

# 6 Dental services

## 6.1 Summary

All dental services were allocated to ICD-9 chapter 9, 'Digestive system diseases'. Expenditure and utilisation of these services were further allocated to treatment or prevention and screening using attribution factors calculated from the 1989-90 Australian Bureau of Statistics (ABS) National Health Survey. Total expenditure was taken from the AIHW Health Expenditure Database. Cost weights for allocating costs to occasions of service were taken from the 1993 Dental Fees Survey and total numbers of services were estimated from the 1994 National Dental Telephone Interview Survey.

### Box 6.1: Key assumptions

- *The pattern of dental visits and services reported in the National Health Survey is the same as that for 1993-94 by age, sex and treatment or prevention category.*
- *The actual expenditure on each type of dental service is proportional to the average fee charged for that service.*
- *For each National Health Survey respondent, the total cost of the dental consultations reported is the sum of the costs for the services reported.*

### Box 6.2: Data sources

- 1989-90 ABS National Health Survey.
- 1993 Dental Fees Survey.
- 1994 National Dental Telephone Interview Survey.
- AIHW Health Expenditure Database.

## 6.2 Overview of dental services methodology

Total expenditure on dental services is known from the AIHW Health Expenditure Database. Total services utilisation can be estimated from the 1994 National Dental Telephone Interview Survey. The purpose of this methodology is to allocate this expenditure and utilisation to age-sex groups classified by treatment or prevention and screening.

The allocation is based on the pattern of visits to the dentist reported in the National Health Survey. Each survey respondent reported on the number of dental consultations in the two weeks prior to the survey and the dental services received. The services were classified as either treatment or prevention and screening, and the consultations for each survey respondent were apportioned to each of these groups in the same proportions as the reported services.

Attribution fractions for utilisation were calculated so that utilisation was apportioned proportional to the number of consultations with services in each category. These fractions were applied to total utilisation of dentists reported in the National Dental Telephone

Interview Survey. Fees were calculated for each service from the results of the Dental Fees Survey and attribution fractions were calculated to attribute expenditure proportional to the fees charged for services for consultations in each category.

Tables 6.1 and 6.2 below list the average fee charged for each service and the allocation of services to the categories 'treatment' or 'prevention and screening'.

**Table 6.1: Fee charged for dental procedure**

Procedure	Fee \$
Dental extraction	57.60
Dental X-ray	36.40
Teeth cleaned/polished	37.15
Dental fluoride treatment	35.80
Dental filling	61.20
Denture fitting	598.50
Denture maintenance/repair	58.20
Dental braces/bands fitted	1,168.00
Dental checkup	26.00
Other dental treatment	64.00

Note: Where two or more procedures in the survey corresponded to a single procedure in Table 6.1, the median fee from the survey was used.

Source: 1993 Dental Fees Survey.

**Table 6.2: Classification of dental services**

Prevention/screening	Treatment
Dental X-ray	Dental extraction
Teeth cleaned/polished	Dental filling
Dental fluoride treatment	Denture fitting
Dental checkup	Denture maintenance/repair
	Dental braces/bands fitted
	Other dental treatment

## 6.3 Dental services methodology in detail

### 6.3.1 Utilisation by age, sex and service category $U_{asd}$

The attribution fraction for attributing total utilisation of dental services to age group  $a$ , sex  $s$  and service category  $d$  is given by:

$$\alpha_{asd} = \frac{\sum_{i=1}^{N_{dsa}} \sum_{j=1}^{n_i} \left( \frac{v_i \times wn_i \times \delta_{jd}}{n_i} \right)}{2 \sum_{d=1} \sum_s \sum_a \sum_{i=1}^{N_{dsa}} \sum_{j=1}^{n_i} \left( \frac{v_i \times wn_i \times \delta_{jd}}{n} \right)} \quad (6.1)$$

- where:
- $N_{dsa}$  = Total number of survey respondents of age  $a$  and sex  $s$  who reported a dental service in category  $d$
  - $wn_i$  = National Health Survey weight for respondent  $i$
  - $v_i$  = Number of times respondent  $i$  reported visiting a dentist
  - $n_i$  = Total number of dental services reported by respondent  $i$
  - $\delta_{jd}$  = 1 if service  $j$  is in category  $d$ ; or  
0 otherwise

The utilisation of dental services by age, sex and service category is then given by:

$$DU_{asd} = DU \times \alpha_{asd} \quad (6.2)$$

- where:
- $DU$  = Total utilisation of dental services (from the National Dental Telephone Interview Survey)
  - $\alpha_{asd}$  = Fraction for attributing total utilisation of dental services to age group  $a$ , sex  $s$  and service category  $d$ —calculated in Equation 6.1 above

#### Assumptions

- The pattern of dental visits and services reported in the National Health Survey is the same as that for 1993–94 by age, sex and treatment or prevention and screening category.

#### Data sources

- 1989–90 ABS National Health Survey.
- 1994 National Dental Telephone Interview Survey.

### 6.3.2 Expenditure by age, sex and service category $DE_{asd}$

The attribution fraction for attributing total costs of dental services to age group  $a$ , sex  $s$  and service category  $d$  is given by:

$$\beta_{asd} = \frac{\sum_{i=1}^{N_{dsa}} \sum_{j=1}^{n_i} \left( \frac{v_i \times w_j \times wn_i \times \delta_{jd}}{n_i} \right)}{\sum_{d=1}^2 \sum_s \sum_a \sum_{i=1}^{N_{dsa}} \sum_{j=1}^{n_i} \left( \frac{v_i \times w_j \times wn_i \times \delta_{jd}}{n} \right)} \quad (6.3)$$

where:	$N_{dsa}$	=	Total number of survey respondents of age $a$ and sex $s$ who reported a dental service in category $d$
	$wn_i$	=	National Health Survey weight for respondent $i$
	$v_i$	=	Number of times respondent $i$ reported visiting a dentist
	$w_j$	=	Average fee charged for service $j$
	$n_i$	=	Total number of dental services reported by respondent $i$
	$\delta_{jd}$	=	1 if service $j$ is in category $d$ ; or 0 otherwise

Expenditure on dental services by age, sex and service category is then given by:

$$DE_{asd} = DE \times \beta_{asd} \quad (6.4)$$

where:	$DE$	=	Total expenditure on dental services from AIHW Health Expenditure Database
	$DE_{asd}$	=	Expenditure on dental services for age $a$ , sex $s$ and dental service category $d$

#### *Assumptions*

- The pattern of dental visits and services reported in the National Health Survey is the same as that for 1993–94 by age, sex and treatment or prevention and screening category.
- The actual expenditure on each type of dental service is proportional to the average fee charged for that service.
- For each National Health Survey respondent, the total cost of the dental consultations reported is the sum of the costs for the services reported.

#### *Data sources*

- 1989–90 ABS National Health Survey.
- 1993 Dental Fees Survey.

## **6.4 Differences from 1989–90 methodology**

Dental service costs were not included in the 1989–90 methodology. Total dental service costs from the AIHW Health Expenditure Database were added to the 'Diseases of the digestive system' category under 'Allied health professional' in some summary tabulations.