduction of patient co-payments. Co-payment arrangements vary between States and Territories. At the core is a flat 'price' for a dental visit, sometimes capped for a course of care together with a contribution to non-clinical, dental laboratory costs. Demand for dental care is price-elastic (Feldstein, 1973). While price elasticity has not been researched in the wider 'market' for private dental care in Australia, it is generally accepted that demand for public dental care has been depressed by about one-third by co-payments. Co-payments change the situation in public dental care to one in which supply is constrained by budgets to meet a partly constrained demand for resources.

Organisation of public dental care

There is no formal agreement on the organisation of public dental care between the Commonwealth, State and Territory governments. As a result the organisation of public dental care has varied over short periods of time and across States and Territories. The lack of any national policy has led to the movement of resources into and out of publicly-funded dental care and great disparity between programs at a State and Territory level.

Governments have a responsibility for:

- assessment;
- policy development;
- assurance; and
- evaluation (US National Academy of Sciences, 1988).

The Commonwealth government has a responsibility to lead national assessment of oral health and needs, develop national policy and evaluative functions, especially those directed at assurance of access to public dental care across all States and Territories. The Commonwealth government can also have a direct role in seeding new initiatives. This has occurred twice in the last 30 years: the Australian School Dental Scheme and the Commonwealth Dental Health Program. The Commonwealth government's responsibilities require a commitment to an ongoing infrastructure that focuses on oral health and dental care. There needs to be a national capacity to lead and respond to issues in public dental care. No such infrastructure exists today. National issues related to oral health and dental care are either not addressed or are muddled through inelegantly.

The Commonwealth government's responsibilities in the provision of public dental care has been a contentious matter in recent times. This is raised as a principle to either justify the abolition of the Commonwealth Dental Health Program or to advocate its reinstatement. While amendment to the Australian Constitution in 1948 allows the Commonwealth to be directly involved in the provision of dental services, this has been exercised only in a limited fashion (Senate Community Affairs References Committee, 1997). The Commonwealth has a direct involvement in dental care for veterans (some \$55 million a year or approximately \$475 per course of care per veteran seeking dental care), some in-patient services under Medicare, dental care related to a cleft lip/palate scheme, Indigenous Australians and the armed services. This is a small proportion (less than 3 per cent) of all dental care. The Commonwealth has never been directly involved in any large-scale public dental care programs. Rather, it has funded the States and Territories to provide public dental care.

The lack of direct Commonwealth involvement in the provision of dental services should have no bearing on the resources made available for the States and Territories to deliver public dental care. The fact that these issues have become linked is simply an attempt to deflect opprobrium from a budget cut of \$100 million annually to the States and Territories for public dental care as part of fiscal tightening in 1996. This is clearly evident when the Commonwealth can enter the assurance of access to dental services through the Private Health Insurance Incentives Scheme (30 per cent tax rebate on health insurance and the Lifetime Health Cover arrangements) (refer to 'Subsidy to private dental insurance'). This not only re-established a Commonwealth government role in assuring access to dental care, it also

demonstrated that funds were soon available to consider broad-banding the original special purpose funding for public dental care into health grants for the States and Territories.

State and Territory governments have long been responsible for the actual provision of public dental care. At a State and Territory level, provision of dental services is set in the context of their wider government philosophies and responsibilities. Hence, the organisation of public dental care varies markedly among States and Territories. This is best exemplified by the Commonwealth Dental Health Program. In some states the subsidy provided by the program consisted of a capped contribution to dental care provided by private dentists, in others they received an uncapped contribution to dental care provided by public dental clinics. The withdrawal of the Commonwealth funding has seen substantial differentials between States and Territories on the likelihood of access to any public dental care. The end result has been variation in both the organisation inputs and performance of public dental care from one state to another.

The consideration of the organisation and inputs into public dental care has become ‘intentionally more political than policy shaping, immediate than long-term, negative than creative’ (Saul, 1992). There is an urgent need to reach a Commonwealth–State agreement on public dental care. The buck-passing of responsibilities is delaying progress in all levels of government supporting and sustaining actions for better oral health and good dental care, including public dental care. Several models exist for such a Commonwealth–State agreement including the Medicare (Australian Health Care Agreement 1998/99–2002/3) and public health (Public Health Outcome Funding Agreement 1999/2000–2003/2004) agreements. Both have numerous similarities despite the differences in both the nature of the activities and sums of funding involved. Such agreement provides clarification between the Commonwealth, States and Territories on:

- principles;
- roles and responsibilities;
- aspects for reform;
- financial arrangements; and
- supply of data and performance information.

One particular aspect in need of reform is the separateness of public dental care from other health activities. This is not a call for public dental care to be subsumed by another area but

rather a requirement for the inclusion of public dental care within other health policy. Numerous examples exist where public dental care has been notable for its omission from health policy. One such example is the policy initiatives surrounding rural health which has been a focus in the last two Federal budgets. The May 1999 Federal budget announced a new program, the Regional Health Service Centres Initiative, which was to establish 30 new regional health centres with a wide range of health services, including many ancillary health services. Yet dental services were not to be included (Commonwealth Department of Health and Aged Care, 1999). More recently, the May 2000 Federal budget announced new programs supporting the recruitment and retention of medical practitioners in rural areas (Commonwealth Department of Health and Aged Care, 2000). Again, despite the similarity in the fundamental problem of maldistribution of labour forces and documented health and access issues, providers of public dental care have not been drawn into the raft of policy initiatives. Public dental care needs to be a part of the process, learning and cooperating with other health areas in developing such new policies.

The recruitment and retention of providers of public dental care in rural areas also illustrates a problem with intersectoral implications. It has both health and education dimensions at Commonwealth and State or Territory levels. Rarely will a creative approach to oral health or dental care be limited to only one government sector. The two notable public oral health advancements in Australia have had strong intersectoral ramifications. Water fluoridation needs water authority, local government, health sector and State and Territory government cooperation. School-based dental care needs both health and education sector cooperation. There is a need for an increased intersectoral awareness of oral health and dental care. Maybe this awareness will be well below the top in priority lists, but opportunities for the improvement of oral health and wellbeing of adult Australians are being lost due to the obvious fact that such possibilities are being overlooked.

The context for these functions being exercised is also undergoing considerable change. Commonwealth–State funding arrangements will be changed by the introduction of the Goods and Services Tax (GST). GST revenues will flow to the States and Territories, placing more emphasis on the priority setting of State and Territory governments for the ultimate share of revenues that flow to public dental care. However, this is occurring at a time when other health service management approaches are potentially putting greater distance between organisations that provide public dental services and those that make decisions on allocations.

The spread of purchaser-provider arrangements has placed most of the expertise in public dental care on the provider side of purchaser-provider agreements. To avoid a potential lack of commitment to and understanding of public dental care on the purchaser side there needs to be a transfer of expertise out of the provider organisations into the purchaser bureaucracy. While providers need some specialised expertise for their own management, this expertise will not infrequently be discounted by purchasers as there is no separation of the wider advocacy and narrower self-maintenance conflict. A viable, centralised infrastructure is needed for States and Territories to fulfil their wider assessment, policy development, assurance and evaluation functions. If such a capacity is not established centrally, then advocacy in the budgeting, review and priority-setting processes for public dental care will be undermined.

Providing better public dental care

The institutionalised scarcity of resources for public dental care in Australia has left a torn and tattered safety net that is unable to provide an acceptable standard of dental care for disadvantaged adult Australians. Under these circumstances it is difficult for those involved to find the time and energy to ask fundamental questions about the aim of the care, what sort of program should it be, to whom should it be provided, how, where and by whom. Yet these are the type of questions that should be asked of any service (White, 1976), especially when resources are scarce.

What sort of program should it be?

Public dental care is provided so that people can be orally healthy, which means that they can eat, speak and socialise without discomfort or embarrassment, and without active disease in their mouth which affects their overall wellbeing (UK Department of Health, 1994).

This will be better achieved and more sustainable if those involved in public dental care add a public health perspective to its role. While the provision of personal dental treatment contributes to the goal of improving the oral health of the population, it is not the only or necessarily the most beneficial approach. Oral health can be improved by health promotion, disease prevention, early diagnosis and prompt treatment and rehabilitation. The pressing demand for personal dental treatment has limited the development of a more balanced mix of

activity in public dental care. This may be at the cost of developing better oral health. As Evans and Stoddart (1990, p1360) stated: ‘...a society that spends so much on health care that it cannot or will not spend adequately on other health enhancing activities may actually be reducing the health of its population.’

There is an urgent need for a reorientation of public dental care from ‘care’ to ‘cure’ with a focus on a balance of activities for oral health gains. Specific segments of global budgets need to be identified and quarantined for health promotion and specific disease prevention. This involves taking a ‘whole population’ view of oral health — considering oral health problems as they affect groups of people, rather than a concentration on the treatment of individuals. It also involves a broadened set of services which might include:

- monitoring oral health status to identify community oral health problems;
- diagnosing and investigating oral health problems and oral health hazards in the community;
- enforcing laws and regulations that protect oral health and ensure safety;
- informing, educating, and empowering people about oral health issues;
- mobilising community partnerships to identify and solve oral health problems;
- linking people to needed personal dental treatment and assuring the provision of dental treatment;
- evaluating effectiveness, accessibility, and quality of personal and population-based dental care;
- assuring a competent public and personal dental care labour force;
- developing policies and plans that support individual and community oral health efforts; and
- researching for new insights and innovative solutions to oral health problems (US Department of Health and Human Services, 1995).

These services are required from public dental care if they are to fulfil their wider public health role.

At present there is an overwhelming imbalance in the services provided by public dental care towards personal dental treatment. It might be understandable that the excess demand for dental treatment from public dental services which are short on resources has all but squeezed

out any other activity. However, those same services will remain trapped in a despairing cycle of disease and treatment unless public dental care reconstitutes itself with a wider public health role.

Several advantages might be suggested in quarantining a portion of funds available for this wider set of activities:

- as many are population-based oral health promotion or prevention activities they reposition public dental care as oral health for all, rather than poor dentistry for poor people;
- oral health gains for the population will be achieved — not only desirable in their own right, but also in potentially reducing the need for dental treatment in the future; and
- collectively there would be a substantial increase in awareness of, and advocacy for, oral health and dental care, some of which could translate into increased funding for public dental care, and particularly, personal dental treatment.

Limited examples exist of moving public dental care in Australia towards this wider public-health role. Some States and Territories have supported fledgling public health activities directed at oral health through health promotion using funds raised from tobacco or gaming levies. While this sets the direction, there needs to be a more certain base upon which to shift the balance of public dental care. This can come only from an allocation of budget funds, to which competitively won grants from appropriate bodies can provide additional scope and pace to what might be achieved.

One concept occasionally proposed to underpin these wider public dental care activities is a dedicated confectionery or sugar levy. Dental caries is the most costly diet related disease in Australia (Crowley et al, 1992). It could be argued that a confectionery or sugar levy would depress demand for ‘unhealthy’ products while at the same time building funds for activities that would help the population make healthy dietary choices more often, or promote protective factors in stabilising risks and benefits in everyday life.

Who should be beneficiaries of public dental care?

The beneficiaries of more balanced, public health oriented public dental care would include both the population at large and those to whom personal dental treatment is targeted. Public dental care is one of only a few health services where there is not universal eligibility for

personal treatment. Public dental care has a means test for eligibility, being restricted to low income Australian adults.

In practice, most public dental care accepts the means-testing conducted as part of the social security network in Australia. Hence, adults who are aged or have a disability support pension, who receive a single parent payment or a labour market allowance, and their adult dependents, are accepted as being eligible for public dental care. Holders of a Seniors Card have moved into and out of eligibility over the last few years.

As noted earlier, this loosely defined group of low income adult Australians and their adult dependents number about 4.7 million. With the institutionalised scarcity of resources available with which to provide them personal dental treatment, suggestions have been made to reduce eligibility. This is an income-based priority setting among those who already have priority to receive public subsidy for their dental care. It would introduce a process of rationing by denial among those who already have difficulty accessing dental care outside public dental care.

Although Seniors Card holders have already been targeted in this way, part-pensioners are the most frequently proposed additional group. Initial interest to more severely ration by denial has been frustrated by both political considerations and by practical difficulties in the relative cost versus benefit of public dental services identifying part-pensioners. However, identification is now readily found on pensioners' 'Statement of benefits' issued by Centrelink. Such distinctions are being used for the differential application of co-payments for public dental care in several States.

It would, therefore, require only a small change in administrative procedures to see such a differentiation drop part-pensioners from eligibility. Despite this being canvassed in reviews of public dental care, no State or Territory has proceeded down this path. It is a path that raises fundamental equity issues, but it is fortunate that it also seems to be politically unpalatable.

Rather than reducing eligibility there is movement toward a prioritising of access among eligible adults. This has a background drawing on a mix of concerns with the current equality among people seeking public dental care. These concerns include social justice issues, the utilitarian view of maximising oral health gains and clinicians' interest in triage for dental needs. Together these concerns are shaping administrative procedures which give priority to:

- acute emergency dental care;
- the socially, physically or psychologically disadvantaged among eligible adults; and
- people with combinations of greater needs and propensity for oral health gains.

In exploring these priority areas there are hoped-for efficiencies in decreased emergency and increased general dental care that is directed at minimising deterioration of oral health and escalating needs while adults wait for dental care. Such efficiency gains may assist in creating a situation where eligible adults of lower priority are no worse off under such an approach as compared to current practices.

How, where and who will provide public dental care?

Dental care to adults in Australia is provided largely through private dentists, with only a residual public dental care system. The provision of dental care to adults has therefore been a mixed private–public system. Despite one-third of adults being means tested eligible for public dental care, less than 10 per cent of dentists work in the public dental services. As a result the provision of public dental care to adults has also been frequently delivered via a mixed public–private system. A core of public dental care has been provided in a limited number of larger ‘teaching’ or ‘tertiary’ dental hospitals and a larger number of community dental clinics. Community dental clinics vary from combined child and adult dental services located in schools to components of community health centres or clinics in or attached to metropolitan or rural hospitals. In addition to this organised network of facilities in the public sector, States and Territories have, to varying degrees, contracted out aspects of public dental care to private dentists and dental prosthetists who voluntarily participate in publicly-funded programs.

The public–private mix employed to provide public dental care primarily reflects historical commitments to building a public sector infrastructure. Hence, Queensland has an extensive public sector which reflects a commitment over many years to infrastructure for provincial cities and towns. On the other hand, Tasmania, until a recent reorganisation, has had little public sector infrastructure for adult dental care and hence contracted out such care when needed.

If an injection of resources was available to boost public dental care, how should that care be provided? The recent Commonwealth Dental Health Program saw approximately equal shares

of funds flow into the public and private provision of services. However, the proportions varied markedly by State and Territory, mostly reflecting budget and priority setting decisions driven by fundamental positions on competition and efficiency. A number of States and Territories had little capacity to expand the public provision of dental care without significant capital investment in buildings and equipment. Even if that capital investment went ahead concern about recruitment of dentists into salaried positions was another barrier. Substantial regions of a State or Territory may have been without a public dental clinic within reasonable commuting distance. Conversely private dentists, in larger numbers but still maldistributed, were 'readily' available to be contracted in the provision of public dental care. Concern existed about the need for authorisation procedures for the provision of care, the setting of caps on costs, and the real ability or willingness of private dentists in less well-served regions to participate in such programs. Of course, private dentists also had concerns over the scope and fees as well as capped costs. Many States went ahead with a mix of both approaches. It is somewhat ironic that where an emphasis was placed on capital investment and growth in capacity of the public sector, this delayed the provision of care in the short-term, but was linked to the sustaining of public dental care even when the Commonwealth Dental Health Program was abolished at the end of 1996. Argument was successfully made about the use of capital investments and unemployment of public sector personnel if the funding cut to public dental care was not 'back-filled'. Those States and Territories which immediately increased the provision of public dental care by contracting private dentists found the tap was turned off as quickly as it had been turned on.

Several other issues have now emerged that would need to be considered in any overall effort to increase the provision of public dental care. First, there is now greater experience with 'contracted out' public dental care. As will be seen in the discussion of funding public dental care, such care is more expensive per emergency or general course of dental care. This stimulates vitriolic debate from all involved. While efficiency is part of the equation, the difference in cost also reflects the tighter rationing of services within a course of care in the public dental services. Given the negative reaction of private dentists to the scope of services and scheduled fees associated with contracting out public dental care, pressures exist for this difference to grow, not diminish. Second, competition policy may foster such contracting out of care, but it is also driving revision of legislation surrounding the practice of dentistry. As a result, professions complementary to dentistry (dental auxiliaries) are gaining increased opportunities to provide dental care. One opportunity is an increased role in the provision of

public dental care for either dental therapists, who at present may not treat adults except in Tasmania where a trial of extended duties has been approved, or for new dental auxiliaries like an oral health therapist. Argument will come forward that such dental auxiliaries will be more readily recruited to work in the public dental services and will do so at reduced salaries in comparison to the dentists they either substitute for or complement in the provision of public dental care.

While these issues of how, where and who will provide public dental care attract much heat, it should be recognised that variations in arrangements for the provision of public dental care across regions or States and Territories provide a natural laboratory for studying what works and does not work in improving oral health and public dental care. Ultimately, eligible adults are interested in their oral health and wellbeing and their ability to access public dental care. Issues in the provision of that care which affect availability, accessibility, acceptability, appropriateness, effectiveness and efficiency are probably unresolvable in the short- to medium-term given the paucity of dental health services research and the political character of the key policy decisions. Certainly these issues must not become barriers to progress in public dental care.

What public dental care should be provided?

At present a combination of constrained resources, severe rationing and deteriorating oral health of adults either cycling through courses of emergency ‘band-aid’ care or suffering long delays on waiting lists for general dental care are conspiring against good dental care for eligible adults. Despite the frequent commitment of dentists in the public dental services to notions like social justice and their best intentions to practise in a concordant manner, there is a strong bias towards care that is dominated by resignation to the inevitability of tooth loss. A tooth is extracted every three minutes in public dental services around Australia, every hour of every day; or more than a tooth a minute for each working hour. Some replacement and restoration of teeth occurs, but proportionally public dental care has been left behind in the movement to disease prevention and promotion of health.

This is seen in comparisons of public and private dental care. Public dental care has lower rates of provision of preventive services (31 per cent less) and higher technology restorative services, endodontics (25 per cent less) and crown and bridge services (100 per cent less) than private dental care. Public dental care has higher rates of oral surgical or extraction services

(122 per cent more) and general or miscellaneous services including palliative and temporary services (100 per cent more)(Brennan and Spencer, 1997a; Brennan et al, 1998). These differences reflect the predominance of emergency or problem visiting for public dental care and the subsequent lack of opportunity for more comprehensive and preventive dental care.

Nearly a decade ago the shift required in public dental care was summed up as a movement from:

- emergency to general dental care;
- extraction to restoration of teeth; and
- treatment to prevention of oral disease (Spencer, 1993b).

This still remains true.

The difficulty is how to support and sustain movement in these directions. While extra resources are a ready answer, more of the same would see less than optimal improvement in public dental care. Hence, strategies are required that could be applied regardless of the magnitude of additional resources.

The first strategy is to reduce the flow of adults seeking emergency care. Emergency dental care, analogous to acute care in public hospitals, is required for only a small minority of adults currently presenting each day to public dental clinics. A more substantial group, possibly even a majority, require palliative care because of pain or discomfort that is significantly interfering with everyday activities. However, a larger minority, between one-third and one-half, are adults using emergency dental care as a convenient substitute for waiting long periods of time for general dental care (L Luzzi, K Jones,. Personal Communication, 18 December 2000). Such adults presenting for emergency dental care are 4.5 times as likely to receive an extraction than they would be if they sought general dental care (Slade and Hoskin, 1993).

These adults need to be moved out of emergency care and into general dental care. Discussion on how to achieve this varies from denial of emergency care through to disincentives via differential levels of co-payment. If a large percentage of current emergency care seekers can be moved out into general dental care, then resources can follow. The movement of care seekers between types of care may be closer to resource neutral than is first imagined. Such emergency dental care seekers are recidivists, cycling repeatedly through band-aid care. If more comprehensive and preventive general dental care is provided at less frequent intervals,

the resources involved may be similar. The difficulty in moving in this direction is risk management: both the minimising of the risk of denying emergency dental care to true acute dental problems; and minimising the political sensitivity to occasionally disappointed or aggrieved constituents.

The second strategy is to work toward eligible adults receiving preventively oriented, oral health-promoting care. Although such a strategy could in theory deliver positive returns in the form of reduced costs of future care, several difficulties can be envisaged with the public dental services being rewarded with reduced future costs. Movement of many adults into and out of eligibility with changing personal circumstances creates one impediment to reaping the rewards within public dental care. Further, in the short term such an approach may increase the cost of care per adult. It is for these reasons that an incremental approach, built around the maintenance of periodic dental care for young adults for whom there has already been a substantial public investment in their oral health as children, may be a favoured starting point. Historically there have been claims that preventively oriented periodic care may be one-third or one-fifth as costly as spasmodic care with substantial backlogs of personal treatment needs (Dunning, 1976). However, there has been so little research in this area that an incremental approach backed by good dental health services research, although cautious, would be prudent.

These general approaches need to be built into goals and objectives, minimum acceptable standards and performance or outcome targets for public dental care at a State or Territory and national level. There has been no serious effort to develop such clarity around public dental care. Its presence would be educational for both the public dental services and the community, and would assist in advocacy for, and provide greater leverage in, seeking attention and action on improving public dental care (Horowitz, 1995).

Funding public dental care in Australia

Dental care funding in Australia

Australia spends approximately 6 per cent of its health dollar on dental care, with health care expenditure being \$47.0 billion and dental care expenditure about \$2.6 billion. Dental care expenditure is increasing at about 8 per cent per year across the 1990s. Most of the

expenditure on dental care in Australia is private expenditure, either direct out-of-pocket (\$1,611 million) or through dental health insurance (\$568 million). Only a small percentage, 16 per cent or \$404 million, is public expenditure on dental care (AIHW, 2000b).

The proportion of public expenditure on dental care is dramatically lower than the proportion of public expenditure on all health care. If the proportion of public expenditure on dental care was similar to that of all health care, it would increase from \$404 to \$1,794 million. The dramatic difference is explained by the targeted public dental care safety-net approach for adult dental care compared with the universality of access that underpins health care. Further, as noted earlier, a range of rationing strategies are then evoked to reduce the percentage of eligible adults who use public dental care, the extent of care available and the scope of services provided. It is this funding situation which establishes dental care as the least subsidised area of health care for Australians (Scotton, 1978).

However, the issue of subsidy does not end with the dramatic comparisons of expenditure on dental and health care. There is a need to look below the aggregate national expenditure estimates to face the full inequity of the subsidy for dental care.

Subsidy for dental care can take a number of forms. These include:

- direct expenditure on dental service provision such as public dental care for low income Australians, veterans, some in-patient hospital and radiological services, etc; and
- indirect expenditure on dental service provision including the dental expenses taxation rebate and private dental insurance rebate.

Subsidy for public dental care

The direct subsidy by State and Territory governments for public dental care provision to eligible adults is estimated at \$215 million, of which \$38 million is for specialist, denture scheme and teaching services. The \$176.7 million spent on adults eligible for public dental services represents some \$12.60 per adult or \$37.63 per eligible adult.

This has been disaggregated by income (Appendix A), and varies from \$41.80 per adult in the less than \$12,000 to \$1.89 per adult in the \$40,000–\$49,999 annual household income categories. This does not include the \$38 million for specialist, denture scheme or teaching

services. This subsidy for special areas of public dental care is more difficult to distribute because it includes children as well as adults, and some non-eligible as well eligible adults.

A further \$113 million is spent on school-based dental care by the States and Territories, while the Commonwealth spends \$76 million on veterans (\$55 million), dental services under Medicare and the cleft lip/palate scheme.

Subsidy to private dental care

An indirect subsidy for private dental care has long been available through taxation rebates. In the 1970s such rebates were available to all taxpayers and represented a substantial subsidy for private dental care. In 1977 a threshold of expenditure was introduced for rebates on medical related expenses. The number of taxpayers making a rebate claim fell from some 5 million to one-quarter of a million (Spencer, 1983). Of course, the remaining taxpayers received some subsidy in the form of reduced tax rates which were introduced at the time.

While the percentage of taxpayers making a medical (dental) taxation rebate claim is low, the total rebate is still some \$23.2 million. Given the low government expenditure on dental care, this is still a sizeable proportion of the total government subsidy; about a third as much again as the Commonwealth government's direct expenditure on dental care.

As was originally noted by Scotton (1978), most of this dental expenses taxation rebate is directed to the affluent. Appendix B disaggregates this subsidy by income. The rebate increases from \$0.13 per taxpayer in the less than \$5,401 income category to \$21.80 in the highest income category of \$100,000+.

Subsidy to private dental insurance

In 1997–98 the Federal government introduced a subsidy for low and middle income earners who had private health insurance, the Private Health Insurance Incentives Scheme (PHIIS). In 1999 the PHIIS was extended to all income categories. The PHIIS was seen as critical to stop the steady fall in private insurance membership. Under the PHIIS a 30 per cent rebate is paid on health insurance premiums. This means that those with private health insurance coverage effectively receive a significant proportion of the subsidy they would otherwise have received if they relied fully on publicly-funded medical care (Podger, 2000). However, PHIIS was

applied to all health insurance premiums, regardless of the package. Dental insurance, as part of ancillary insurance, also receives the 30 per cent rebate. However, publicly-funded dental care is targeted to low income adult Australians. Middle and higher income Australians are not eligible for public dental care. Therefore, they have no reliance on any publicly-funded dental care, which might be used as a rationale for public subsidy of alternative private dental care. Some lower income Australians, including Health Card holders, have private insurance. Hence, their 30 per cent private insurance rebate may assist them in seeking private dental care when otherwise they would seek care from the public dental services. However, only 19.3 per cent of the 4.7 million Health Card holders, or 907,000 adults, versus 40.0 per cent of the 9.5 million non-Health Card holders, or 3.8 million adults, hold dental insurance. Hence, the health insurance rebate is an inefficient method of achieving any movement of Health Card holders into private dental care.

The actual level of public subsidy for dental insurance can be calculated from estimates of the total PHIIS and the proportion of health insurance premium that is related to dental insurance. The Department of Health and Aged Care lists PHIIS in 2000/01 at a total of \$1,882 million (Senate Community Affairs References Committee, 2000). More recently the Prime Minister, John Howard, is quoted as indicating a probable \$300/400/500 million increase as a result of more people taking up health insurance under the Lifetime Health Cover arrangements (Howard, 2000). This would indicate a total expenditure of between \$2,182 and \$2,382 million.

One approach to estimating the proportion related to dental insurance rebates is to assume the proportion of the health insurance dollars spent on dental services is equal to the proportion of health insurance premiums related to dental services. The *Health Expenditure Bulletin* No 16 (AIHW, 2000b) provides data for 1997–98 on the type of expenditure by source of expenditure. Dental expenditure was 14.5 per cent of total health expenditure by health insurers. Under this assumption the private health insurance rebate for dental insurance costs \$316–\$345 million per year. This is considerably greater than the \$176.7 million estimated expenditure on public dental care for eligible adults across the States and Territories.

An alternative estimate of the private health insurance rebate is presented in Appendix C. The total dental insurance rebate was calculated at \$327 million, in the range presented from budget estimates. Appendix C also presents the rebate against annual income of contributors.

The private health insurance rebate increases from \$12.77 per individual for households with incomes under \$20,000 to \$60.29 per individual for households with incomes of \$100,000+.

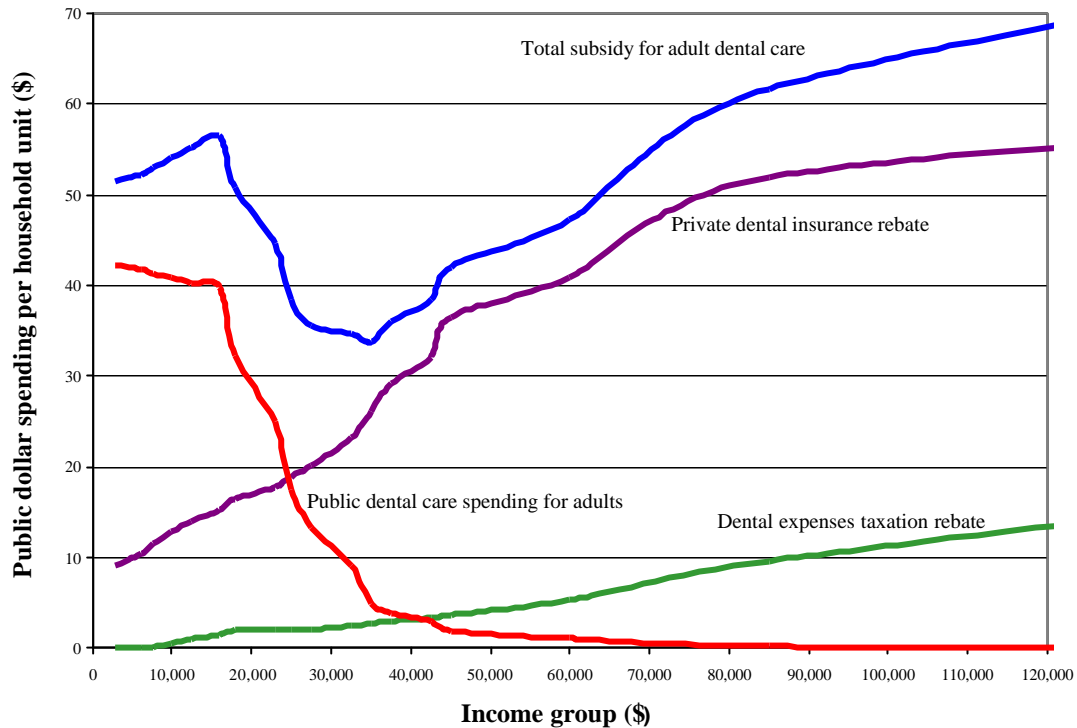
Total public subsidy of adult dental care

These three forms of public subsidy for dental care have been brought together in this section. There are some distinct difficulties in relating one to another. The foremost concern is the separation of expenditure for adult dental care from children's dental care. No attempt has been made to isolate the component of the dental expenses taxation rebate or private health insurance rebate that pertains to adults. However, given that children constitute a small minority (24.7 per cent) of the population and 50 per cent of children use school-based dental care, the vast majority at no cost, it is suggested that ignoring children's dental care within these rebates will not invalidate the broad comparison.

Further methodological difficulties arise from variations in units for which income data were available. While taxation data focus on individual taxpayers, household income is used in numerous surveys. Health insurance data refer to contributor units. Solving the problems of direct comparability of units was beyond the analysis presented. While more rigorous analysis would be warranted, the broad comparisons enable us to discuss issues and directions.

Data related to the three subsidies have been interpolated across the range of \$0 to \$120,000 income and presented in the following figure together with a total subsidy for dental care.

Figure 4 reveals the inequity of the 'hidden' subsidies for dental care in comparison to the safety-net subsidy for public dental care for low income adult Australians.



Source: Appendices A, B and C

Figure 4. Public subsidy for dental expenses taxation rebates, private dental insurance rebates and public dental care, 1998–99

The total public subsidy follows a J-curve with an initial high tail among low income adults, mostly eligible for the public dental services, a trough among the working poor, mostly ineligible for public dental care but without high levels of indirect subsidies, and a high trunk on the subsidy curve among higher income adults through their private dental insurance and dental expenses taxation rebate.

Scotton noted about 20 years ago that dental services were the least subsidised area of health services and what little subsidy existed benefited mostly the affluent (Scotton, 1978). While this situation may not have pertained to all of the intervening period because of the introduction of the threshold for medical expense taxation rebates, the introduction of the private health insurance rebate has re-created this same situation.

This pattern of public subsidy is highly unjust and unfair. Even if dental need was evenly distributed by income it would be inequitable for high income adults to receive a greater subsidy than low or very low income adults. Horizontal equity demands equal subsidy of

equals. But low and high income adults are not equals. Low income adult Australians have poorer oral health and greater unmet need for dental care. For vertical equity to be satisfied those low income Australians with greater need should receive greater public subsidy (McClelland, 1991).

The inequity of the public subsidy for dental care can be illustrated through two vignettes.

- The widow of a semi-skilled worker, whose income is the Aged Pension, sought dental care in 2000 for the first time from the public dental services. While she and her husband had been regular visitors to a private dentist in the past, she could no longer afford private care and has sought public dental care. She had no emergency need for care and so she was placed on a three-year waiting list. When seen in 2003 she will receive an average general course of care costing \$245. Her public subsidy per year between seeking and receiving care is \$81.67.
- An executive of a small corporation with a small amount of additional investment income (total income \$100,000+) seeks regular dental care from a private dentist. The executive has private health insurance for himself and his family, with a 'blue ribbon' extras policy. Each year across 2000 to 2003 he receives a private health insurance rebate of \$1,233 of which 14.5 per cent (\$178.79) may be related to dental insurance premiums. Further, as his family's medical (including dental) expenses exceed \$1,250, he receives on average \$211.65 in dental expenses taxation rebate each year. He receives about \$390 public subsidy for his (and his family's) dental care per year, nearly five times that received by the aged pensioner seeking public dental care across the same period.

Yet our concept of public dental care is a targeted, means-tested safety net for low income adult Australians. The safety net is tattered, and much of the required expenditure to mend the holes and achieve public good is being inadvertently distributed to higher income earning Australians.

How much funding is required for public dental care?

Just what funding is required to throw off the shackles of institutionalised scarcity from the public dental services and allow them to achieve positive oral health and public good? While there is an obvious answer of greater funding, how much greater is less certain. Answers are

dependent on a range of parameters most of which are not well appreciated. The set of key parameters which describe the current expenditure on public dental services are presented in Table 6.

The parameters are a set of reductions from eligible adults, to dentate adults, to adults visiting each year and making that visit to public dental services (0.703 million people). These users of public dental care are then apportioned to emergency and general courses of care (more courses of care are provided than adults treated). Given average costs for courses of care, total costs can be calculated. The details of the parameters and their use in a model developed for these estimations is presented in Appendix A.

Several aspects of parameters behind current expenditure are important. First, just less than half of the eligible dentate adults have visited in the last year and only 38.0 per cent of these visited public dental service. This represents 18.9 per cent of eligible dentate adults. Public dental care, therefore, caters for less than one in five eligible dental adults each year. Second, many of these adults make emergency visits (40 per cent) and most courses of care are emergency courses of care (58.0 per cent).

Table 6. Current expenditure on public dental care

Parameters	Estimates
Eligible population	4.696 million
Dentate	79.2% or 3.720 million
Visited in last year	49.8% or 1.852 million
Last visited public dental services	38.0% or 0.703 million
Emergency visits	40%
Emergency courses of care	650,400
General courses of care	464,571
Costs	
— Emergency care	\$62.887 million
— General care	\$113.820 million
Specialist care, denture schemes and teaching @ 20%	\$38 million
Total cost	\$215 million

Source: Appendix A

Figure 5 presents a sensitivity analysis for the expenditure on public dental care, limited to emergency and general care. The expenditure is most sensitive to the percentage of the

eligible population who last visited public dental services, followed by the percentage of the eligible population who visited in the last year, then the cost of a general course of care.

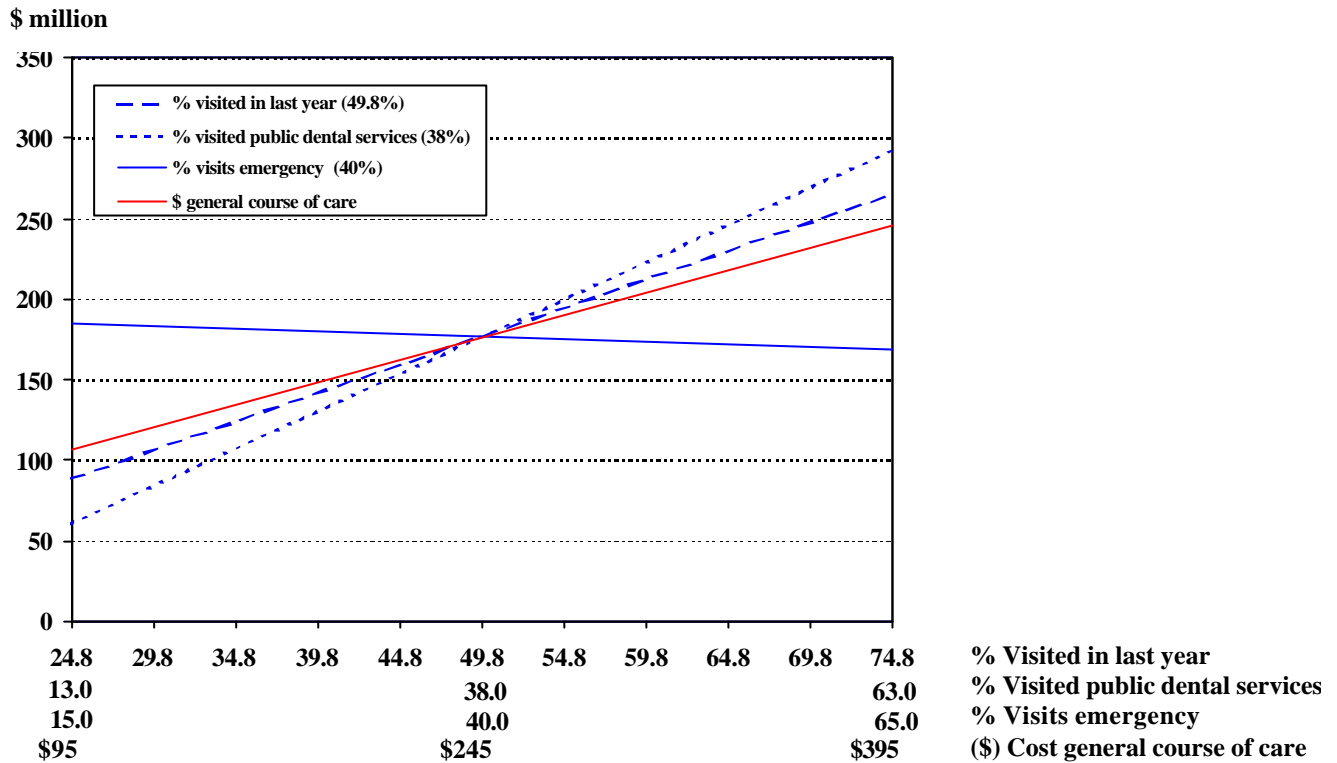


Figure 5. Sensitivity analysis for expenditure on public dental care

Expenditure increases faster as numbers of the eligible population using the public dental services increase than as the cost of a course of care increases. In other words, administrative rationing strategies rather than clinical rationing of care most constrain expenditure.

Interestingly, the percentage of visits (and the numbers of courses of care) that are emergency ones has little influence on cost. As the percentage of emergency visits decreases, cost marginally increases. This is because the cost per visit is not dissimilar for emergency or general dental care. However, there is a substantial issue still bound up in the balance of emergency and general courses of care. As illustrated in Figure 6 below there is an inverse relationship between the two types of courses of care. As emergency courses of care increase, fewer general courses of care can be provided within a set level of resources. As emergency courses of care are reduced, total courses of care decrease, but general courses of care increase. The number of general courses of care provided is closely related to the waiting

times reported. Therefore, while the balance has little influence on costs, it both influences the number of eligible people seen each year and waiting times for general dental care.

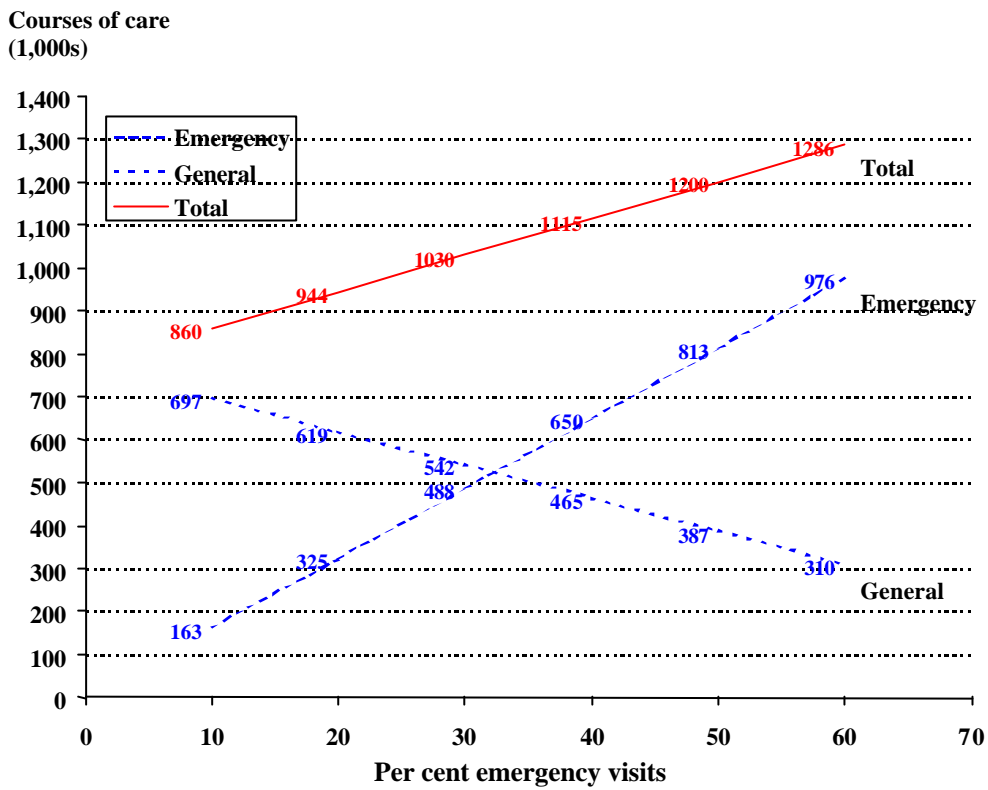


Figure 6. Relationship between emergency, general and total courses of public dental care

Just what level of funding is required for public dental care? One approach to estimating a realistic ceiling for expenditure on public dental services would be a comparative approach with non-eligible adults' use of services. Such a scenario is presented in Table 7. The scenario uses the same parameters incorporated in the current expenditure estimates, but substitutes the non-eligible adult population percentage visiting in the last year and an arbitrary maximum of 65 per cent of eligible adults visiting public dental services. The percentage of eligible adults making emergency visits has been reduced in line with that observed among non-eligible adults. As a result, higher numbers of eligible adults visit public dental services, receive emergency and especially general courses of care. Cost of emergency care increases marginally, but cost of general care increases markedly.

Table 7. Estimated expenditure on public dental care to achieve similar patterns of use to non-eligible Australian adults.

Parameters	Estimates	
Eligible population	4.696 million	
Dentate	79.2% or 3.720 million	
Visited in last year	64.4% or 2.395 million	
Last visited public dental services	65.0% or 1.557 million	If public dental service care capped at \$200 million and the rest contracted to private dentists
Emergency visits	20%	
Emergency courses of care	719,000	
General courses of care	1,370,000	
Costs		
— Emergency care	\$69.6 million	\$98.9 million
— General care	\$376.8 million	\$511.8 million
Specialist denture scheme and teaching @ 20%	\$89 million	\$89 million
Total cost	\$536 million	\$699.7 million

Not all this care could be provided within the public dental services in the short term. While some greater capacity could be achieved within the current capital investment, higher production would involve capital outlays and considerable recruitment of personnel. Therefore, on the assumption that a ceiling of \$200 million of care can be provided within the public dental services and the rest is contracted out to private dentists, then expenditure would increase to \$610.7 million.

Increasing demand for public dental care

An ageing population and decreasing tooth loss are combining to increase the demand for dental care. This is a population-wide phenomenon. A reasonably conservative estimate of the increasing demand for dental care based on historical age-specific trends in per capita demand indicates that in the period 1998 to 2010 the demand for dental visits will increase from 25.7–33.2 million, an increase of 29.2 per cent. The increase in demand for services is unevenly spread over the age groups, as presented in Table 8.

Table 8. Projected increase in demand for dental care by age group, 1998–2010

Age group (years)	Estimated total number of dental visits demanded (millions)		% age group eligible for public dental care
	1998	2010	
0–4	0.26	0.23	
5–11	3.59	3.86	
12–17	3.56	4.11	
18–24	2.45	2.79	20.5 ¹
25–34	3.17	3.26	13.5
35–44	4.16	4.89	11.4
45–54	3.64	5.31	13.0
55–64	2.26	4.38	31.4
65–74	1.61	2.59	} 59.1
75+	1.00	1.78	
Total	25.69	33.21	

¹ Estimate for 15–24 year olds

Source: Spencer et al, 2000.

Applying rates of eligibility for public dental care to each age group as existed in 1994–96, the increase in demand from the adult age groups with high eligibility is apparent. It is quite uncertain what proportion of demand for dental care from those eligible will be expressed in the public sector. What is certain is that there is a likely increase in demand population-wide which will have potentially more impact on public dental care. Therefore, deterministic models which do not project trends are likely to underestimate the demand for services and funding required for public dental care.

A further issue that emerges from the projection of demand by age groups is the obvious transfer that continues in the demand for dental care from children to middle-aged and older adult Australians. Older Australians are retaining more teeth with a legacy of years of little attention to prevention of disease and limited access to dental care. They present an ironic dental ‘failure of success’ (Gruenberg, 1977), retaining teeth with considerable past experience of disease and treatment for recurrence of dental decay and advanced periodontal

disease and the occurrence of new chronic degenerative dental problems, including tooth wear, cusp fracture, pulp death and root surface decay. Risk of dental diseases and disorders is increased by combinations of physical, cognitive, medical and pharmacological issues. This is most readily seen in the areas of older Australians in residential care or community-dwelling, and dependent older adults with dementia (Chalmers, 1999).

This shift to a compression of dental disease into the later years creates new challenges for public dental care that as yet have been responded to in only the most minimal possible manner. Domiciliary dental care has been a well-kept secret so as to suppress demand, and lack of awareness and inactivity best describes the level of public dental care of older Australians in residential care.

In addition to projections of changing demand from different age cohorts, there is a need to consider changing demand from sub-groups of the eligible adult population defined by particular social, physical or mental disabilities. There is a fundamental requirement for public dental care to reach out to those most vulnerable and least catered for by existing dental care. Dental care for such sub-groups is likely to be more complex and intense than the average used for building funding models. Therefore, any real effort to include adults with mental illness, people with marked physical disabilities, prisoners, the homeless, the chronically or terminally ill and others as special beneficiaries of public dental care is likely to increase the desirable funding for public dental care. Yet these adults are indisputably in need and less likely to receive dental care.

Other contributions to funding public dental care

A number of States and Territories have introduced some form of patient co-payment towards public dental care. The introduction of patient co-payments has been consistent with perspectives that such payments engender patient awareness of treatment recommended and value for treatment received. However, given the highly rationed treatment services in public dental care, this approach seems largely misplaced. It is far more likely that co-payments have represented an avenue for the raising of limited extra funding while depressing demand for dental care.

Early experience with a co-payment (in the form of a patient capitation payment for school-based dental care) showed both a viable revenue stream and demand for care being depressed

by some 30 per cent. In South Australia, co-payments from secondary school children were associated with a decrease in enrolment from 76.3 per cent to 52.1 per cent of students (Allister et al, 1998). Subsequent follow-up revealed that few of those who initially dropped enrolment found their way back to school-based dental care. Those who failed to enrol were predominantly from higher income households with dental insurance. Despite their more affluent circumstances, their pattern of use of dental care was less advantageous than those who stayed with school-based dental care. More worrying was the small percentage of those who dropped out of school-based dental care which was from low income households without dental insurance and who did not use dental care in the subsequent two years.

Patient co-payments have more recently been extended to public dental care for adults. Evaluation of its introduction has shown the same large initial decrease in demand, but with an apparent later return to dental care. However, that dental care has been predominantly emergency dental care with high rates of tooth extraction (AIHW DSRU, 2000b).

The shortcomings of patient co-payments reflect its bluntness as a rationing instrument (Richardson, 1991). Its operation is influenced by social circumstance more than oral disease experience or propensity for gain from personal dental treatment. More creative use of co-payments may have some place in public dental care. For instance, co-payments may be applied to adults seeking emergency dental care more as a convenience than for pathology or disability requiring urgent attention. Further, some patient co-payment might be appropriate where elective dental treatments are being sought from specialists or in dental teaching hospitals. However, blanket application of patient co-payments hurts many adults who have already been judged disadvantaged in their purchasing power for any alternative private dental care.

Another contribution to funding public dental care could be private dental insurance. Just less than one in five adults eligible for public dental care have dental insurance. Agreements at present do not allow for invoicing of such adults who receive public dental care. This needs re-examination. These adults are contributing to premiums that have been set on an actuarial basis to cover personal dental treatment. To the extent that fees are not generated by the use of public dental care this represents a gain to private dental insurers (this also applies to families that use school-based dental care). The possibility of adults using public dental care facing co-payments adds a new dimension to whether such direct costs should be rebated through private dental insurance. A further twist is the public subsidy through PHIIS and Lifetime

Health Cover for adults to take out dental insurance. Higher percentages of adults eligible for public dental care will present with dental insurance, maintained over many years, yet they and the public dental services are at present unable to seek rebate for their dental expenses. If patient co-payments remain a feature of public dental care they should be rebatable from private dental insurance. Further, dental insurers should recognise the gains they have from eligible people using public dental care and return an agreed amount for the public good via contributions to dental health promotion activities and their evaluation and dental health services research. Both are lamentably underfunded in Australia and may generate considerable long-term gains to the public and dental insurers.

Moving forward

Much needs to be considered and done for public dental care to contribute to improving the oral health of all Australians and to sustain the oral wellbeing of those disadvantaged in the community. Little seems likely to be achieved until a more positive, receptive policy environment is created at all levels of government. At present policy on public dental care is caught in a chilly stand-off between the Commonwealth and States or Territories, punctured by warm bursts of buck-passing and point-scoring. Responses are more political rather than policy shaping, short- rather than long-term, negative rather than creative.

This policy environment has to be reshaped. A constructive dialogue between the Commonwealth and State or Territory governments needs to begin. Searching for and detailing an agreement on what is public dental care, the principles that underpin it, who has what roles and responsibilities, what is needed from reforms, the financial arrangements to make them happen, the ways and means by which all involved will learn about what works or does not work, and the comparative performance of those involved is a process which has been successfully completed in other areas of health. It should be an achievable step in reshaping the environment for public dental care.

In parallel with the development of such an agreement there needs to be wider discussion about what can reasonably be expected from public dental care. Public dental care most likely has much to gain from moving beyond the bureaucratic and technical domains which tend to drive such agreements and into wider community discussion about public dental care. A wider constituency would give credibility and legitimacy to the pleadings of special interest groups

like dental academics, and the process of community consultation may be a powerful advocacy for public dental care. Further, some propose that such discussion to find the optimal path forward must include the lay person and the professional, the elected and electors (Leeder, 1999). In the end it is the community's money that is being allocated for the purpose of improving its oral health and dental care.

Three broad areas of discussion can be identified:

- What level of investment in public dental care are we willing to make?
- What constitutes appropriate public dental care?
- Which groups in the community should be eligible for public dental care and, within those groups, is care for any group of a greater priority than another (Lomas, 1997)?

While there is and will continue to be the anticipated catchcry for more public investment in dental care, it should be noted that the initial issue is not one of quantum, but allocation. The direct investment in public dental care and indirect investment of public funds in dental care exceeds \$527 million each year. However, the majority of this investment is directed to the affluent. The unfairness of this situation is obvious. But it also represents a lost opportunity to put the investment to its most utilitarian use in improving oral health and assisting the needy in the Australian population. While reallocation is theoretically possible, the reality is a more equitable and useful investment will be achieved only through substantial additional funds directed at public dental care. The funding will most likely be capped and include an element of risk sharing, either through patient co-payment contributions and/or access to dental insurance premium funds from those eligible for public dental care.

What constitutes appropriate public dental care covers a wide range of issues which at present are largely determined by default. There needs to be discussion on the balance between:

- wider public health activities versus provision of personal dental treatment;
- emergency versus general dental care; and
- general versus specialist dental care.

The frequency with which all dental services should be accessible to those eligible also needs debate. Guidelines for allocative decisions and rationing at the individual level are absent, but much needed. Out of these guidelines performance indicators can emerge that will reveal what works and what does not.

Questions on eligibility for public dental care also need to be addressed. Rather than the oft-raised issues of reductions in eligibility for one or more groups thought to be in less hardship in purchasing private dental care, the more pointed questions are about extension of eligibility, maybe on a reducing subsidy, into the ‘working poor’ among adult Australians. The trough in public subsidy at incomes ranging from \$20,000–\$35,000 should be the cause of concern.

The current rationing approaches which treat all eligible adults similarly despite their differences should be replaced. Different social circumstances, oral health needs or propensity for oral health gains should be recognised in explicit priority approaches. Vertical equity calls for dissimilar adults being treated dissimilarly: some adults receiving more public dental care than others is acceptable as long as all eligible adults receive an adequate minimum standard of public dental care (Priester, 1992).

If broad answers are available to questions about what we can reasonably expect from public dental care, then the framework for monitoring and surveillance of its performance, and more purposeful research on what aspects explicitly work better than others can be undertaken more confidently. At present most policy-relevant research on public dental care is at the level of documentation, with somewhat less analysis of what works and why. Analysis needs to be strengthened and supplemented with a further level of research which aims to prescribe the most appropriate way forward (Brown, 1991). The research effort needs to be linked to improved skills and understanding among the public dental care workforce in using timely information to improve performance (Ashford, 1977).

Oral health is an integral component of general health. Its separation from wider health policy is artificial and ultimately unsustainable. Oral diseases and disorders are among the most prevalent illnesses in Australia, causing pain and suffering, disability and handicap. Some of that disease is preventable, but on an individual level too much experience of oral disease remains unexplainable and frequently proposed behavioural changes too difficult without appropriate social support to hold any adult individually responsible. There is a wider community responsibility which needs to be addressed more actively through public dental care. Large numbers of Australian adults are sufficiently financially disadvantaged to face hardship in purchasing private dental care. These adults are the targets of public dental services. However, the safety net for such care is torn and tattered through institutionalised

scarcity of resources. Rationing abounds at many levels, leaving eligible adults with ‘poor’ dentistry.

The organising of public dental care is hampered by buck-passing between levels of government. The providing of public dental care is restricted in the scope of activities and has become a despairing cycle of band-aid treatment. The funding of public dental care is inadequate and public subsidy for dental care grossly inequitable.

The opportunity exists to address these fundamental issues so that public dental care contributes positively to people’s health and wellbeing in Australia. There is a proven capacity to achieve high levels of oral health and access to dental care for children. The challenge is to maintain the value of that investment in oral health among the adult population and especially among those adults dependent on public dental care.

Appendix A

Expenditure on public dental care

Expenditure on public dental care has been estimated using several sources of data: Commonwealth Department of Social Security, the Australian Bureau of Statistics, the Australian Institute of Health and Welfare, Dental Statistics and Research Unit's National Dental Telephone Interview Survey 1999, and unpublished data from Dental Health Services Victoria.

Expenditure on public dental services for adults in Australia has been estimated at \$176.7 million for emergency and general dental care, with a further \$38 million for specialist services, denture schemes and teaching services. This provided a benchmark in constructing a model for expenditure on public dental services based on the building blocks of numbers of eligible adults, use of public dental services and types and costs of courses of dental care. The estimated number of adult Australians at 30 June 1999 was 14.019 million (Australian Bureau of Statistics, 1999a). The percentage of adults eligible for public dental services from the AIHW Dental Statistics and Research Unit's National Dental Telephone Interview Survey 1999 (AIHW DSRU, 2001) and was 33.5 per cent, or some 4.696 million adults. This was verified against the concession card holders by card type and their adult dependents as at 12 March 1999 (Commonwealth Department of Social Security, Personal Communication with Dr K Roberts-Thomson, 25 March 1999).

Of the 4.696 million eligible adults, 79.2 per cent were dentate in 1999, 49.8 per cent visited a dental provider in the previous year and of those 38.0 per cent made that visit for public dental care. Hence, some 0.704 million dentate adults visited for public dental care in the last year with an average of 2.31 visits per dentate adult (AIHW DSRU, 2001) or a total of 1.626 million visits. Of these 40 per cent were estimated to be emergency visits, with the remainder being general dental care visits based on the AIHW DSRU Adult Dental Programs Survey 1995–96 (Brennan and Spencer, 1997b). Given that an emergency course of care can be assumed to be one visit only, the number of emergency courses of care is estimated at 0.650 million, and the number of general courses of care is estimated at 0.465 million. The costs per course of care based on Dental Health Services Victoria data for 1999 were \$96.69 for an emergency and \$245.00 for a general course of care applied to those adults whose care was

publicly-funded and delivered by public dental services (M Dooland, Personal Communication, 13 October 2000).

The numbers of courses of care multiplied by the cost per course of care provides an estimated total expenditure on adult public dental care of \$176.7 million. In many of the building blocks confidence intervals were available. These have been used to generate a standard deviation for the estimated total expenditure. This was estimated at \pm \$16.3 million, or approximately \pm 9.2 per cent of the total expenditure.

The basic inputs and outputs of the expenditure model are presented in Table A1.

Table A1. Expenditure model for public dental care for Australian adults, 2000

Demographics	Best estimate	N	Std dev	n	Std error	RSE
Population	14,019,274					
% of population who are card holders	33.5%	4,696,457	47.2%	6,000	0.61%	1.8%
% of card holders who are dentate	79.2%	3,719,594	40.6%	2,000	0.91%	1.1%
% of dentate card holders who visited in last year	49.8%	1,852,358	50.0%	1,500	1.29%	2.6%
% of dentate card holders who visited in last year who also last went public	38.0%	703,896	48.5%	750	1.77%	4.7%
Underestimate calibration factor	0.0%	703,896	0.0%		0.00%	5.0%
Visiting characteristics						
Average number of visits per person visiting per year	2.31	1,626,000	2.44	258	0.152	6.6%
% of all visits that are emergency	40%	650,400	49.0%	20,000	0.35%	0.9%
Visits per COC						
Emergency	1.00	650,400			0.000	0.0%
General	2.10	464,571			0.105	5.0%
Cost per COC						
			Cost		Co-payment	
Emergency public	\$ 96.69	\$ 96.69	\$ -		\$ 4.83	5.0%
General public	\$ 245.00	\$ 245.00	\$ -		\$ 12.25	5.0%
Emergency private	\$ 137.53	\$ 137.53	\$ -		\$ 6.88	5.0%
General private	\$ 373.53	\$ 373.53	\$ -		\$ 18.68	5.0%
Total cost						
	Estimate(\$millions)	Std dev (\$millions)				
Emergency public	\$ 62.9	\$ 6.4				
General public	\$ 113.8	\$ 13.0				
Total public only	\$ 176.7	\$ 18.0				
Emergency private	\$ 89.4	\$ 8.9				
General private	\$ 173.5	\$ 19.7				
Total private only	\$ 263.0	\$ 26.3				
Maximum public capability	\$ 200.0					
Private outsource cost	\$ -					
Actual cost to deliver services	\$ 176.7					

All key inputs into the expenditure model can be altered and outputs in numbers of adults or courses of care and costs examined. This facility has been used to test the sensitivity of the expenditure to the model inputs and to estimate the cost of public dental care under other scenarios.

Subsidy for public dental care by income

The expenditure model indicated a base subsidy per eligible adult of \$37.63. This subsidy was disaggregated across income categories used in the AIHW DSRU National Dental Telephone Interview Survey 1999 (see Table A2).

Table A2. Expenditure on public dental care by annual household income

	<\$12,000	\$12,000– \$19,999	\$20,000– \$29,999	\$30,000– \$39,999	\$40,000– \$49,999	\$50,000+	All
% of eligible adult visits	32.5	42.3	17.7	5.1	1.9	0.5	100.0
Expenditure (\$ million)	57.428	74.744	31.276	9.012	3.357	0.884	176.7
% of adult population	9.8	13.4	12.7	13.1	12.7	38.3	100.0
Number of adults (millions)	1.374	1.879	1.780	1.836	1.780	5.408	14.019
\$ per adult	41.80	39.78	17.57	4.91	1.89	0.16	12.60

Appendix B

Dental expenses taxation rebate

The dental expenses taxation rebate was estimated using two sources of data: Australian Tax Office Statistics 1997–1998, on individual taxable income and medical expenses rebate; and Australian Bureau of Statistics Household Expenditure Survey 1998–1999 detailed expenditure on medical care and health expenses.

Individual taxable income categories, number of taxpayers in each income category and rebate paid on medical expenses per income category were used to estimate the mean taxation rebate on medical expenses per individual taxpayer for each income category (ATO, 2000). The rebate on medical expenses per individual taxpayer varied from a low of \$0.88 in the \$5,401–\$9,999 income category to a high of \$75.22 in the \$100,000+ income category.

Dental expense taxation rebates per taxpayer were estimated using a set proportion of expenditure on medical care and health services that was expenditure on dental services (ABS, 2000). The expenditure on dental fees as a proportion of total medical and dental expenses was used as an estimate of the proportion of medical expense rebates that were dental expense rebates. This proportion was available for household income quintiles, varying from 14.96 per cent to 27.29 per cent, with an average of 21.42 per cent. Table B1 shows the dental and medical expenses by household income quintiles.

Table B1. Dental and medical expenses by household income quintiles

	Lowest 20%	Second quintile	Third quintile	Fourth quintile	Highest 20%	All house- holds
Income of quintile group	<\$15,600	\$15,601 -\$28,704	\$28,704 -\$45,968	\$45,968 -\$71,396	>\$71,396	
Expenditure	\$	\$	\$	\$	\$	\$
Dental fees	1.67	3.00	3.98	5.37	7.84	4.37
Health practitioners' fees (total)	3.85	6.76	9.37	12.65	17.19	9.96
Medicines, pharmaceutical products, therapeutic appliances and equipment (total)	5.69	7.87	7.44	9.55	9.91	8.09
Other medical care and health expenses	1.62	0.73	0.87	1.36	1.63	1.24
Total medical and dental expenses	11.16	15.36	17.68	23.56	28.73	19.29
	%	%	%	%	%	%
Dental fees as proportion of all medical expenses	14.96	19.53	22.51	22.79	27.29	21.42

Source: ABS, 2000

The estimated medical expense rebate per taxpayer by individual taxable income category was multiplied through by this proportion to estimate the dental expenses rebate per income category. Dental expenses rebates per taxpayer were estimated to vary from \$0.13 in the \$5,401–\$9,999 income category to \$21.80 in the \$100,000+ category (see Table B2).

Estimates for dental expenses taxation rebates were placed against mid-points for income categories and interpolation used to arrive at estimates for set incomes presented in the manuscript.

Table B2. Dental expenses taxation rebate by individual taxable income

Grades of taxable income	Mid-point	Number of taxpayers	Number claiming rebate on net medical expenses over \$1,250	Rebate on medical expenses over \$1,250	Rebate on medical expenses per taxpayer	Proportion dental to medical expenses	Rebate on dental expenses per taxpayer
\$	\$	No	No	\$	\$	%	\$
Non-taxable		1,554,455	15,617	11,474,440	7.38	11.91	0.88
<5401	2,700	31,911	60	30,099	0.94	13.44	0.13
5,401–9,999	7,700	574,127	2,851	504,615	0.88	14.96	0.13
10,000–14,999	12,500	983,997	13,929	5,791,973	5.89	16.48	0.97
15,000–20,700	17,850	1,140,405	24,315	12,320,128	10.80	18.01	1.95
20,701–24,999	22,850	883,134	20,329	8,790,025	9.95	19.53	1.94
25,000–29,999	27,500	979,178	24,801	9,584,551	9.79	20.52	2.01
30,000–34,999	32,500	845,307	25,112	9,523,112	11.27	21.52	2.42
35,000–40,000	37,500	719,952	24,864	9,502,197	13.20	22.51	2.97
40,000–50,000	45,000	969,684	42,281	15,724,318	16.22	22.65	3.67
50,001–69,999	60,000	717,126	42,245	16,629,193	23.19	22.79	5.28
70,000–99,999	85,000	254,054	19,533	8,957,118	35.26	27.29	9.62
100,000+	150,000	152,245	15,691	11,453,185	75.23	28.98	21.80
Total		9,805,575					

Appendix C

Private Health Insurance Incentive Scheme rebate

The Private Health Insurance Incentive Scheme rebate was estimated using two main sources of data: Australian Bureau of Statistics Health Insurance Survey, June 1998; and descriptions of AXA/National Mutual Community products, services and premiums.

The Australian Bureau of Statistics Health Insurance Survey found that level of income of the contributor unit was associated with private health insurance coverage, and ancillary insurance (including dental coverage) (ABS, 1999b). The total percentage of persons with ancillary insurance coverage was estimated for each income category for contributing units. The cost of an average ancillary health insurance package was estimated to be \$760.80 using the AXA/National Mutual Community Standard Extras premium for families for New South Wales (AXA Australia, 2000). Using the annual limit total represented by dental limits as a proportion of the full auxiliary package insurance annual limit total, it was estimated that 42.4 per cent of the full cost of the ancillary insurance was related to a dental premium. This estimated the full dental premium at \$322.58, with the dental component of the private health insurance rebate at \$96.77. Given that there were 3.38 million contributors (PHIAC, 2000) with ancillary insurance as at 30 June 2000, this equated to \$327 million, within the estimated range for the dental component of the private health insurance rebate calculated from budget figures of \$316–\$345 million.

Using the \$96.77 dental rebate per contributor, the mean rebate per individual in the income categories was calculated. These ranged from \$12.77 in the <\$20,000 income category to \$60.29 in the \$100,000+ income category. These dental rebates have been placed against the mid-point for income category and interpolation used to arrive at estimates used for set incomes presented in the manuscript. Table C1 provides the Private Health Insurance Incentive Scheme dental rebates.

Table C1. Private Health Insurance Incentive Scheme dental rebates

Income of contributor unit	Mid-point in income range	% with ancillary health insurance	Cost of dental insurance package	Private Health Insurance Incentive Scheme rebate per <u>individual/</u> <u>household</u> in income category
\$	\$	%	\$	\$
<20,000	10,000	13.2	322.58	12.77
20,000–34,999	27,500	20.8	322.58	20.13
35,000–49,999	42,500	33.2	322.58	32.13
50,000–69,999	60,000	42.3	322.58	40.94
70,000–99,999	85,000	53.7	322.58	51.97
100,000+	202,000	62.3	322.58	60.29

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