Prostheses List benefit analysis

August 2017

Final Report

MTAA Medical Technology
ASSOCIATION OF AUSTRALIA

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Contents

MTAA **Medical Technology**
ASSOCIATION OF AUSTRALIA

Executive summary

Background and scope

Background

The Medical Technology Association of Australian (MTAA) engaged PwC Australia to assist with an analysis of the impact of potential price changes to the Prostheses List (PL) Benefit arrangements in response to requests by the Commonwealth Minister for Health to engage in negotiation to reduce PL Benefits. ***In undertaking this analysis it is intended that insights can be drawn regarding the impact of different scenarios in targeting PL Benefit reductions.***

Scope of work

The scope of work involved analysis of MTAA member volume and price data at the billing code level in order to arrive at an understanding of the net impact of potential PL benefit changes for prostheses. The scope of the analysis included;

- Collecting and consolidating billing code level data from MTAA member companies in an effort to establish the current state based on the data supplied.

- Performing analysis on the data to estimate the impact of potential scenario reductions to the Prostheses List based on the proposed Prostheses List benefits.

Approach

The approach taken to the analysis consisted of:

1. Data collection. Both quantitative and qualitative private and public hospital data was collected from member companies via a data collection template.

2. Data consolidation. Consolidation of data from members to establish the baseline current state.

3. Data analysis. Calculation of weighted average price and percentage differentials. Scenario testing various PL benefit price reduction methodologies to estimate the impact of potential changes to total PL benefits.

Please note. The differentials calculated within this report have not been adjusted to account for the potential cost differences to deliver services in the private versus public setting.

Data limitations and uncertainties

The estimates contained within this document represent a best estimate, based on the data provided by MTAA member companies.

There has been no deliberate bias towards either an over- or understatement, however various data limitations required that a number of assumptions be made that could result in the actual outcome being different from the estimates provided (see page 13 for further details).

The data used for the analysis has been supplied by MTAA Member Companies and was taken to be true and correct; no independent validation of the data has been conducted.

Modelling outcomes

32 member companies contributed data to this exercise which represents 41 suppliers listed on the February 2017 Prostheses List (PL). This captures approximately 78.2% of the total PL benefits paid during 2015-16 (based on Australian Prudential Regulation Authority (APRA) private health insurance expenditure data) and 69% of all billing codes on the February 2017 PL.

Based on the data submitted, over the 2015/16 period member companies supplied 2.3 million prostheses to public sector health services and 2.1 million to private sector health services. The total calculated cost was $834.7 million in public and $1,561.4 million in benefits in private.

The analysis shows that there is a baseline **differential of 15.3%** between the weighted average private benefit and mix adjusted public price (public price at private volume). **The estimated benefit differential is $239.3 million** (based on submitted data).

Hospital service	Total volume	Total ($ million) cost (public) benefit (private)	Weighted average	% Differential private/public (mix adj)	Estimated benefit (million)	$ Differential (million) private/public (mix adj)
Public	2,300,944	$834.7	$625 average public price @ private volume	15.3%	$1,322.6	$239.3
Private	2,117,622	$1,561.4	$737 average private benefit @ private volume		$1,561.4	

The total differential for the full complement of PL billing codes is estimated to be $305.7 million, assuming that the 15.3% differential is applied across the 'missing data' for the 31% of billing codes that were not captured through the data collection process.

Modelled outcomes - Using the data supplied by member companies, this report presents the estimated impact of potential price changes to the PL benefits to achieve parity (0% differential) plus (+) 5%, 7.5%, 10%, 12.5% of 15%. The results are outlined below.

Parity plus to all subgroups or groups

Summary Results	Parity 0%	Parity +5%	Parity +7.5%	Parity +10%	Parity +12.5%	Parity +15%
% PL benefit reduction	15.3%	11.1%	8.9%	6.8%	4.7%	2.6%
% differential	15.3%	4.8%	7.0%	9.1%	11.1%	13.0%
$ reduction (million)	$305.7	$221.2	$179.0	$136.7	$94.4	$52.2

The is modelling assumes the PL benefit reductions apply to the full complement of PL billing codes (excluding cardiac) and should be applied to an estimated Total APRA Spend (Including 'Other category' redistribution) based on the APRA data (15-16).

Modelling outcomes at the category level

Parity Plus

Product Category	% Differential	$ Differential	Parity +5%	Parity +7.5%	Parity +10%	Parity +12.5%	Parity +15%
Cardiac*	34.8%	$125.9	$114.1	$108.2	$102.3	$96.4	$90.5
Ophthalmic	18.1%	$6.0	$4.6	$4.0	$3.3	$2.6	$1.9
Ear, Nose & Throat	16.0%	$0.1	$0.1	$0.1	$0.0	$0.0	$0.0
Neurosurgical	15.8%	$11.1	$8.2	$6.7	$5.2	$3.7	$2.2
Vascular	13.8%	$6.9	$4.7	$3.7	$2.6	$1.5	$0.4
Hip	12.8%	$25.9	$17.1	$12.7	$8.3	$3.9	-$0.4
General Miscellaneous	11.9%	$26.7	$16.8	$11.9	$7.0	$2.1	-$2.9
Knee	8.6%	$24.0	$11.3	$5.0	-$1.3	-$7.7	-$14.0
Spinal	6.1%	$7.0	$2.0	-$0.5	-$3.0	-$5.5	-$8.0
Specialist Orthopaedic	2.9%	$5.2	-$3.4	-$7.6	-$11.9	-$16.1	-$20.4
Urogenital	2.0%	$0.6	-$0.9	-$1.7	-$2.4	-$3.2	-$3.9
Cardiothoracic	0.4%	$0.1	-$1.0	-$1.5	-$2.0	-$2.6	-$3.1
Plastic and Reconstructive	-2.1%	-$0.2	-$0.6	-$0.8	-$1.0	-$1.3	-$1.5
Missing volume**	15.3%	$66.4	$48.0	$38.8	$29.6	$20.4	$11.2
ALL CATEGORIES	**15.3%**	**$305.7**	**$221.2**	**$179.0**	**$136.7**	**$94.4**	**$52.2**

The cardiac differential has not been adjusted to account for the costs to deliver post implantation services for the life of the device.

Estimation of differentials between average public price and PL benefit.

A mix adjusted weighted average calculation was used to estimate the differential between the public price and the February 2017 PL benefits. Using this approach the differentials have been calculated at the billing code level (weighted to account for volume) and for the purposes of this report are then aggregated to the product category level. The calculation methodology is outlined below;

Mix adjusted weighted average (private/public mix adjusted)

This approach adjusts for the mix of products purchased in the private sector by using the private volume as a constant. It calculates the difference between the weighted average private benefit at private volume and weighted average public price at private volume.

This approach is considered to be a more comparative approach as it accounts for the difference in patient mix and potential clinical practice differences which influence the purchasing decision across the private and public sectors (these are examples only and there may be other influencing factors that apply).

*The differentials under this approach have not been adjusted to account for the potential cost differences to deliver services in the private vs public setting.

Please see Appendix A for a technical description of the methodology used.

Background and introduction

Background and introduction

Background

The Medical Technology Association of Australian (MTAA) engaged PwC Australia to assist with an analysis of the impact of potential price changes to the Prostheses List (PL) Benefit arrangements in response to requests by the Commonwealth Minister for Health to engage in negotiation to reduce PL Benefits.

Scope of work

The scope of work involved analysis of MTAA member volume and price data at the billing code level in order to arrive at an understanding of the net impact of potential PL benefit changes for prostheses.

The scope of the analysis included;

- Collecting and consolidating billing code level data from MTAA member companies in an effort to establish the current state based on the data supplied.

- Performing analysis on the data to estimate the impact of potential scenario reductions to the Prostheses List based on the proposed Prostheses List benefits.

Approach

Step	Definition	Detail
One	Data collection	Developed a data collection template which collected both quantitative and qualitative data.
Two	Data consolidation	Collect and consolidate data from members establishing the current state based on the data supplied.
Three	Perform data analysis and insight generation	1. Calculate the mix adjusted weighted average public price at billing code, subgroup and group levels. 2. Calculate the percentage differential between the prostheses list benefit and the mix adjusted weighted average public price at billing code and subgroup levels. 3. Estimate the impact of differential including consultation with member companies on the qualitative data collected. 4. Scenario test potential PL benefit changes to explore and understand the potential impact on overall PL expenditure.

Data and methodology

Data collection

The analysis is based on two data sets.

Member Company Price and Volume Data 2015/2016	Australian Prudential Regulation Authority Data for 2015/2016
• Public hospital sales volume • The average price charged to public hospitals • Private hospital sales values The data was collected at the billing code level.	This data reports expenditure at the product category level and has been used as the indicator for total industry expenditure. For products included in the 'Other' category we have applied a weighted average reduction in the PL benefits based on the estimation of the 13 PL product categories.

Below are the definitions for each of the columns in the data capture template used to collect company data in a consistent way.

Field name	Description
Product name	Description of the product as listed in the Prostheses List
Product category	Entry as listed in the Prostheses List
Product group	Entry as listed in the Prostheses List
Product sub-group	Entry as listed in the Prostheses List
Billing code	Entry as listed in the Prostheses List
Suffix	Entry as listed in the Prostheses List
Annual sales volume to public hospitals	Number of individual units sold to all public hospitals in Australia during the 2015-16 financial year.
Price charged to public hospitals	Average price of the individual units sold to all public hospitals (public patients only) in Australia during the 2015-16 financial year **(Total sales(revenue) ÷ Total units sold)**
Annual sales volume to private hospitals	Number of individual units sold to all private hospitals in Australia during the 2015-16 financial year
Prostheses List benefit	Entry as listed in the Prostheses List as at 12 May 2017
Comments if Prostheses List benefit and Public price differ by greater than 5%	Qualitative comments regarding the reason for a price difference between public and private hospitals. These could include service levels, technology available etc.

Prostheses List coverage based on data collected

The data supplied by MTAA member companies represents approximately 78.2% of the total PL benefits paid during 2015-16 according to the APRA private health insurance expenditure data and 69% of total billing codes had data collected. There is varying coverage across the different product categories with most of the categories well covered with the exception of Ophthalmic and Ear, Nose and Throat categories.

Category	Data Captured (million) (private spend)	Total APRA Spend (million)	Proportion of APRA spend (million)	Total APRA Spend Including 'Other category' redistribution (million)	Proportion of APRA spend Including 'Other category' redistributed
Ophthalmic	33.0	93.5	35.3%	$107.7	30.6%
Ear, Nose & Throat	0.6	28.2	2.1%	$32.5	1.8%
General Miscellaneous	223.7	220.5	101.5%	$254.0	88.1%
Neurosurgical	70.5	65.6	107.5%	$75.6	93.3%
Urogenital	31.2	32.7	95.4%	$37.7	82.8%
Specialist Orthopaedic	175.7	201.3	87.3%	$231.9	75.8%
Plastic and Reconstructive	8.5	16.1	52.8%	$18.5	45.8%
Cardiac	361.8	371.4	97.4%	$427.9	84.6%
Cardiothoracic	21.3	19.4	109.8%	$22.3	95.3%
Vascular	49.8	55.1	90.4%	$63.5	78.5%
Hip	201.1	220.9	91.0%	$254.5	79.0%
Knee	277.2	262.6	105.6%	$302.5	91.6%
Spinal	107.1	145.1	73.8%	$167.2	64.1%
*Other**	-	*$263.4*	-	*NA (redistributed above)*	*NA*
ALL CATEGORIES	**1,561.38**	**1,995.80**	**78.2%**	**1,995.80**	**78.2%**

Total billing codes	Billing codes collected	% of total collected
312	96	31%
186	18	10%
932	698	75%
463	406	88%
213	129	61%
3021	1878	62%
706	441	62%
342	292	85%
98	75	77%
482	410	85%
920	587	64%
938	681	73%
1841	1247	68%
NA	*NA*	*NA*
10454	**6958**	**69%**

'Other category' redistribution. The 'other' category is a category captured in the APRA data and it is assumed that this contains PL benefits for products which insurers have not mapped to a specified category. To ensure the 'other category' value is accounted for in the representation of coverage (data completeness), its value has been redistributed using a weighting based on the portion of spend recorded in each category.

Using this methodology the overall proportion of APRA spend does not change (78.2%), but the category coverage is reduced.

Assumptions and limitations

Assumptions. We note that the underlying methodology used to develop the estimates contains a number of assumptions that could result in the actual outcome being different from the estimations under each scenario. The most significant of these relates to the completeness of the price and volume data.

#	Definition	Detail
1	Missing data	Price and volume data was received for approximately 69% of the billing codes on the PL (excluding the cardiac category), the portion of missing data was not collected either because the company is not a part of the MTAA, or the member company chose not to submit.
		Because the analysis is completed at a subgroup/group level and we do not have a full data set, an assumption has been made that the calculated differential (at an overall schedule level) would also apply to the missing data.
2	Billing codes with missing public prices	A portion of billing codes had a private price but no public price. To ensure that the volume and $ impact of these products is accounted for it was assumed that the public price for these products was equal to the ***weighted average public price*** of either the subgroup or group to which the billing code is categorised. The implication of this is that the results at a company level will be different to 'actual'.
		*The weighted average public price is $SUM_{all\ codes\ in\ subgroup/group}$ (Price charged to public hospitals * Annual sales volume to public hospitals$_{billing\ code}$) / Annual sales volume to public hospitals$_{all\ codes\ in\ subgroup/group}$
3	Missing subgroup public price	There were some occasions when there was no subgroup public price, but private volume which means that assumptions were required when calculating the differentials. The assumptions are;
		• if there was no public price data for the subgroup then the product category mix adjusted weighted average public price average was used.
		• if data was available for the subgroup, but there was no public price for the billing code then the subgroup average was used (as per assumption #2 above).

Data limitations. The data used for the analysis has been supplied by MTAA Member Companies.

- There was no independent validation of the data undertaken and it was assumed to be correct as provided.

- The analysis is limited by the quality of the data supplied and the analysis does not consider the impact of any cost and/or accounting differences between each company.

Appendix A. Analysis methodology

Analysis methodology
- Overall differential

Overall differential. The baseline analysis compares the private revenue to the potential public price revenue (at private volume). This is calculated at a billing code level and summarised to the category or schedule level for the purposes of the description below.

It tells us: *"If the volume of devices supplied to private hospitals remained unchanged, but the benefit paid for devices was reduced to the mix adjusted weighted average public price, by how much would total private hospital device expenditure be reduced?"*

We have defined the following at the category level (similar definitions apply at the schedule level) to determine the overall differential.

Step	Variable	Description	Calculation
1	Weighted average private benefit	Private benefit at private volume	$SUM_{all\ codes\ in\ category}$(Prostheses List benefit * Annual sales volume to private hospitals$_{billing\ code}$) / Annual sales volume to private hospitals$_{category}$
2	Mix adjusted weighted average public price	Public price at private volume	$SUM_{all\ codes\ in\ category}$(Price charged to public hospitals*Annual sales volume to private hospitals$_{billing\ code}$) / Annual sales volume to private hospitals$_{category}$ *Assumption #2 is drawn on here to estimate the price charge to public hospitals for those billing codes which did not have a public price.
3	Differential %	Percentage difference between the weighted average private benefit and the mix adjusted weighted average public price	(Weighted average private benefit – Mix adjusted weighted average public price) / Weighted average private benefit
4	Overall Differential ($)	Dollar difference between the weighted average private benefit and the mix adjusted weighted average public price	(Weighted average private benefit * Annual sales volume to private hospitals$_{category}$) – (Mix adjusted weighted average public price * Annual sales volume to private hospitals$_{category}$)

Analysis methodology - Overall differential

Overall differential example - Mix adjusted weighted average public price

Product category	Assessment body	Product group	Product sub-group	Prostheses List Benefit	Price charged to public hospitals	Annual sales volume to public hospitals	Annual sales volume to private hospitals	Mix adjusted weighted average public price
11 - xx	11.01	11.01.01	11.01.01.01	$1,000	$500	10	50	$1,167
11 - xx	11.01	11.01.01	11.01.01.01	$1,000	$1,500	100	100	$1,167
11 - xx	11.01	11.01.01	11.01.01.06	$3,000	$2,500	20	150	$2,500
11 - xx	11.01	11.01.01	11.01.01.06	$3,000	$2,500	200	200	$2,500
12 - xxxx	12.01	12.03.07	12.03.07.01	$5,000	$4,500	30	20	$5,722
12 - xxxx	12.01	12.03.07	12.03.07.01	$6,000	$5,500	300	30	$5,722
12 - xxxx	12.01	12.03.07	12.03.07.01	$7,000	$6,500	40	40	$5,722
12 - xxxx	12.01	12.03.07		$8,000	$7,500	400	50	$8,045
12 - xxxx	12.01	12.03.07		$9,000	$8,500	50	60	$8,045

Subgroup weighted average: $1,167
= ($500*50 + $1,500*100) / (50+100)

No sub-group so take group weighted average: $8,045
= ($7,500*50+$8,500*60) /(50+60)

Product Category	Total volume	Public — Mix adjusted weighted average public price	Private — Total volume	Private — Weighted average private benefit	Differential — % Differential	Differential — $ Differential (million)
11 - xx	500	$2,100	330	$2,400	12.5%	$0.2
11 - xxxx	200	$7,000	820	$7,500	6.7%	$0.1
ALL	**700**	**$3,500**	**1150**	**$3,857**	**9.3%**	**$0.3**

$2,100 =
($500*50)+($1,500*100)+($2,500*150)+($2,500*200)/(50+100+150+200)

$2,400 =
($1,000*50)+($1,000*100)+($3,000*150)+($3,000*200)/(50+100+150+200)

9.3% =
($3,857 - $3,500) / ($3,857)

$0.2m =
($1,000 - $1,167) * 50 +
($1,000 - $1,167) * 100 +
($3,000 - $2,500) * 150 +
($3,000 - $2,500) * 200

16

Analysis methodology - Parity plus

Parity plus. This scenario models the impact of changing Prostheses List benefits to achieve parity (0% differential) plus (+) 5%, 7.5%, 10%, 12.5% or 15%. A new price is calculated for each PL subgroup (or group if there is no applicable subgroup) based on the mix adjusted weighted average public price for that subgroup (or group) plus an additional factor; 5%, 7.5%, 10%, 12.5% or 15%.

It tells us: *"If the volume of devices supplied to private hospitals remained unchanged, but the benefit paid for devices was reduced to the mix adjusted weighted average public price plus an additional factor, by how much would total private hospital device expenditure be reduced?"*

We have defined the following at the category level (similar definitions apply at the schedule level) to determine the overall differential. The calculations are the same as those described previously, with the exception of step 2 – which we have described as 2a.

Step	Variable	Description	Calculation
1	Weighted average private benefit	Private benefit at private volume	$\text{SUM}_{\text{all codes in category}}$(Prostheses List benefit * Annual sales volume to private hospitals$_{\text{billing code}}$) / Annual sales volume to private hospitals$_{\text{category}}$
2(a)	Mix adjusted weighted average public price plus additional factor	Public price at private volume plus an additional factor of either; 5%, 7.5%, 10%, 12.5% or 15%.	$\text{SUM}_{\text{all codes in category}}$((Price charged to public hospitals*Additional factor) * Annual sales volume to private hospitals$_{\text{billing code}}$) / Annual sales volume to private hospitals$_{\text{category}}$ *Assumption #2 is drawn on here to estimate the price charge to public hospitals for those billing codes which did not have a public price.*
3	Differential %	Percentage difference between the weighted average private benefit and the mix adjusted weighted average public price	(Weighted average private benefit – Mix adjusted weighted average public price) / Weighted average private benefit
4	Overall Differential ($)	Dollar difference between the weighted average private benefit and the mix adjusted weighted average public price	(Weighted average private benefit * Annual sales volume to private hospitals$_{\text{category}}$) – (Mix adjusted weighted average public price * Annual sales volume to private hospitals$_{\text{category}}$)

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