From: Howden, Jason
To: s 47E; s 47F Haley
Cc: s 47E; s 47F Qing; s 47E; s 47F Talal
Subject: RE: FOR CLEARANCE: DATA-3832 EXTERNAL – Quarterly PBO MYEFO Budget 2021-22 Using September 2021 [SEC=OFFICIAL]
Date: Tuesday, 23 November 2021 10:19:28 AM

Hi Haley
Good to go – thanks.
And really great work on this from the team. The quality of this work is helping to improve DVA's reputation with Finance/PBO, which will make all our lives easier in future budget processes.
Cheers
Jason Howden
Assistant Secretary
Data and Insights
Ext s 47E; s 47F
s 47E; s 47F

From: s 47E; s 47F Haley
Sent: Tuesday, 23 November 2021 10:27 AM
To: Howden, Jason
Cc: s 47E; s 4 Qing ; s 47E; s 47F Talal
Subject: FOR CLEARANCE: DATA-3832 EXTERNAL – Quarterly PBO MYEFO Budget 2021-22 Using September 2021 [SEC=OFFICIAL]

Hi Jason,

Please see attached spreadsheet containing results from the enhanced Average Treatment Card Model (ATCM), as requested by the External Budgets as part of the data request DATA-3832 (EXTERNAL – Quarterly PBO MYEFO Budget 2021-22 Using September 2021), with the data to be provided to the Parliamentary Budget Office (PBO). The spreadsheet contains information on the average cost of Gold and White Card holders for the FY2016-21 period along with details on active card usage, total card holders and card utilisation throughout this period. Although PBO just requested the information for FY2020-21, since we decided to gradually implement the enhanced ATCM to minimise the diluted impact on average White Card spending brought by Veteran Recognition Program (VRP), results in FY2016-20 were also provided for comparison purposes. We will also supply ATCM documentation, the slide pack and arrange knowledge transfer session to PBO and will socialise with for their consent to the attached results from the new model.

Please note: the results were originally requested by External Budgets in early November, with **delivery to PBO due on 23rd November 2021**. If you could **provide your approval ASAP** that would be much appreciated. After your clearance, the External Budget team will arrange the clearance at the FAS/Dep Sec level.

The results were generated using the Enhanced ATCM (*version June 2021*) utilising the updated Priority Investment Approach – Veterans (PIA-V) Longitudinal Data Suite (*version June 2021),* along with expenditure data provided by Amber s 47E; s 47F, CESS Division Finance Subsection. The model was updated and outputs generated by Talal s 47E; s 47F and myself, and the results reviewed and quality checked by Andrew s 47E; s 47F, Ellen s 47E; s 47F Regan has also reviewed the results and provided his approval.

In updating the model, it was noticed that the average cost per treatment card for FY2020-21 was reduced compared to FY2019-20. This was most pronounced in White Cards ($3,960 vs $3,680 in FY21 and FY20 respectively), with a decrease of approximately 7%, while Gold Cards

($24,350 vs $24,770 in FY2020-21 and FY2019-20 respectively) showed a decrease by approximately 2%. To identify the drivers related to the significant reduction in average White Card expenditure, the team closely reviewed quarterly card expenditure by state of residence, identifying the following potential driving factors:

- Average White Card expenditure on Private Hospital, Medical Services and Specialist Consultants has decreased for the FY2020-21 period. This trend is most notable in NSW and VIC. A similar decrease was identified for Public Hospitals was identified, however this was not checked as thoroughly due to data maturity issues.
- FY2020-21 was characterised by the ongoing Covid-19 Pandemic and associated state-based restrictions, likely impacting the uptake and utilisation of medical services in affected states.
- Active White Card users (calculated through quarterly exposure) have continued, increasing from 61,000 in FY2019-20 to 71,000 in FY2020-21. With the push for Early Engagement, and the Veterans' Recognition Program (VRP) driving this population increase, a number of these newer clients are likely less expensive, and as such contributing to the reduced average cost.

Please note there are a number of **caveats** on the results provided, as noted below:

1. Please note that neither Active Users nor Total Card Holders (both Quarterly Exposure metrics) count the actual number of card holders at any point in time.
2. The Gold Card/White Card Active User counts measure quarterly exposure to potential health expenditure in each year. For each card type, this measure counts the number of yearly units (0.25 per quarter) in which clients that have ever had medical expenditure covered by DVA have held each card type in the given financial year.
3. As in the existing ATCM model, total medical expenditure is sourced from annual figures of health expenditure provided by DVA's Finance & Property Branch. These totals are distributed to each cohort reported on across the various card types using proportions derived with approximate business rules from the PIA-V administrative data.
4. The expenditure allocated in (3) is then divided by the Active Users measure described in (2) to calculate average cost for each card type. This differs from the existing ATCM model, which generally counts all card holders, regardless of health service utilisation to date.
5. The Total Gold/White Card Holders measure counts the total number of yearly units (0.25 per quarter) in which DVA clients held each card type in the given financial year. It differs from (2) in that it does not consider the health expenditure of clients to date.
6. The Gold/White Card utilisation metrics are calculated by dividing the Total Card Holders metric by the Active Users metric for each card type, as described in caveats (2) and(5).
7. The distribution of total expenditure by card type for the latest year (FY2021) applies a loading factor to the administrative Public Hospital expenditure data used, due to data maturity issues for this payment type.
8. Estimates are rounded to the nearest $10 to avoid spurious accuracy.

Please do not hesitate to get in contact with us if you have any concerns/queries regarding these results.

Kind regards,

Hayley

Haley s 47E; s 47F

Actuarial Analyst

Data and Insights Branch

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From: s 47E; s 47F Hannah
To: Howden, Jason
Cc: s 47E; s 47F Qing s 47E; s 47F , Talal; s 47E; s 47F , Andrew; Statistical.Services
Subject: RE: For Clearance: DVA"s Average Treatment Card Cost Model for 30 June 2022 [SEC=OFFICIAL]
Date: Tuesday, 1 November 2022 10:14:11 AM

Hi Jason

As noted below, "Active Users" is a measure of quarterly exposure based on the number of quarters in which clients held each card type while also having had at least some health expenditure covered within the past five years. As such, the "card utilisation" rate is calculated in the ATCM by dividing this quarterly exposure metric by a quarterly measure of total cards held throughout each financial year (regardless of past usage).

Calculated in this way, the model produces overall card utilisation rates of 99.31% for Gold Cards and 47.75% for White Cards in FY2022, as found in Table 1 below.

Comparison to previous definition of Active Users

Prior to further refining the model in June 2022, the ATCM used all years of past health expenditure to define Active Users. Under that previous definition, there would have been 108,890 Gold Card Active Users and 82,044 White Card Active Users in FY2022. In comparison, the refined definition for Active Users, which only includes payments over the past five years, has 108,622 Gold Card Active Users and 77,252 White Card Active Users.

This suggests that over 99% of Gold Card holders that have ever had health expenditure recorded in our data also had health expenditure within the past 5 years, and that just over 94% of White Card holders with past health expenditure also had health expenditure within the past 5 years.

Table 1. Enhanced Average Treatment Card Model (ATCM) Results for FY2021-22, using the June 2022 model version.

Card Type	Metric	FY2022
Gold Card	Average Cost per Active User (ATCM FY2022)	$26,141
	Active Users (ATCM FY2022, Quarterly Exposure)	108,622
	Total Card holders at June 2022 (Executive Summary)	107,700
	Card Utilisation Rate (ATCM FY2022)	99.31%
White Card	Average Cost per Active User (ATCM FY2022)	$3,992
	Active Users (ATCM FY2022, Quarterly Exposure)	77,252
	Total Card holders at June 2022 (Executive Summary)	168,500
	Card Utilisation Rate (ATCM FY2022)	47.75%

Note: Sourced from DVA's Average Treatment Card Model (version 2022 June) and DVA's Executive Summary (as published online).

Caveats:

1. In 2021, DVA adopted a new model for estimating average treatment card cost. Rather than considering all cards issued, this model version used Active Users, a measure of the quarterly exposure of card holders that have ever had health expenditure covered to date. In 2022, the definition of 'Active Users' was further refined to only include card holders that have had any health expenditure covered in the past 5 years, rather than considering any health expenditure over all time.
2. The number of active Gold Card users in FY2021-22 is higher than total Gold Card holders as at June 2022 due to a shrinking population. Care should be taken when comparing these figures with previous years.
3. This new definition of 'Active Users' would generally give smaller denominators and higher average costs for both Gold Card and White Card than the previous model. Nearly all

Gold Card holders utilised their cards consistently, so the effect on Gold Cards would be negligible; while the effect is more significant on White Cards as many White Card holders might not make consistent usage, particularly those with cards issued through the Veterans' Recognition Program (VRP).

Happy to discuss anything else as needed.

Kind regards,

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From: Howden, Jason
Sent: Tuesday, 1 November 2022 9:49 AM
To: s 47E; s 47F Hang
Cc s 47E; s 47F Qing ; s 47E; s 47F Talal ; s 47E; s 47F Andrew ; Statistical.Services
Subject: RE: For Clearance: DVA's Average Treatment Card Cost Model for 30 June 2022 [SEC=OFFICIAL]

Thanks for this summary.

I'm comfortable with these changes. Are we able to advise as part of the model what % of cards are considered 'active'?

Cheers

Jason Howden
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Data and Insights
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From: s 47E; s 47F Hang <Hang.s 47E; s 47F@dva.gov.au>
Sent: Tuesday, 1 November 2022 8:52 AM
To: Howden, Jason <xxxxx.xxxxxxx@xxx.xxx.xx>
C s 47E; s 47F Qing <Qin.s 47E; s 47Fva.gov.au>; s 47E; s 47F Talal <Talal.s 47E; s 47F@dva.gov.au>; s 47E; s 47F Andrew <Andrews 47E; s 47F@dva.gov.au>; Statistical.Services <xxxxxxxxxx.xxxxxxxx@xxx.xxx.xx>
Subject: For Clearance: DVA's Average Treatment Card Cost Model for 30 June 2022 [SEC=OFFICIAL]

Hi Jason

The actuarial analytics team has now prepared an updated June 2022 version of DVA's Average Treatment Card Cost Model (ATCM) with a key change detailed as follows for your review and clearance. I have worked with Talal and Andrew s 47E; s 47F on the model update, with review and clearance from Regan.

Change to DVA's Average Treatment Card Cost Model:

An enhancement to the definition of 'Active Users' to include only clients with health payments made within past 5 years

In 2021, DVA adopted a new model for estimating average treatment card cost. Rather than considering all cards issued, this model version used 'Active Users', a measure of the quarterly exposure of card holders that have ever had health expenditure covered to date. In 2022, the definition of 'Active Users' was further refined to only include card holders that have had any health expenditure covered in the past 5 years, rather than considering any health expenditure over all time.

This change was based on feedback from various key stakeholders, and was supported by analysis completed into the potential impact of further refining the definition of 'Active Users' to only consider health service utilisation within a set timeframe, such as within 2, 5, 8 or 10 years of each financial year. The decision to only consider clients with health payments made within the past 5 years as 'Active Users' for the June 2022 model was agreed upon in a consultation session led by Actuarial Analytics with Glen s 47E; s 47F and Steve s 47E; s 47F

Impact of this refinement to the 'Active User' definition on results

The change had very limited impact on the results for Gold Cards, given that clients with this card type tend to utilise their cards quite regularly. For White Card holders, the impact was more significant, with the average cost estimates potentially being up to 10% higher than the estimates produced under the original definition of 'Active Users' when tested for financial years between FY2018 to FY2022, noting that White Card usage would generally be less consistent across the client population.

Overall Results

Gold Cards

In FY2022, the number of Gold Card Active Users (quarterly exposure) has decreased from 113,708 in FY2021 to 108,622 in FY2022, a change which has largely been driven by mortality given the age distribution of Gold Card holders. The Gold Card average cost has increased from $24,350 to $26,141 (around 7%).

Based on some high-level analysis, the increase in average cost appears to mainly have been contributed to by growth in average expenditure for Public Hospital, Non Institutional Care, Community Nursing and Pharmacy. Based on a discussion with Glen s 47E; s 47F and Steve s 47E; s 47F, it is possible that the utilisation of health services has grown in the latest financial year with the loosening of COVID-19 restrictions.

White Cards

The number of White Card Active Users (quarterly exposure) has increased from 71,161 in FY2021 to 77,252 in FY2022. Please note that the White Card population has been growing over time, which is reflected in the growth in Active Users, though it should be noted that Active Users in FY2022 also only include clients with health expenditure within the last five years.

Average cost for White Card holders is higher in FY2022, rising from $3,680 in FY2021 to $3,992 in FY2022 (around 8% increase). The majority of the increase in average cost is due to the refined definition of Active Users which has been adopted, with fewer clients now counted in the denominator.

Validation Process

A variety of validation and quality assurance checks have been completed on the latest results, including checks of the underlying payment data, reconciliation between the administrative data and the aggregate financial statement data used in the model, and various reasonableness checks of the model results, including comparisons against previous years.

Output from the ATCM (June 2022 version) is required as part of a regular request from PBO, with input from the Data & Insights Branch due by Tuesday, 1 November 2022. As such, it would be much appreciated if you could please clear the model at your earliest convenience.

Should you have any questions or queries, please do reach out to the team.

Kind Regards,

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