

# National dental waitlists: what would it take to reset to zero?

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## Abstract

**Objective.** Over the years, long public dental waitlists across Australia have received much attention from the media. The issue for eligible patients, namely a further deterioration of dental health because of not being able to address dental concerns relatively quickly, has been the subject of several state and Federal initiatives. The present study provides a cost model for eliminating public dental waitlists across Australia and compares these results with the cost of contracting out public dental care to private clinics.

**Methods.** Waitlist data from across Australia were collected from publicly available sources and confirmed through direct communication with each individual State or Territory Dental Health body. Average costs associated with employing key dental personnel and performance figures were used from previously published data to estimate the potential financial commitment and probable public benefits.

**Results.** The cost model suggests that, on average, it would be more than twice as expensive to contract the work out to private dental clinics as to treat eligible patients within public dental clinics. It is estimated that the cost of eliminating the legacy dental waiting lists (over 12 months) would be between A\$50 and A\$100 million depending on the method adopted. The effort would require some 360 dental teams.

**Conclusion.** The design of the Australian public dental care system that is targeted at meeting the needs of eligible patients into the future, in addition to being effective and sustainable, must also offer a level of protection to the taxpayer. The ability to address waitlist backlog identified in the present study clearly would require a mix of service models depending on service availability at different locations. Further research is needed to optimise the mix of service providers to address community needs.

**What is known about the topic?** Long public dental waitlists across Australia have received much attention from the media. The topic has been the subject of debate at the government level and, over the years, has seen an increase in allocation of public funds in an effort to address the policy needs.

**What does this paper add?** This study calculates the actual number of people on the public dental waitlist, provides a detailed analysis of the distribution of the demand for the services and offers a cost model for resetting public dental waitlists across Australia.

**What are the implications for practitioners?** This study carries no implications for individual practitioners at the clinical level. However, at the state and national levels, this model offers direction to a more cost-effective allocation of public funds and human resources.

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## Introduction

Until 1946, the Commonwealth of Australia, with the exception of its responsibility for the health of war veterans, did not have the constitutional power to offer health, pharmaceutical or dental services and benefits. In 1946, constitutional amendment gave the Commonwealth the authority to provide and fund a wide range of health services and benefits.<sup>1</sup>

Today, the adult dental care system in Australia consists of an intricate combination of private and public service providers and funding, evolving from this original constitutional divide between State and Commonwealth. The majority of dental care is provided via the private practice pathway, through a distributed collection of settings.<sup>2</sup> In this private practice pathway, the patient is responsible for all treatment costs, with or without the

assistance of privately funded insurance. The level of health insurance in Australia fluctuates, but currently approximately 45% of the population is covered.<sup>3</sup> Market forces set the costs of care in this pathway (without any government interference), although there is some effect of insurance-driven schemes on the fee-for-service arrangement within a minority of practices.

Consistent with the 1946 amendment to the Australian Constitution, and strong social policy positions held by sequential Australian governments since World War II, people in poverty have access to subsidised health services, inclusive of dental care. Subsidised dental care is provided through a series of public (State and Territory run) dental clinics distributed across Australia.<sup>4</sup> Public dental clinics are usually located in major centres and provide access to a limited range of dental treatments.<sup>1</sup> Some locations also contract out services to private dentists.

The cost of dental care to eligible patients is subsidised by State governments, with various co-payment approaches taken by individual States and Territories, but universally based on the income level of the patient.<sup>5</sup> The demand for dental services from eligible patients exceeds the capacity of State and Territory public dental services to provide treatment, resulting in waiting lists, with historical wait times of 27 months reported.<sup>6</sup> Long waiting time for an appointment has been identified as one of the main reasons of patient dissatisfaction<sup>7</sup> and has frequently been the source of news stories in the national media.

More recently, the Commonwealth Government has committed A\$1.3 billion over several years to State and Territory governments to support additional dental services for adults. This funding is being provided through a National Partnership Agreement (NPA) for adult dental services. The measure is aimed at reducing long wait times to see a public dentist by providing eligible public dental patients with an authority to seek limited treatment from a private dentist. The current NPA for public dental patients ended in March 2015 and a cut-down 12-month extension was put in place. The second NPA was originally scheduled to start on 1 July 2014, but the Budget proposed its deferral until 2015–16. Although early reports suggest that the NPA has had some success in reducing the national dental waitlist, the initiative is deemed too new to determine with any degree of certainty whether the effect will be long lasting, cost-effective and sustainable.

The public dental system in Australia is highly dynamic and the waitlists tend to provide a buffer between the demand and available public resources. Therefore, waitlists may not be inherently bad as long as the eligible patients are able to access the required care within the desirable time frames.<sup>6</sup> Patients attending the Government Dental Clinics with acute problems are prioritised and appointments are made immediately for the most urgent cases, whereas others are placed onto the waiting list.<sup>6</sup>

The present study examined, at the national level, dental waitlists for routine dental care and modelled the total workforce and financial commitment that would be required to eliminate current waitlists. Obviously, eliminating waiting lists is not a real outcome, but it does provide a solid basis for determining the magnitude of the national waitlist and its effect on total system performance. Based on these findings, the paper attempts to identify a cost-effective and sustainable approach to addressing the demand for subsidised dental care into the future that would

also allow the desirable time frames<sup>6</sup> for routine dental care to be maintained.

## Methods

All data used in the present study were grouped into total numbers for regions, therefore no ethics approval was required.

### *Waitlist size*

All waitlist data for each State and Territory were collected from websites or confirmed through direct communication with various jurisdictional bodies. The data were collected for a single time-point (mid-2013). This time point was chosen specifically because any large-scale effect from the NPA would be unlikely so early in the implementation process (within a couple of months).<sup>8</sup>

### *Value of care*

Previously published data<sup>9</sup> identifying the average mix of care via various clinical pathways in Western Australia<sup>9</sup> was used to represent the monetary value of a typical low-, middle- and high-cost dental treatment plan per 1000 patients.

### *Primary model approach*

#### *Operator efficiency*

Efficiency data (i.e. the time taken for an operator to complete care on patients) for public dental service dentists were collected from previously published work.<sup>10</sup> In short, the average number of patient visits per treatment plan (mean ( $\pm$  s.d.)  $3.0 \pm 1.8$ )<sup>9</sup> and the average number of patients seen per day (10 patients) by a public dentist was used as the benchmark activity. Assuming a full-time equivalent (FTE) of a 7.6-h work day (38 h per week), the average number of patients a single public dentist would be able to treat per year was calculated. 'Work year' was defined as a calendar year minus weekends (104 days), public holidays (12 days), annual leave (20 days), Continued Professional Development leave (5 days) and personal leave days (~4 days). The actual number of work days for a public dentist has been calculated to be 220 ( $365 - (104 + 12 + 20 + 5 + 4)$ ).

### *Alternative model approach*

An alternative approach would be to provide subsidised dental care through the existing network of private dental clinics around Australia to complement the effort of the government dental clinics. In this model, a private dentist would be reimbursed for service provision to eligible patients in line with the Department of Veteran's Affairs (DVA) dental fee schedule. A previous study from our group identified the mix of care a patient is likely to receive via four different clinical pathways in Australia, including public, Chronic Disease Dental Scheme (CDDS), private and Aboriginal Medical Services (AMS)-based care.<sup>9</sup> In the present study we have rested on the most commonly used dental treatment item numbers identified in each clinical pathway and monetary value assigned using the 2013 DVA dental fee schedule<sup>11</sup> per 1000 patients treated.

## Results

### *Waitlist size*

The total number of patients currently waitlisted for public dental care in the Australian Capital Territory (ACT;  $n = 165$ ),

New South Wales (NSW;  $n=42\,000$ ), Queensland (Qld;  $n=62\,513$ ), South Australia (SA;  $n=12\,454$ ), Tasmania (Tas.;  $n=17\,225$ ), Victoria (Vic.;  $n=116\,864$ ) and Western Australia (WA;  $n=11\,822$ ) was obtained from state Dental Health Services websites or through written requests for data to the department (Table 1). The Northern Territory (NT) did not report its data and offers of participation were declined. Notwithstanding this, it is estimated that the number of people on the NT public dental waiting list would be very small compared with other States and Territories.

### Primary model approach

#### *Operating teams required to eliminate the national waiting list*

The cost of providing a dental service in terms of subsidies, dentist and assistant wages per 1000 patients can be calculated.

Applying the methodology, it was modelled that, on average, a public dentist is able to complete 2200 patient visits (appointments) per work year (220 days per year  $\times$  10 patients per day). Extending this, on average, a public dentist is able to complete the treatment for approximately 733 patients per work year (2200 patient visits  $\div$  3 visits per patient to complete an average treatment).

Given that the waitlist at the time of the present study was 263 043 people, it is estimated that 359 (263 043  $\div$  733) dental teams will be able to completely eliminate the waiting lists in 1 year assuming they undertake no other care than remove patients from the waitlist. It is noted that many government clinics are also teaching facilities where students are also rostered to provide endpoint dental care under supervision, which may affect output calculations.

#### *Cost model*

The Australian Dental Association estimates the average salary for a dentist (in 2013) was A\$92 000.<sup>12</sup> The average wage for a dental nurse for the same year was A\$49 000.<sup>13</sup> The addition of superannuation entitlements (and various other on-costs) adds approximately 20% to the dentist and nurse labour costs. This translates to A\$101 per hour for both the dentist and the nurse ((A\$92 000 + A\$49 000.00 + 20%)  $\div$  220 work days per year)  $\div$  7.6 h per day). This equates to A\$231 127 (in salary and wages per 1000 patients treated). The study does not account for costs associated with administration, reception, materials or laboratory work because direct labour costs are the most substantial cost component (some  $\geq 65\%$ ) of the overall costs.<sup>14</sup>

The total cost in terms of dentist and nurse wages can now also be calculated with regard to elimination of all the dental waitlists right around Australia by multiplying the cost of treating 1000 patients by the total number of patients waitlisted in thousands (A\$231 127  $\times$  263.043 = A\$60 786 401; excluding patient co-payments).

### *Sensitivity analysis*

The estimated cost is based on an 'average' course of care that spans over three appointments. The dental team's time is the main cost determinant in this equation; it would therefore follow that price would change depending on the number of appointments a patient requires to complete their course of care. Taking into account the standard deviation of the sample for the length of course of care (1.8 appointments), a cost spread was established (Table 2). The cost of providing dental care has been shown (Table 2) to be very sensitive to the number of appointments required to complete patient course of care. The cost spectrum spans between A\$24 478 781 (1.2 appointments) and A\$97 024 988 (4.8 appointments), with an average of A\$60 786 401 (three appointments), excluding patient co-payments (Table 2).

### *Summary of model outcome*

In short, it is estimated that it will take 359 public dental teams 12 months with a cost estimated at A\$60 million to eliminate the waiting lists that remain in Australia. Most of the teams ( $n=169$ ) would need to be based in Victoria, whereas 86 teams would be needed in Qld and the remaining 104 would be located throughout the other States and Territories.

### *Alternative model approach*

It is recognised that even though Australia has a sizeable network of public dental clinics throughout the country, long waitlists and geographic remoteness of towns and cities can make it difficult for eligible patients to access the services in a timely manner. It has been reported that the wait time for eligible patients on the public dental waitlist for routine dental care in Australia is beyond optimal.<sup>6</sup> Therefore, it would be reasonable to conclude that there is a shortage of government dentists doing the work. If this statement is correct, it would follow that in order to completely eliminate all the current waitlists in Australia, either more funds need to be allocated to employing public dentists (and building new clinics) or consideration must be given to contracting the work out to private dentists. Previous

**Table 1. Average cost (A\$) of treating public dental patients across each State and Territory**  
ACT, Australian Capital Territory; NSW, New South Wales; Qld, Queensland; SA, South Australia; WA, Western Australia

	ACT	NSW	Qld	SA	Tasmania	Victoria	WA
Co-payment value	~20%	Nil	Nil	\$155 max	\$44/app	\$26.50/app	25%
No. people on waitlist	165	42 000	62 513	12 454	17 225	116 864	11 822
State population	386 000	7 432 200	4 676 400	1 674 700	513 400	5 768 600	2 535 700
No. people on waitlist per 1000 population	0.5	6	13	7	33	20	5
Cost of labour	\$38 115	\$9 707 334	\$14 440 503	\$2 876 874	\$3 978 975	\$26 995 584	\$2 730 882
Less patient co-payment	\$6913	\$0	\$0	\$1 930 370	\$2 273 700	\$9 290 688	\$618 094
Net cost	\$31 202	\$9 707 334	\$14 440 503	\$946 504	\$1 705 275	\$17 704 896	\$2 112 788
Total cost				\$46 648 502			

**Table 2. Effects of variation in the number of appointments on dental teams, co-payment and net labour costs**

The standard deviation of the number of appointments required (1.8) was subtracted from and added to the average number of appointments ( $n=3$ ) to provide a possible range.

No. appointments	No. teams required	Team labour cost (A\$)	Approximate co-payment (A\$)	Estimated net cost (A\$)
1.2	143	24 478 781	5 647 906	18 830 875
3 (mean)	359	60 768 267	14 119 765	46 648 502
4.8	574	97 024 988	22 591 624	74 433 364

work identified the average cost and compared the types of services a patient was likely to receive via four clinical pathways, including public, CDDS, private and AMS.<sup>9</sup> A concise overview of the findings has been included below to help understand the composition of the cost associated with the alternative approach model.

Previous studies found that patients attending public dental clinics, on average, received treatment to the value of A\$209 523 per 1000 patients. In this pathway, 7% of the total value was attributed to extractions, 4.8% to crowns and bridges and 50% for the provision of simple fillings. In this setting, between 50% and 75% of the treatment cost is subsidised by the government, depending on patient eligibility.<sup>9</sup> The CDDS, which, until recently, provided eligible people (not based on economic eligibility but on health-based factors) the ability to claim rebates from the national government health financing system (Medicare) for dental treatment provided by private dentists. The CDDS, introduced in 2007, entitled people with chronic medical conditions (directly related to their dental health) to be covered for dental treatment up to the value of A\$4250 over a 2-year period.<sup>15</sup> In the CDDS pathway, patients received approximately A\$470 062 worth of treatment per 1000 patients. Extractions accounted for only 2% of the workload. Crowns and bridges made up 18% of the bill, whereas simple fillings contributed 27% to the overall total.<sup>9</sup>

The private care pathway showed similar financial results to the CDDS. On average, A\$477 790 worth of treatment per 1000 patients was provided. Extractions made up 1.9% of the total cost, with crowns and bridges accounting for 15.9% and simple fillings for 47% of the total amount.<sup>9</sup>

In short, patients receiving treatment through both the CDDS and private pathways received fewer extractions and more than threefold as many complex (crown and bridge) restorations as those being treated through the public pathway. Because the now historic CDDS was paid for by Medicare and analysis of both CDDS and private clinical pathways offers an objective overview of the type and frequency of services delivered, these pathways can be viewed as an example of the kind of cost the taxpayer may be expected to meet should serious consideration be given for the work to be contracted out to the private sector and the spectrum of service delivery in terms of dental item numbers is not restricted. Projecting these findings over our national dental waitlists, the cost of eliminating current dental waitlists by contracting the work out to private clinics is likely to be A\$111 415 509 including patient co-payment. As a comparison, our previous calculation found that 359 strategically located government-employed dental teams, not undertaking any

other activities except treating patients on the waitlist, would have the capacity to eliminate Australia's entire dental waitlist for a total of A\$46 648 502 once patient co-payment is taken into account (Table 1).

Discussion

A recent inquiry into Adult Dental Services in Australia by the ADA (March 2013) has concluded that 'the NPA is unlikely to reach the level of funding that was expended under the CDDS in any given year'.<sup>16</sup>

Therefore, experience with the CDDS can provide some insight into the costs associated with 'contracting out' of public dental care. As both the CDDS and the private pathway examples demonstrate, such care is more expensive compared with the public pathway. However, it must be noted that, compared with the public pathway, CDDS and private pathways have higher rates of provision of endodontics and crown and bridge services. These services are generally more labour intensive and thus more expensive. Conversely, the public pathway has a higher rate of extractions and simple restorative services. These differences may 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. Changes in patients' personal circumstances may also create a situation whereby patients move in and out of eligibility without ever reaching the top of the waitlist. The difference in cost may also reflect the tighter rationing of services within a course of care in the public dental services. The criteria for the provision of complex restorations, such as crowns and bridges, is complex and may require 'standardisation' should serious consideration be given to contracting out these types of dental services. In addition, it has been well documented that such complex restorations require ongoing maintenance and good oral hygiene. Therefore, by definition, patients with a history of generalised decay are not always optimal candidates for complex restorative procedures, because under such conditions these restorations are more likely to be a risky long-term clinical decision. Of course, the requirement and techniques for maintaining good oral hygiene can be explained to patients before such restorations are undertaken. However, patient compliance with such recommendations can only be accurately assessed over time. Thus, provision of subsidised complex restorative procedures through public dental clinics may provide a better safety net for the taxpayer because there are stricter controls for providing such high-maintenance and expensive restorations.

The subject of long dental waitlists is not new and there are many opinions on what should be done to reduce them. The true number of eligible patients who would like to access subsidised dental care could be even higher than reported because of the fact that prolonged wait times may discourage people from applying.

Adding to the debate, several studies have linked poor oral health and systemic diseases,<sup>17</sup> highlighting the urgency of addressing dental problems early. In more recent years, it has been suggested<sup>1</sup> that perhaps dental care should be included under the Medicare scheme, offering the Australian public universal access to dental services. Although such a move could potentially reduce the waiting lists by allowing unlimited access to dental care privately, the cost associated with such an initiative is likely



to be prohibitive and has been estimated to be up to A\$11 billion annually.<sup>18</sup> Arguably the most cost-effective approach would be to continue to deliver public dental services through the public dental clinics, where available, and employing more dental teams if demand for services and clinical facilities allow. Standardising the classification of the currently available dental services through the public dental clinics as either 'essential or medically essential' or 'elective' could also be an option. This classification effectively creates two waitlists 'essential' and 'elective', not too dissimilar to what public hospitals operate under. This clear distinction allows publicly employed dentists to work quicker through the 'essential' waiting lists by focusing initially on elements of dentistry that are fundamental to arresting progression of disease. This sort of triaging of patients in the public sector has been effective in several places previously<sup>19</sup> and is a common practice in NSW and Qld. Reducing progression of disease is likely to improve the overall health of the patient and may reduce the amount of dental work required during future 'elective' visits.

In areas that do not have a large enough population to warrant building a public dental clinic, the level of subcontracting of public dental services to private clinics should be increased. This approach, although more expensive, could potentially have an added bonus of providing more favourable terms for private practitioners to set up practice in country towns, offering additional benefits for the rural and remote communities.

In conclusion, in addition to being effective and sustainable, the design of the Australian public dental care system that is targeted at meeting the needs of eligible patients into the future must also offer a level of protection to the taxpayer. The ability to address waitlist backlog identified in the present study clearly would require a mix of service models depending on service availability at different locations. It is estimated that the cost of eliminating the legacy dental waiting lists (over 12 months) would be between A\$50 and A\$100 million depending on the method adopted. The effort would require some 360 dental teams, with most based in Victoria. Different approaches to addressing this legacy were considered and variations in the cost and manpower issues presented. Further research is needed to optimise the mix of service providers to address community needs.

### Competing interests

None declared.

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