Australian Government

Australian Government Actuary

ACTUARIAL INVESTIGATION INTO THE COSTS OF MILITARY COMPENSATION AS AT 30 JUNE 2019

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1 Executive Summary

1.1 Background

1.1.1 This report has been prepared by the Australian Government Actuary (AGA) for the Department of Veterans' Affairs (DVA). It examines the liabilities in respect of Australian Defence Force (ADF) personnel as at 30 June 2019 under the *Safety, Rehabilitation and Compensation (Defence-related Claims) Act 1988* (DRCA) and the *Military Rehabilitation and Compensation Act 2004* (MRCA). Together these two schemes are known as the Military Compensation Scheme (MCS).

1.1.2 The MCS provides support and compensation to ADF personnel who sustain physical or psychological impairment or incapacity that is related to their defence service. This support ranges across income replacement for those who are unable to maintain full-time employment, coverage for medical, rehabilitation and related costs, financial compensation for permanent impairment, and benefits payable to dependents upon death.

1.1.3 At the highest level, our analysis draws a distinction between incapacity and non-incapacity payments. The former are income replacement payments, while the latter, for the most part, reimburse costs incurred and compensate for non-economic losses. The valuation methodologies used for different types of payments reflect the particular characteristics of those payments and the nature of the available data.

1.1.4 The reported cashflows and liabilities have been divided between the run-off of the obligations under the DRCA and liabilities arising under the MRCA for claims attributable to service occurring on or after 1 July 2004 where relevant.

1.1.5 The actuary responsible for the preparation of this report and the underlying analysis is Jane Miao, FIAA.

1.2 Scope of the Report

1.2.1 The analysis in this report looks at a number of financial measures of the scheme, including:

- the estimated liability as at 30 June 2019 for all outstanding claims under the DRCA, including those which have not yet been reported, and outstanding claims under the MRCA where the service giving rise to the claim predates the valuation date, again including those that have not yet been reported;
- the projected outstanding claims liability under the DRCA and MRCA for the ten years following the valuation date, including the allowance for claims which are expected to occur over that period;
- the estimated cash flow for benefit payments over the same period; and
- the annual notional premium required to fully fund the estimated claims liability arising from service undertaken during 2019-20.

1.2.2 We have not considered the liability in relation to additional benefits payable on death and severe injury under the Defence Act 1903. The Department of Veterans' Affairs has no legal obligations in relation to these claims.

1.2.3 This report has been prepared for the purpose of advising Government of the nature and quantum of its liabilities in respect of compensation for military personnel injured in the course of duty. This report also forms the basis for our advice to DVA on reporting for financial statement purposes for the year following the valuation date. Adjustments are made to the results presented here to allow for the use of a discount rate which is considered to comply with the relevant Australian Accounting Standard (AASB 137).

1.2.4 Any proposed use of this report which goes beyond its stated purpose should be discussed first with AGA.

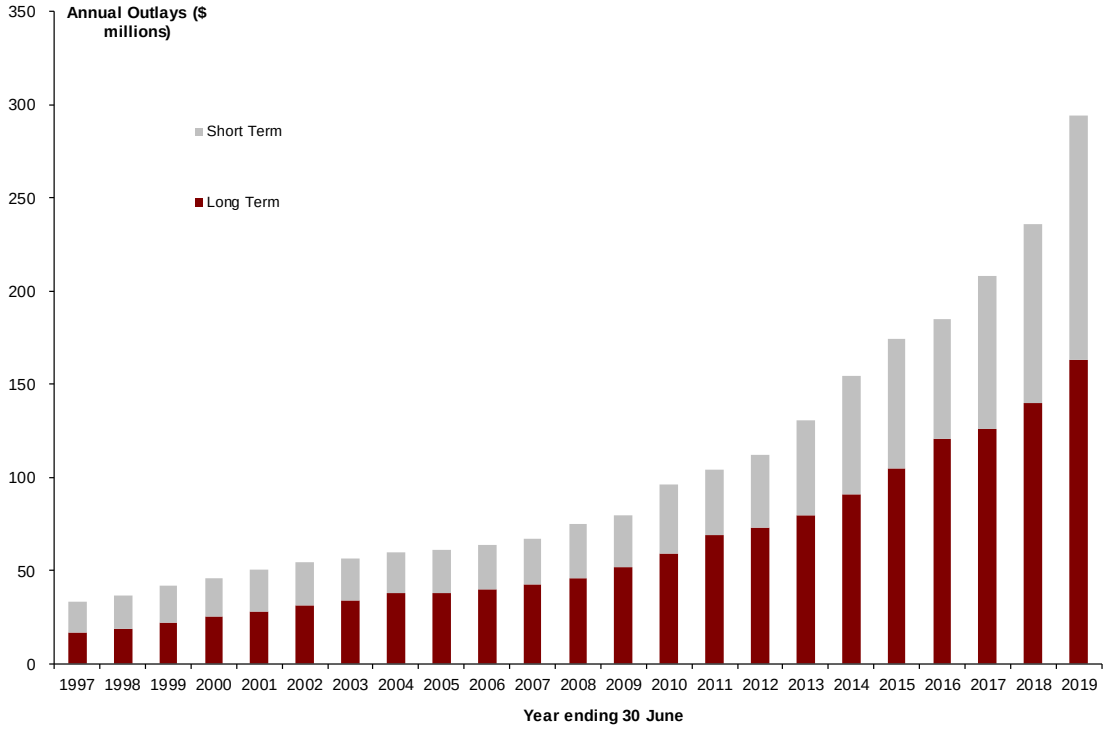
1.3 Recent Claim Experience

1.3.1 For this valuation, we were provided with unit record payment data which covered the period from 1 July 2018 to 31 December 2019. We have used this data to update the unit record data we already held from previous valuations to 31 December 2018. As noted above, we have separately analysed the experience of incapacity and non-incapacity payments. Under the incapacity heading, we make a distinction between those who have been in receipt of benefits for more than twelve months and those who have not yet reached that threshold. This is to allow the valuation to account for the different experience between short term and long term claims.

1.3.2 Incapacity payments have evidenced a strong upward trend since the late-1990s, as shown in Figure 1.1. This has been particularly marked since 2008. Outlays for incapacity during 2018-19 reached $294.4m[1] compared with $236.7m in 2017-18.

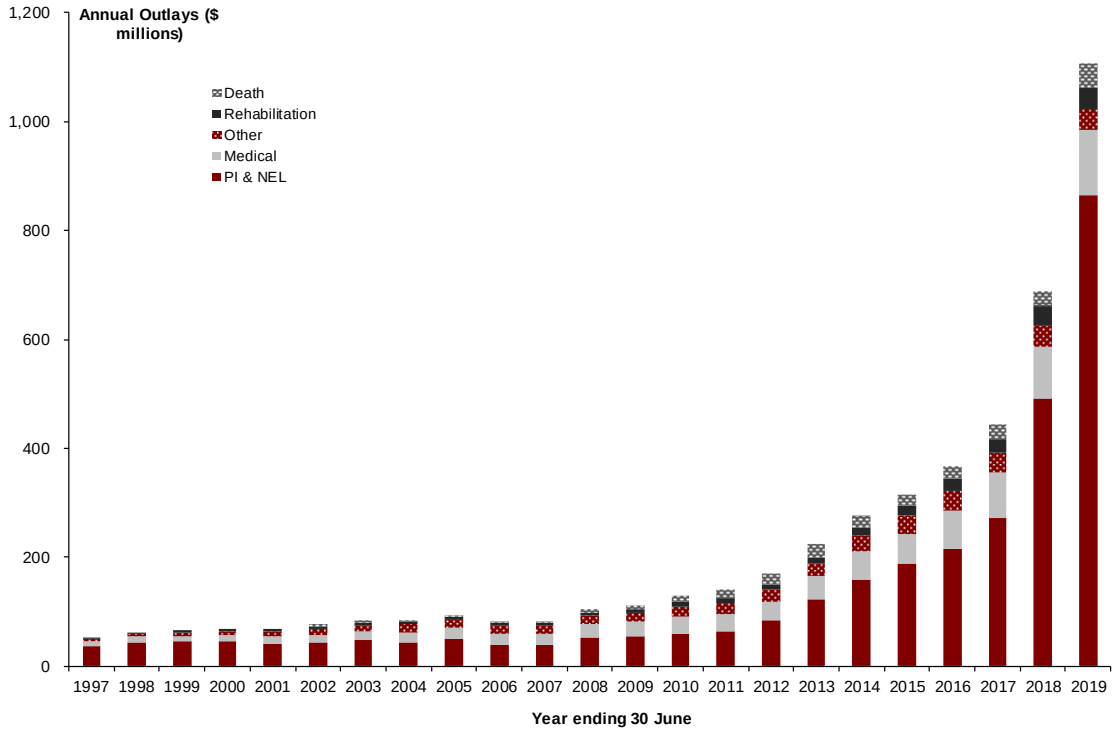
[1] Outlays figures have been taken from the unit record data used for analysis. They may differ from DVA aggregate figures.

Figure 1.1: Recent payment experience – fortnightly incapacity payments (DRCA and MRCA combined)



1.3.3 The outcomes for non-incapacity payments have been far more volatile, as can be seen from Figure 1.2. Permanent impairment payments, in particular, have increased substantially from year to year and, over the last decade, may have been affected by ADF operational issues and transitional issues associated with the introduction of MRCA. However, the upwards trend over the last eight years has been pronounced and the increase over the last year particularly marked. Permanent impairment payments alone in 2018-19 significantly exceeded the total non-incapacity outlays from the previous year.

Figure 1.2: Recent payment experience – non-incapacity payments (DRCA and MRCA combined)



1.3.4 The following table compares actual payments over the last year with the amounts projected in the 2018 valuation. In total, actual payments were around $73m higher than projected and almost $480m higher than payments in 2017-18. The largest difference, in dollar terms, was for permanent impairment where outlays were $31m higher than projected. This is closely followed by incapacity and death outlays, where actual payments were approximately $25m and $22m higher than expected. Death payments can be volatile from year to year but have also been exhibiting higher growth in recent years, potentially as a result of policy changes around causes of death. This is covered in further detail in Chapter 15 of the report. Although the overall difference in medical expenditure was relatively small in 2018-19, the majority of this difference was in MRCA medical where actual payments were $18m higher than expected. It is important to note that a small increase in the experience for medical benefits can lead to significant changes to the overall liability as a result of the persistent, periodic nature of benefit payments. A growing proportion of MRCA medical claimants are treatment card holders which entitle the veteran to medical treatment till death. Thus, although relatively small on an annual basis, expenditure is expected to persist for an extended period of time.

1.3.5 The main sources of growth over recent years has primarily been in permanent impairment, medical, and incapacity benefits which have displayed very high growth rates. Projecting future outlays in these circumstances will always be a highly uncertain exercise.

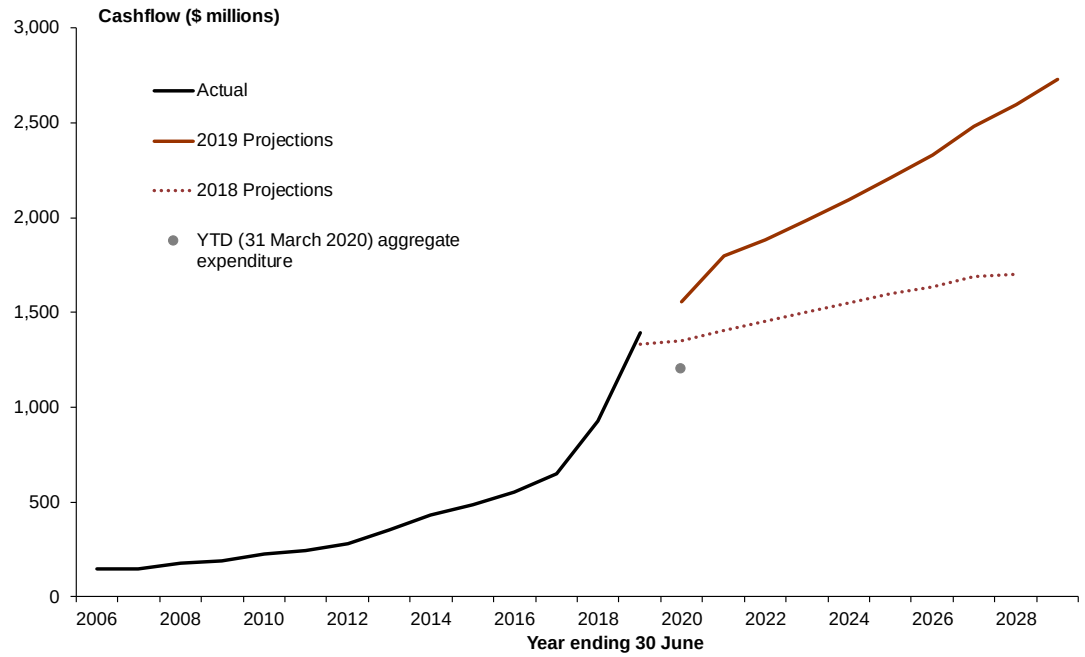
Table 1.1: Comparison of actual and projected payments for 2018-19

Category	Projected $m	Actual $m	Difference $m
Incapacity	269.7	294.4	24.7
PI and NEL	833.3	864.4	31.1
Medical	113.3	121.0	7.7
Rehabilitation	41.4	37.6	(3.9)
Death	25.2	47.0	21.8
Other	46.4	37.7	(8.7)
Total	**1,329.3**	**1,402.1**	**72.8**

1.4 Valuation Results

1.4.1 Figure 1.3 below shows the projected cashflows from the 2019 valuation compared to cashflows projected at the 2018 valuation. We have also included the year to date 2019-20 outlays to 31 March 2020 from the aggregate data.

Figure 1.3: Cashflow projection for DRCA and MRCA



1.4.2 The cashflows have increased from the previous valuation, most noticeably from 2020-21 onwards. This step change is due to additional growth projected to account for the current rate of lodged permanent impairment claims and the existing backlog of unprocessed claims. It is important to note that there is substantial uncertainty as to the timing and magnitude of this impact as it is partially subject to processing constraints where funding decisions are outside of DVA's control. However, the current rate of processing appears unsustainable if experience in permanent impairment continues at its current pace with a continuing build-up of the existing backlog of unprocessed claims.

1.4.3 Table 1.2 shows the estimates of the key cost indicators broken down by Service Arm.

Table 1.2: Valuation results

Overall Cost Estimates Shown By Service				
Service	**Outstanding Claims Liability $m**	**Notional Premium $m (% salaries[2])**		**Projected Cashflows $m**
Current Report	**at 30 June 2019**	**for 2019-20**		**for 2019-20**
Army	14,370.5	1,710.7	(56.5%)	1,117.3
Navy	3,080.5	357.3	(21.5%)	258.5
RAAF	2,238.1	265.6	(16.7%)	177.5
Total	**19,689.1**	**2,333.6**	**(37.2%)**	**1,553.4**
Previous Report	**at 30 June 2018**	**for 2018-19**		**for 2018-19**
Expected (30/6/2019)	*15,269.8*	*1,474.7*		*1,352.1*
Total	**14,426.8**	**1,448.0**	**(23.8%)**	**1,329.3**

1.4.4 The outstanding claims liability as at 30 June 2019 represents the estimated present value of future claim payments to be made in respect of injuries sustained prior to 30 June 2019. The split of liabilities between the DRCA and MRCA is detailed in Chapter 19.

1.4.5 The notional premium represents the estimated cost of compensation for claims arising from service rendered during 2019-20. It is the amount which, if paid over the course of the 2019-20 financial year and invested to earn the valuation discount rate of 5 per cent per annum, would be expected to meet the lifetime cost of these claims. The cashflows represent the amount projected to be paid in the 2019-20 financial year for claims attributable to any service prior to and including 2019-20.

1.4.6 The final row shows the comparable figures as at 30 June 2018 that were reported in the previous valuation. The changes to assumptions have resulted in significant increases in all three measures; the liability has increased by 36 per cent, the notional premium by 61 per cent and projected cashflows by 17 per cent.

1.5 Comments on Results

1.5.1 At the last review, we projected that the liability would grow to $15,270m by 30 June 2019. The current liability is $19,689m. This is $4,419m higher than expected and has been driven by significant increases in the medical, incapacity, and permanent impairment heads of damage.

[2] Estimate of salaries and allowances for 2019-20 provided by the Department of Defence.

1.5.2 There has been some moderation in the growth of outlays seen in the early experience for 2019-20. However, this slowing of growth could, in part, be attributable to limitations in processing capacity rather than a genuine arresting of claims experience as there remains a substantial and growing backlog of unprocessed MRCA and DRCA permanent impairment claims. There has also been continued growth in outlays for MRCA medical benefits and incapacity which have both contributed substantial increases to the overall liability. Although the growth in outlays for these two benefit types over recent years have not been as dramatic as in permanent impairment, the continued and periodic nature of the payments associated with these benefits mean a small increase in claimants can lead to substantial increases to the future liability. This is exemplified by the large increase to the expected liability at this valuation but a relatively small corresponding increase to immediate cashflows.

1.5.3 Experience in the first 3 quarters of 2019-20 has continued to exhibit some increase in outlays with aggregate data to 31 March 2020 showing expenditure at approximately $1,200m, resulting in a potential full year outlay of close to $1,600m. This compares to total outlays of $1,402m in 2018-19. The advice from DVA regional office staff regarding the impact of the single claim process, online claim availability and increasing involvement of ex-service organisations in supporting claims under MRCA and DRCA provides further support for treating the recent levels of claims as a genuine and persistent feature going forward.

1.5.4 While the increase of $4.4bn in the estimate of the liability as at 30 June 2019 is substantial, it is my best estimate having regard to current experience; that is, I have not been intentionally conservative. The increase in the liability has been primarily driven by:

- An increase in the number of medical recipients
- An increase in the utilisation and average cost of medical benefits
- An increase in the number of claimants in incapacity
- An increase in the number of claimants and average size of benefits for permanent impairment

1.5.5 Interpreting experience in such a volatile environment is extremely difficult and it needs to be remembered that the estimates given in this report are actuarial central estimates. This means, in broad terms, that the estimates should be just as likely to be too high as too low. However, the true liability cannot be known and the range of factors which might impact on future claim numbers and sizes means that estimates presented here are subject to considerable uncertainty.

1.5.6 The very long term over which these liabilities will be paid out makes the results very sensitive to relatively small changes in assumptions. This is particularly the case for payments that are expected to persist over an extended period, such as long-term incapacity and medical expenses.

1.5.7 As noted in previous reports, determining the extent to which we should adjust assumptions in response to the most recent experience is always a difficult judgment. For the current valuation, I have for the most part set assumptions based on the latest data. I have also concluded that the DRCA pre-closure experience is unlikely to provide a reliable guide to MRCA outcomes and have set MRCA assumptions for the earlier development years based almost entirely on MRCA data.

2 Background

2.1 The Military Compensation Scheme

2.1.1 Compensation for military personnel injured in the course of their duties is provided under four separate pieces of legislation:

- the *Military Rehabilitation and Compensation Act 2004* (MRCA);
- the *Safety, Rehabilitation and Compensation (Defence-related Claims) Act 1988* (DRCA);
- the *Veterans' Entitlements Act 1986* (VEA); and
- the *Defence Act 1903*.

2.1.2 MRCA provides rehabilitation and compensation coverage for service with the Australian Defence Force on or after 1 July 2004.

2.1.3 DRCA provides similar rehabilitation and compensation to that provided under the MRCA, but only covers:

- injuries and diseases that arose from peacetime and peacekeeping service up to and including 30 June 2004; and
- operational service between 7 April 1994 and 30 June 2004.

2.1.4 Operational service prior to 7 April 1994 (which includes World War II, the Korean War and the Vietnam War) is not covered by DRCA. Operational service on or after 7 April 1994 gives rise to 'dual eligibility', that is, the option of applying for benefits under either or both schemes. This could be expected to affect the comparability of DRCA and MRCA experience.

2.1.5 This report is concerned only with liabilities arising from payments under the MRCA and the DRCA.

2.1.6 The MRCA included some improvements in benefits relative to the DRCA. The most significant improvements in terms of their impact on costs were:

- the introduction of a loading on incapacity payments to compensate for the loss of non-salary elements of ADF remuneration packages; and
- removal of the offset against incapacity payments for the member's superannuation contributions.

2.1.7 There have also been changes to the assessment processes and payment options for permanent impairment claims. In particular, the default permanent impairment entitlement was a periodic payment, with an option to convert this entitlement to a lump sum using age-based factors.

2.1.8 Since the introduction of MRCA in 2005, there has been a review of military compensation arrangements which resulted in a change to the method of calculating transitional permanent impairment claims under MRCA. The estimated impact of this change is very small.

2.1.9 It should be noted that, in actuarial terms, MRCA is far from fully mature with experience limited to a maximum of fifteen and a half years after the injury date and most data relating to earlier durations after injury. This compares with payment obligations that may continue for 50 or more years after the date of injury.

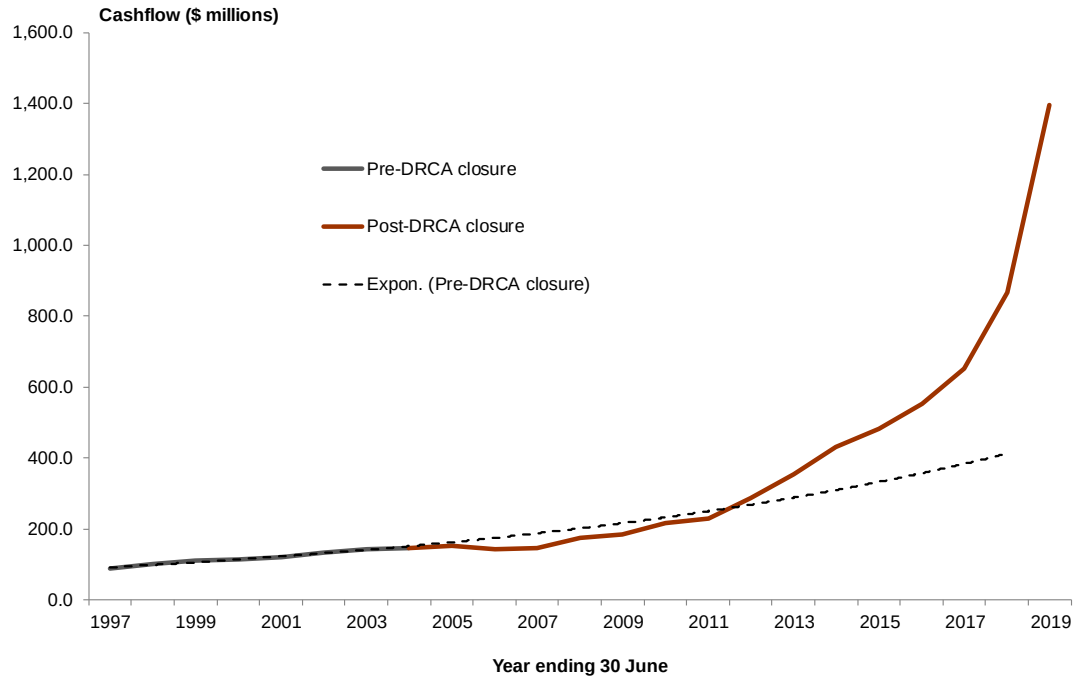
2.1.10 Furthermore, it has been apparent for some time that the early experience with MRCA has been affected both by data deficiencies and by the deferral of claims associated with the availability of deployment opportunities over most of the first decade following its introduction. It may be some time before MRCA experience settles into a pattern that we can reasonably assume will provide a robust basis for projecting future claim behaviour. Nonetheless, given the differences between DRCA and MRCA experience that have become increasingly evident in the data, we are now, as far as possible, relying on the MRCA data in setting assumptions for the MRCA scheme.

2.1.11 More recently, the experience has been affected by administrative changes, such as the introduction of the single claim process, and an increasing propensity among older veterans to explore compensation options under DRCA. DVA has recently undertaken a review examining how the investment approach might be implemented for their clients. This approach is focussed on the financial and wellbeing outcomes over the whole of life costs and interventions that might be expected to improve outcomes for veterans.

2.2 Trends in Expenditure

2.2.1 Figure 2.1 shows total outlays on the MCS since 1996-97. Prior to 2004, expenditure had grown at a steady but moderate pace, averaging around 5 per cent per annum. The introduction of MRCA from 1 July 2004 led to a significant disruption in experience with an initial drop in outlays followed by a return to growth. Experience from 2012 accelerated at a much higher rate than had been seen previously in the scheme. From 2012 to 2019, outlays increased at a rate of 25% per annum with an even more significant shift in experience over the last 4 years. Growth from 2015 to 2019 has been extremely rapid, increasing year on year to a 61% increase from 2018 to 2019.

Figure 2.1: Total cash outlays



2.2.2 There are a number of possible interpretations of this data. An earlier view was that the growth from 2011 to 2015 was, in part, compensating for the very low growth in the years after the introduction of MRCA. However the more rapid increase in recent years challenges this view. Whilst there are differences in the benefits provided under MRCA, there has also been changes in the environment in which the schemes operate, including changing attitudes and modifications to DVA administrative practices. It now seems more likely that the most recent experience is part of the schemes transition to a "new normal" that could be expected to persist indefinitely into the future. This latter interpretation would imply that the behaviour of MRCA claimants is fundamentally different from that observed for DRCA claimants prior to the scheme's closure. This 'new normal' that we have seen in recent experience is still changing year on year and currently far from a stable, mature state. As such, there is considerable uncertainty when interpreting this experience for long term future projections.

2.2.3 Continued increases in recent experience has led us to believe that we are not dealing with a temporary anomaly but rather a genuine shift in experience that needs to be taken into account in setting valuation assumptions. The change from a regime where claims could be made under either the DRCA or the VEA to one where all claims must come through the MRCA is likely to be playing some part, but so is the introduction of the single claim process, the availability of online claim facilities and the increasing involvement of ex-service organisations in supporting veterans' claims under DRCA and MRCA. The deviation of experience from pre-DRCA closure has persisted into the most recent year and has exhibited the highest difference seen to date.

2.3 History of Actuarial Reviews

2.3.1 The first actuarial review of the MCS was undertaken in 1996 with a valuation date of 30 June 1995. This was a joint project between AGA and Trowbridge Consulting (now Finity), a firm of consulting actuaries with considerable experience in the valuation of compensation liabilities.

2.3.2 There was no valuation as at 30 June 1996, but from 1997 to 2005 AGA conducted annual reviews of the liability in relation to entitlements under the DRCA. In 2006, problems in obtaining reliable data on MRCA claims led to a decision to defer the valuation for a year in the expectation that data deficiencies would be able to be resolved. These issues were not fully resolved by 2007. In 2008 it was again decided to defer a full valuation to 2009.

2.3.3 The early reviews were hampered by a lack of historical data suitable for actuarial analysis, as well as difficulties in matching the data between different systems and incomplete records. This was not surprising since the information systems maintained by Defence (which was then administering the MCS) were designed around client service requirements rather than analysis needs. Since that time, there have been substantial improvements in the DRCA data to the point that we have no significant concerns around data volume or quality for DRCA claims.

2.3.4 The 2009 review was the first to draw on some of the MRCA non-incapacity data in setting MRCA assumptions. Data on medical and 'other' transactions became available for MRCA for the first time in 2010 and allowed MRCA data to be used in setting the assumptions for all heads of damage for the early development years.

2.3.5 Issues around the possible deferral of MRCA claims caused us to re-examine our reliance on MRCA data in setting assumptions on claim numbers and our 2014 report, and to a lesser extent the 2015 report, instead looked back at the DRCA experience immediately prior to 2004 in setting these assumptions. For the 2016 report, we reached the view that there was sufficient MRCA data to conclude that the pre-closure DRCA experience is not a reliable guide to MRCA outcomes. We therefore relied on MRCA experience for the development years where it was available in setting MRCA assumptions. This was a significant change in approach and one which had a major impact on the estimate of the liability in 2016. We have continued with this approach for the subsequent reports.

2.3.6 Table 2.1 shows the liability reported in each of the reviews to date. Note that these figures are all in nominal dollars and part of the increase is attributable to inflation and a change to the long term discount rate in the 2017 valuation from 6% to 5%.

Table 2.1: Estimated liability 1995 to 2019

Valuation as at 30 June	Liability Estimate ($m)	Change since Previous Review (% per annum)
1995	575.7	-
1996	-	-
1997	727.5	12.4%
1998	922.8	26.8%
1999	985.1	6.8%
2000	1,106.8	12.4%
2001	1,196.3	8.1%
2002	1,342.4	12.2%
2003	1,463.6	9.0%
2004	1,751.6	19.7%
2005	1,776.7	1.4%
2006	-	-
2007	1,813.4	1.0%
2008	-	-
2009	2,316.3	13.0%
2010	2,908.9	25.6%
2011	3,117.6	7.2%
2012	3,798.1	21.8%
2013	4,491.3	18.3%
2014	5,356.2	19.3%
2015	5,840.7	9.0%
2016	7,362.6	26.1%
2017	9,864.1	34.0%
2018	14,426.8	46.3%
2019	19,689.1	36.5%

2.3.7 There was substantial uncertainty around the results of the early reviews because of the very limited experience data available and the problems with data quality. For a number of heads of damage, there also appeared to be a change in the underlying behaviour over the same period. Over the period from 2004 to 2007, the increases in the liability were less than anticipated and, indeed, lower than the inflation rate. In retrospect, it seems likely that claims were artificially depressed over that period both by the introduction of the MRCA and by the higher operational tempo under which the ADF were operating.

2.3.8 Since 2009, the changes made to some of the modelling methodologies and assumptions in response to the experience illustrated in Figure 2.1 have led to significant increases in the liability in virtually every year.

2.3.9 Cashflows under the MCS extend over a very long period – fifty years or more for most heads of damage. As such, there is unavoidable uncertainty associated with the assumptions made. In these circumstances, we could expect to see continuing volatility in the estimate of the liability as experience unfolds. This is particularly the

case for MRCA, but the recent DRCA experience highlights the potential for quite sudden and significant change even with a mature scheme. Note that, while there have been changes in ADF numbers that impact on the size of the population that can potentially make a claim, these movements tend to be less important in driving liability estimates than changes in claim behaviours and benefit parameters.

2.3.10 Removing the impact of changing the discount rate in 2017, the average rate of increase in the estimated liability since the first valuation is around 15 per cent per annum. Over the period since the 2009 valuation, when outlays started to grow much more rapidly, the annual increase in the estimated liability has averaged around 23 per cent.

2.4 Scope of the Project

2.4.1 The objectives of the project were to:

- estimate the outstanding claims under the DRCA and MRCA (including claims incurred but not reported) as at 30 June 2019;
- project the outstanding claims liability under the DRCA and MRCA for the following ten years;
- estimate the cash flow for benefit payments over the same period; and
- calculate the annual notional premium required to fully fund the estimated claims liability arising from service rendered in 2019-20.

2.4.2 Liabilities are split between run-off liabilities under the DRCA and liabilities under the MRCA and we have projected the liabilities and cashflows under each Act. Note that some expenditure related claims made under the DRCA will be met under MRCA appropriations due to the arrangements applying to health care cards. Specifically, clients with an accepted claim under both schemes will be issued with a MRCA health care card and all expenditure arising from use of the card will be MRCA expenditure. Going forward, this could be expected to reduce DRCA liabilities, with a compensating increase in MRCA liabilities.

2.4.3 This report does not consider liabilities arising from common law actions against the Department of Defence. Any awards made as a result of these actions will be funded by the Department of Defence outside the MCS. While it is generally the case that a plaintiff cannot make both a statutory and common law claim in relation to an injury, I note that there appears to be no restriction on the surviving spouses of a common law plaintiff making a claim for a statutory death benefit and this is likely to be contributing to the DRCA death benefit experience discussed in Chapter 15.

2.4.4 This report has been prepared for the purpose of advising Government of the nature and quantum of its liabilities in respect of compensation for military personnel injured in the course of duty. It is intended to partially comply with the requirements of the Actuaries Institute's Professional Standard 300 (PS300) which deals with actuarial

reports and advice on general insurance technical liabilities. Compliance with the detailed reporting requirements of PS300 is obligatory where the actuarial report is to be provided to a regulator such as the Australian Prudential Regulation Authority. The current report is not considered to be captured under this requirement and, as such, we have used PS300 as a guide rather than a binding constraint in the preparation of this report. This is discussed further in chapter 21.

2.4.5 This report also forms the basis for our advice to DVA on reporting for financial statement purposes for the year following the valuation date. Adjustments are made to the results presented here to allow for the use of a discount rate which is considered to comply with the relevant Australian Accounting Standard (AASB 137).

2.4.6 Any proposed use of this report which goes beyond its stated purpose should be discussed first with AGA.

3 The Military Compensation Environment

3.1 Operational Environment

3.1.1 There are four characteristics of the MCS that distinguish it from other workers' compensation schemes:

- the risks faced by ADF personnel will depend upon external factors, most notably the Government's national and international security policies;
- the unique nature of military service which involves an unavoidable exposure to high levels of risk;
- the absence of any limit on the period in which a claim must be made; and
- the unlimited support provided under some heads of damage, most notably medical services.

3.1.2 Each of these features introduces significant uncertainty into any estimate of future costs.

3.1.3 One factor that is likely to have influenced recent experience is the relatively high level of deployments on warlike operations.

3.1.4 When ADF units were deployed in East Timor in 1999, it marked the start of a period of relatively intense activity for the ADF, which subsequently saw forces deployed in Iraq, Afghanistan and the Solomon Islands. Overall, more than 50,000 people have been deployed on warlike/non-warlike service over the period. This may have created a large pool of people who may have a higher probability of making a successful claim and, where they do make a claim, may be eligible for higher benefits.

3.1.5 The availability of deployment opportunities has almost certainly altered the pattern of discharges over the last decade and a half. Both DVA and Defence have advised that discharge rates fall when there are opportunities for deployment. This is because there is both a very strong financial incentive (in the form of substantial tax free allowances) and because it is an opportunity for Defence personnel to make use of their training.

3.1.6 Many claims for injuries, which are not sufficiently severe to warrant an immediate discharge on medical grounds, are made at the time of exit from the forces. Considering potential claims for compensation is part of the process of a normal discharge. As a result, when discharge rates increase, as has happened following the end of deployment opportunities, a backlog of claims would be expected to emerge, reflecting those who have deferred their exit. We think it is likely that deployments affected the claim rates in the early years of operation of MRCA and may be continuing to affect the experience.

3.1.7 We currently do not have access to any additional Defence data which might provide more detailed information regarding the magnitude of the exposure. For example,

records related to incidents while in service, service length, deployments, and discharge date which might provide further insight into the total number of veterans expected to emerge in future and what proportion of these veterans have already claimed for benefits.

3.1.8 Exposure to hazards that may not have been recognised as dangerous at the time is a further factor in the operational environment. Asbestos is an obvious example that has impacted on DRCA expenditure. It is possible that currently unrecognised hazards will be identified in future and give rise to claims.

3.1.9 Changes in ADF recruitment can also play a part in the observed pattern of claims. Peaks in enlistments, for example, would be expected to lead to a corresponding jump in discharges, and associated claims, six to eight years later.

3.2 Administrative Environment

3.2.1 A second factor which is likely to have played an important role in changing claim behaviour is the administrative environment. The closure of DRCA (and the VEA) for injuries incurred after 1 July 2004 is the most obvious change. It seems clear from the data that the early experience for MRCA was affected by delays as both claimants and DVA adjusted to the introduction of a new scheme and that this reduced claim numbers. The interaction between entitlements under the DRCA and the VEA which existed prior to the introduction of MRCA could also be expected to impact on the claim experience.

3.2.2 However, there are other factors in play. There have been significant changes in the approach taken by Defence and DVA to manage claims. For example, DVA now has advisers on base to assist personnel in making claims. Defence now liaises more closely with DVA to ensure that there is continuity of treatment on discharge from the ADF. The introduction of health care cards for DRCA claimants with long-term treatment needs in 2013 may also have changed the incentives to make a claim under DRCA.

3.2.3 The introduction of an on-line claim facility in 2015 has almost certainly impacted on the volume of claims received, while the single claim process is likely to have affected the mix of VEA, DRCA and MRCA claims. The initiatives around non-liability healthcare, while not directly impacting on DRCA or MRCA expenditure are likely to have increased the level of contact between veterans and DVA and might, in due course, encourage more liability claims.

3.2.4 Regional office staff advised that the decision to allow claimants to use their own GP to assess the degree of impairment, rather than independent specialists, may have led to some inflation of claim severity in recent years.

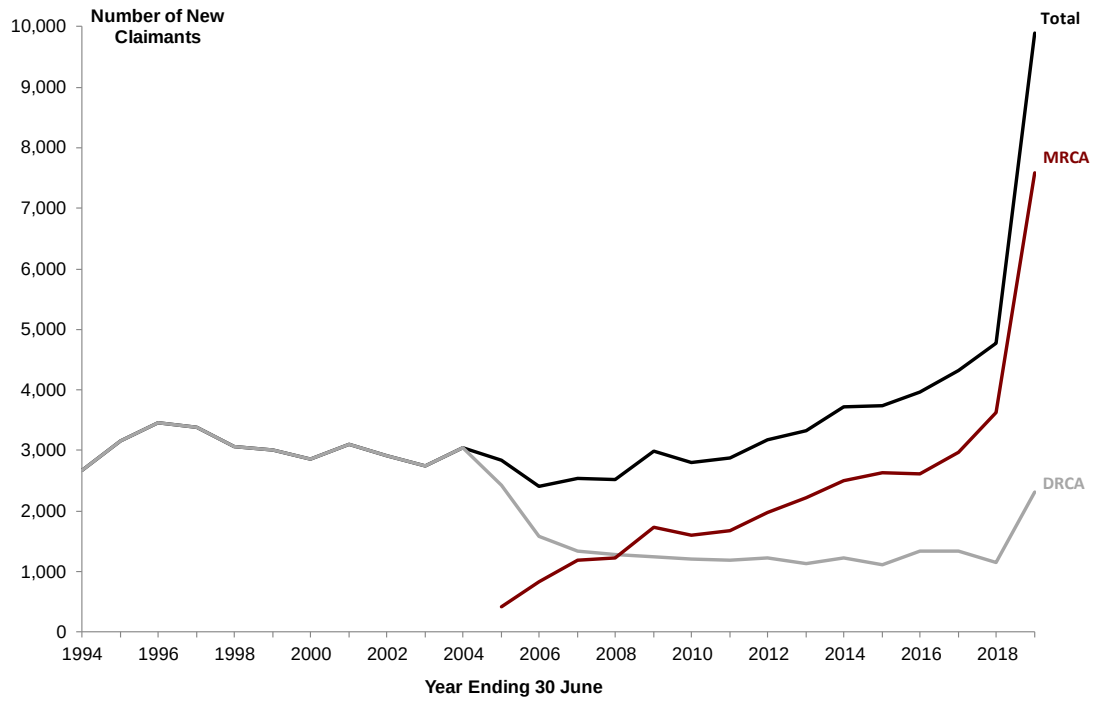
3.2.5 Legal decisions can also have an impact on claim numbers and amounts. There have been three decisions over the last twelve years that appear to have generated a surge in DRCA permanent impairment payments:

- the 2006 High Court decision in Canute which found that in assessing the degree of permanent impairment when more than one injury is present, a separate assessment must be made for each injury that results in permanent impairment;
- the 2009 High Court decision in Fellowes which reinforced the Canute decision and established that separate injuries which result in separate impairments must be independently assessed; and
- the 2013 decision by the Full Federal Court in Robson which reiterated that separate injuries and their associated impairments must be assessed separately and in isolation, even if they relate to the same body part or there is a causal relationship between the two injuries.

3.3 Impact on Claims

3.3.1 Figure 3.1 provides some insight into the impact of the various factors discussed above. The total number of claimants has been increasing at a rapid rate over recent years, primarily driven by MRCA. Of particular note is the sharp increase in new DRCA claimants in the latest year, 15 years after Scheme closure.

Figure 3.1: Numbers of New Claimants by Scheme



4 Data Used for the Valuation

4.1 Data Sources

4.1.1 An actuarial investigation of the experience of a compensation scheme relies on the capacity to analyse the available information about the scheme. The more reliable and comprehensive the data, the greater the confidence that can be placed in the models developed from that data.

4.1.2 For the MCS, incapacity payments and fortnightly payments to dependent children prior to 1 July 2017 came from the PMKEYS system and all other DRCA payments, apart from healthcare card data which are handled under the TAS system, are processed through the DOLARS system. Individual claims data prior to 1 July 2017 which provides details on the demographic characteristics of DRCA claimants and the nature and timing of the injury giving rise to the claim was held on the DEFCARE system.

4.1.3 There were changes in the administrative systems as a result of the introduction of MRCA which have impacted on the data provided to AGA. As has been noted in previous reports, a new claims database (CADET) was developed but took some time to be fully implemented. As a result, there is a permanent gap in the MRCA claims information covering the first two years after the introduction of the scheme.

4.1.4 MRCA data is stored and processed through various systems including PMKEYS for incapacity payments prior to 1 July 2017, DOLARS for some general and medical payments, and IPS for other payments including permanent impairment entitlements. Many of the MRCA payments for medical and other services which are provided to those holding a repatriation health care card are processed through Medicare Australia.

4.1.5 From 1 July 2017, the ISH system was implemented by DVA for both DRCA and MRCA claims and payments. Data received from 1 July 2017 to 31 December 2019 is a combination of extracts from legacy systems and ISH.

4.2 Data Provided

4.2.1 We were provided with unit record payment data which covered the period from 1 July 2018 to 31 December 2019. The data for the 2018-19 financial year was checked and reconciled as far as possible against aggregate data sources. We have incorporated unit record payments data up to 31 December 2019 into the analysis for all heads of damage.

4.2.2 We also received aggregate payment data up to the third quarter of 2019-20. Aggregate data can be distorted by timing issues and advances which are paid to other agencies. As a result it cannot be treated as totally reliable. Nonetheless, it has informed our views on the credibility to be given to the data for the first six months of the year.

DRCA

4.2.3 The additional unit record data updated the existing data we held, which covered the period from 1994 for incapacity payments and 2002 for non-incapacity payments. We have relied primarily on unit record data over the most recent calendar years to 31 December 2019 to set assumptions in the DRCA valuation.

4.2.4 For this review, as with previous reviews, it has been necessary to match payment data to claims records. A portion of the unit record data from 1 July 2017 to 31 December 2019 came from a new payment system, ISH, which was implemented by DVA during the 2017-18 year. This changed the recording of DRCA payments to be in line with MRCA payments i.e. payments are recorded against a claimant rather than an injury. As such, for DRCA payments from the ISH system, we have attempted to manually link payments to claims where possible but note that this will become an increasingly problematic issue going forward and an update to valuation methodology in line with the current methodology used for MRCA may be required to account for this change. This has not been a material issue at this valuation.

4.2.5 Our two main points of validating or assessing the suitability of the data for valuation purposes are that we are able to match a very large proportion of payment and claim records and that the aggregates calculated from the unit record files are consistent with the aggregate expenditure data provided by DVA. For the most part, the DRCA data satisfied both of these conditions.

4.2.6 For DRCA incapacity, the total aggregate figure appears to be a net outlay amount and not the gross payment DVA made during the year. We have discussed this issue with DVA and believe it to be a reconciliation issue. The unit record data appears to be reliable and we have agreed to use the payments recorded in these datasets as the payments for DRCA incapacity. Data from the first half of 2019-20 shows this issue has since been rectified.

MRCA

4.2.7 The additional unit record data updated the existing data we held, which covered the period from 1 July 2004 when the MRCA scheme began. Historically, the MRCA data has been problematic; reliable data is not available and is unlikely to ever become available in relation to the first eighteen months of operation of the scheme.

4.2.8 For all MRCA payments, including the health care card data, the transaction data was keyed by claimant rather than claim. This made it impossible to match payments to a particular injury if a claimant had more than one claim. The approach we have taken to dealing with this constraint for modelling medical liabilities is discussed in chapter 12.

4.2.9 In general, the quality of MRCA data has improved over recent years; in 2018-19 we were able to match almost all records and aggregate outlays were approximately within 1% of the unit record data.

4.3 Data Quality

4.3.1 Most DRCA payment transaction records include the relevant DEFCARE claim identifier which, in most cases, allows payments to be linked back to the original injury. This is important since, for the MCS, compensation claim payments are often made many years after the occurrence of the injury and estimation of the outstanding liability requires an assessment of the amount and timing of future payments in relation to past injuries. However, this changed from 1 July 2017 with the introduction of the ISH system where payments are now recorded against unique claimants.

Table 4.1: DRCA data

2016-17 Financial Year				
Usage	**DVA Aggregate ($m)**	**Sum of Transactions ($m)**	**Amount Matched ($m)**	**Proportion Matched (%)**
Incapacity	63.7	75.6	75.5	100
Permanent Impairment	56.2	55.4	55.4	100
Medical	26.5	26.5	26.5	100
Rehabilitation	6.6	6.6	6.6	100
Death	14.5	14.5	14.5	100
Other	14.9	14.1	14.1	100
Total Non-incapacity	118.8	117.1	117.1	100
Total	182.5	192.7	192.6	100
2017-18 Financial Year				
Usage	**DVA Aggregate ($m)**	**Sum of Transactions ($m)**	**Amount Matched ($m)**	**Proportion Matched (%)**
Incapacity	66.2	80.8	80.7	100
Permanent Impairment	81.1	80.1	79.8	100
Medical	27.6	27.9	27.9	100
Rehabilitation	7.8	7.7	7.7	100
Death	12.6	12.2	12.2	100
Other	12.2	9.0	8.6	96
Total Non-incapacity	141.2	137.0	136.2	99
Total	**219.6**	**226.7**	**225.5**	**100**

2018-19 Financial Year				
Usage	**DVA Aggregate ($m)**	**Sum of Transactions ($m)**	**Amount Matched ($m)**	**Proportion Matched (%)**
Incapacity	71.6	92.8	92.8	100
Permanent Impairment	137.5	136.3	136.3	100
Medical	19.5	16.2	16.2	100
Rehabilitation	7.9	7.8	7.8	100
Death	26.8	27.5	27.5	100
Other	12.3	11.6	11.2	97
Total Non-incapacity	204.1	199.5	199.1	100
Total	**275.7**	**292.3**	**291.9**	**100**

4.3.2 We consider that the DRCA data is suitable for the purposes of setting the assumptions for this review for most payment types.

4.3.3 Table 4.2 shows the equivalent information for the MRCA data over the three years.

Table 4.2: MRCA data

2016-17 Financial Year				
Usage	**DVA Aggregate ($m)**	**Sum of Transactions ($m)**	**Amount Matched ($m)**	**Proportion Matched (%)**
Incapacity	130.3	132.9	132.7	100
Permanent Impairment	223.2	215.7	215.7	100
Medical	59.1	58.5	58.0	99
Rehabilitation	19.8	18.8	18.8	100
Death	10.7	10.7	10.7	100
Other	23.3	22.4	22.1	99
Total Non-incapacity	336.1	326.0	325.3	100
Total	466.4	458.9	458.1	100

2017-18 Financial Year				
Usage	DVA Aggregate ($m)	Sum of Transactions ($m)	Amount Matched ($m)	Proportion Matched (%)
Incapacity	154.1	155.6	155.6	100
Permanent Impairment	408.9	410.8	410.8	100
Medical	71.9	74.3	74.3	100
Rehabilitation	29.1	27.6	27.5	100
Death	16.0	16.4	16.4	100
Other	33.5	30.6	30.2	99
Total Non-incapacity	559.5	559.7	559.2	100
Total	**713.6**	**715.2**	**714.8**	**100**

2018-19 Financial Year				
Usage	DVA Aggregate ($m)	Sum of Transactions ($m)	Amount Matched ($m)	Proportion Matched (%)
Incapacity	200.1	201.6	201.6	100
Permanent Impairment	741.7	728.1	728.1	100
Medical	95.2	95.1	94.2	99
Rehabilitation	34.1	29.7	29.7	100
Death	19.4	19.5	19.5	100
Other	15.6	26.1	26.1	100
Total Non-incapacity	906.0	899.0	897.7	100
Total	**1,106.1**	**1,100.2**	**1,099.3**	**100**

4.3.4 As we have noted previously, the MRCA payment records do not include a claim identifier. This meant that it was not possible to match expenditure to a particular injury but only to an individual. Bearing this limitation in mind, the quality of the MRCA data has generally improved over recent years. As shown in Table 4.2, we were able to match the majority of records to a claimant.

4.3.5 Overall, I am satisfied that the MRCA data is suitable for analysis.

5 Valuation Approach

5.1 Projection Models

5.1.1 The actuarial valuation process relies on projecting future payments and then discounting them back to a present value. The method adopted to generate these projections varies between the different types of payments.

5.1.2 The models used for the current valuation can be classified into four groups:

- composite run-off models combining projections of usage and average cost;
- cohort projection models;
- simulation models; and
- annuity models.

5.1.3 The composite run-off models adopt an assumption of the numbers of claimants by accident year exposure to project future claim or claimant populations and then apply a cost per claim or claimant to estimate expenditure. The concept of unit of exposure is integral to this approach. In this context, a unit of exposure represents 10,000 equivalent full-time ADF personnel (calculated as sum of the number of permanent ADF personnel and 15 per cent of the number of reservists). This takes account of changing ADF numbers in terms of the potential population that might give rise to a claim. For example, in the 1960s, there were close to 90,000 equivalent full-time personnel, while, since 2000, numbers have typically ranged between 55,000 and 60,000.

5.1.4 The process of estimating the cost can be more or less sophisticated. For example, for permanent impairment, we look at the age distribution of claimants, the proportion of warlike and peacetime claims, and the distribution of impairment points, while for rehabilitation we use a simple average cost per claim.

5.1.5 A cohort projection model is used for the DRCA medical head of damage, and attendant care for both schemes. These models project the number of future active claimants based on the existing recipient population by applying a decay rate to the population currently using services. Note that this is not assuming that the same individuals are incurring costs in each year, rather that there is a relationship between the overall number of people receiving services from one year to the next.

5.1.6 Deterministic simulation models are used for the short-term and future long-term incapacity expenditure projections. These models apply probabilities of future payment receipt to a population at the level of the individual. A stochastic simulation model has been used to model the active MRCA medical population.

5.1.7 Annuity models are used for modelling expenditure at an individual level where we expect some stability in annual payments. This is most notably the case for existing long-term incapacity recipients and the group we describe as “big medical”. The latter

are individuals who have recorded substantial medical expenditure over a number of years, so that we have good reason to believe that they will continue to incur expenses at a similar level in the future. MRCA permanent impairment entitlements that are being paid as a periodic payment are also modelled using an annuity approach.

5.1.8 Death benefits typically represent a relatively small component of the non-incapacity liability; however the number of deaths in any given year can vary quite dramatically. This randomness tends to overwhelm the results and there is little to be gained from any detailed analysis of the data. The source of claims is, however, quite different for the two schemes, with DRCA claims arising from long latency conditions and MRCA claims tending to be linked to accidents. We have, therefore, looked at the DRCA and MRCA experience separately.

5.2 Payment Rates

5.2.1 The assumed payment structure depends upon the benefit being modelled. For annuity models, the current level of payment forms the basis of the model and rises in line with the assumed inflation structure. Payments are assumed to continue subject to mortality in the case of big medical. Duration based exit rates are used for current long-term incapacity recipients.

5.2.2 For incapacity recipients, the probability of achieving long-term status, exit rates from long term payment and assumed payment rates all depend upon age with the assumed age distribution of new claimants in turn depending upon the lag between the accident year and the commencement of the incapacity episode.

5.2.3 In the past we have modelled permanent impairment and non-economic loss payments separately for DRCA. However, the payments have consistently moved in parallel and we decided in the 2014 valuation to value them as a single payment. We have retained this approach of using a single average payment per claim for the current valuation. For MRCA permanent impairment, the payment size is based on assumptions regarding the nature of service, gender, age at the time of the claim and a distribution of severity ratings in terms of assessed impairment points.

5.2.4 We have also retained our approach to modelling medical payments, which allows for usage rates and payments per transaction to vary with age.

5.2.5 The number of paydays is incorporated into the cashflow projections where payments are made on a fortnightly basis.

5.3 Economic Assumptions

5.3.1 In order to project future cashflows, it is necessary to adopt assumptions regarding the rate of growth in nominal payments. A discount rate assumption is also required to arrive at a meaningful estimate of the present value of the outstanding liability.

5.3.2 Claim payments will tend to increase for many reasons. For example, incapacity payments are linked to earnings, the limits for PI and NEL lump sums are indexed to CPI and other benefits are subject to indexation as set out in the rules of the scheme.

5.3.3 However, policy initiatives, changes in the external environment or other less obvious influences could all be expected to impact the claims costs. Examples of such factors include:

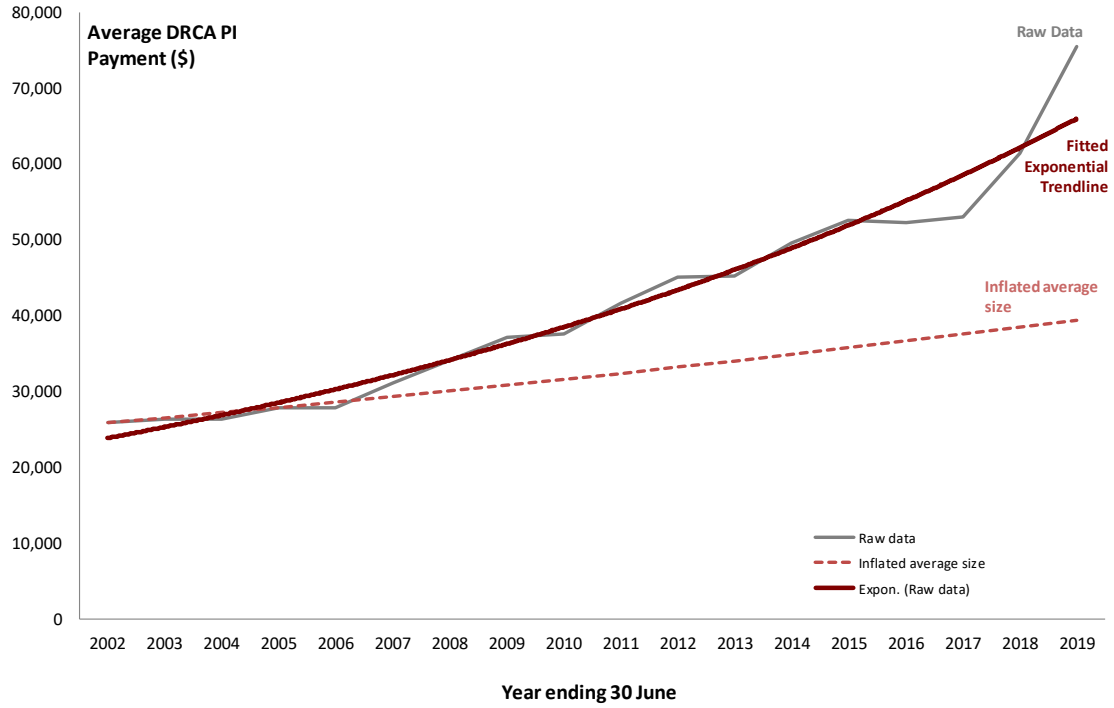
- a greater focus on rehabilitation leading to longer or more expensive interventions;
- an altered approach to assessment (such as the move from using independent specialists to using the veteran's GP to make medical assessments) or changing community norms around mental illness leading to higher impairment rating;
- a policy decision to increasingly rely on health care cards rather than reimbursement arrangements for medical examinations; and
- a legal challenge in relation to permanent impairment which effectively expands the scope of compensation.

5.3.4 These phenomena contribute to what is known as superimposed inflation in the cost of the scheme — that is, the extent to which the rate of growth in the overall cost of the scheme exceeds the rate of general inflation in the community.

5.3.5 In setting inflation assumptions, we have had regard to any statutory guidelines on indexation, tempered by the observed experience. The main area where this tempering occurs is in relation to DRCA permanent impairment.

5.3.6 The maximum DRCA PI payment for a single claim is indexed in line with CPI. All else being equal, therefore, we might expect the average payment to also increase in line with the CPI. In practice, as shown in Figure 5.1, the average payment has increased considerably faster than prices. The fitted exponential trendline implies an average annual rate of increase of 6 per cent. There are a range of factors, including legal decisions and administrative changes that have or are likely to have contributed to this result. Whether such decisions will continue into the future is a moot point. However, by choosing a higher inflation assumption, we have adopted a prudent approach of allowing for some continuation.

Figure 5.1: Average DRCA Permanent Impairment Payment



5.3.7 We have also extended the use of short-term assumptions for payments that are explicitly linked to wage growth, namely incapacity payments and DRCA death benefits.

5.3.8 The following table summarises the combined nominal rate of inflation (that is, normal inflation plus superimposed inflation) used for the current valuation and the previous valuation. The rates shown for wage linked benefits are the long-term assumptions.

Table 5.1: Rates of inflation

Category	2019 Valuation	2018 Valuation
Incapacity payments	4.0%	4.0%
PI and NEL (DRCA)	5.0%	5.0%
PI (MRCA)	2.5%	2.5%
Medical	4.0%	4.0%
Rehabilitation (DRCA)	3.0%	5.0%
Rehabilitation (MRCA)	3.0%	4.0%
Death (DRCA)	4.0%	4.0%
Death (MRCA)	2.5%	2.5%
Other 1- Medical service (DRCA)	3.0%	n/a
Other 1- Legal service (DRCA)	3.0%	n/a
Other 1 (MRCA)	3.0%	4.0%
Other 2	4.0%	4.0%

5.3.9 MRCA incapacity benefits are indexed in line with movements in actual military salary rates, while DRCA incapacity and death benefits are linked to general wage growth. Since the outlook for wage growth is subdued in the short term, we have adopted short-term inflation assumptions that apply for the next three years at 2.0% p.a. before reverting to the long-term assumption.

5.3.10 The estimation process involves projecting the future claim payments allowing for normal inflation and superimposed inflation as described above. To calculate the liability, the payments are then discounted to a present value. This discounting recognises the time-value of money and enables the realistic assessment of long-term financial arrangements such as the MCS.

5.3.11 The Australian Accounting Standard (AASB 137) which would apply for financial reporting purposes specifies that the discount rate used in preparing estimates of general insurance claim liabilities should be a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. In an arrangement such as the MCS, this might be interpreted as the return on Commonwealth securities of appropriate durations and, for financial statement purposes, we use a yield curve derived from the yields on Commonwealth securities as at the relevant 30 June for discounting purposes.

5.3.12 Such an approach can lead to major changes in the estimate of the liability due solely to changes in interest rates. For the full actuarial review that we are reporting on here, we regard a stable interest rate assumption to be preferable as it allows other changes in experience, which are more important from a policy perspective, to be observed. We have retained the 5% long term interest rate for discounting cashflows used at the previous valuation.

5.4 Administrative Expenses

5.4.1 DVA reports administrative expenditure, including claims handling expenses for all claims under all three compensation Acts through separate systems. We currently have no data relating explicitly to claims handling expense for MRCA and DRCA claims available and have made no explicit allowance for claims handling expenses in our valuation of MCS liabilities. Our understanding is that a separate provision for administrative expenses in relation to all Acts is made in DVA's internal budget projections.

5.5 Risk Margins

5.5.1 The estimates provided in this report represent our best estimates of the liability and projected cashflows. That is, it is intended to be equally likely that they are too low as that they are too high. We have not calculated a risk margin (prudential margin).

5.5.2 The relevant Accounting Standard for reporting the liability is AASB 137. This Standard does not explicitly require a risk margin to be included. It is also arguable that the inclusion of a risk margin would be inconsistent with the requirement set out in paragraphs 36 and 37 of AASB 137 that the estimate be based on the amount that

the entity would rationally pay to settle the obligation. In the context of the Commonwealth's balance sheet, it can be argued that the Commonwealth would be irrational to pay more than the central estimate to settle the liability. The fact that the Commonwealth chooses to self-insure many of its risks rather than pay a premium to transfer them off the balance sheet adds support for this view.

5.5.3 However, the considerable uncertainty associated with the estimates should not be disregarded in considering the results. The true liability is unknown and the cashflow projections become increasingly uncertain the longer the projection period.

5.5.4 To help illustrate the uncertainty, we have included some sensitivity analysis around key assumptions in chapter 20.

6 Valuing Short-Term Incapacity Payments

6.1 Modelling Approach

6.1.1 Incapacity payments are income replacement payments made fortnightly and at a level related to the recipient's salary prior to injury. Exit rates from incapacity payments decline rapidly with duration on benefits. We have therefore made a distinction between episodes that persist for more than twelve months, which are highly likely to continue for an extended period, and those that are completed within a twelve month period. Benefits paid after a recipient has been on benefits for more than twelve months are referred to as long-term payments, while short-term payments refer to benefits paid in the first twelve months of receipt.

6.1.2 As with the previous valuation, we have modelled the relationship between short-term and long-term recipients explicitly. That is, we have started with a projection of the number of short-term incapacity recipients and modelled the probability of an episode transitioning to long-term status to determine the expected number of future long-term recipients.

6.1.3 For modelling purposes, we have defined a long-term episode to be a period of more than twenty-six fortnights of continuous receipt of incapacity payments, noting that a period of up to three pay periods without a payment is deemed not to interrupt an episode. A break of four pay periods or more terminates an episode, unless there is a lump sum payment that, when spread using the average payment received prior to the break, spans the gap. Following a termination, a further period of 26 fortnights in continuous receipt of payments is required to establish a new long-term episode. Short-term payments then refer to those payments that do not satisfy these rules.

6.1.4 Short-term payments are modelled by projecting numbers of recipients, average payment rates and probabilities for survival. Recipients who are modelled to stay on benefits for 12 months then become part of the projected long-term recipient population and are treated in the same way as existing long-term recipients (discussed further in chapter 7).

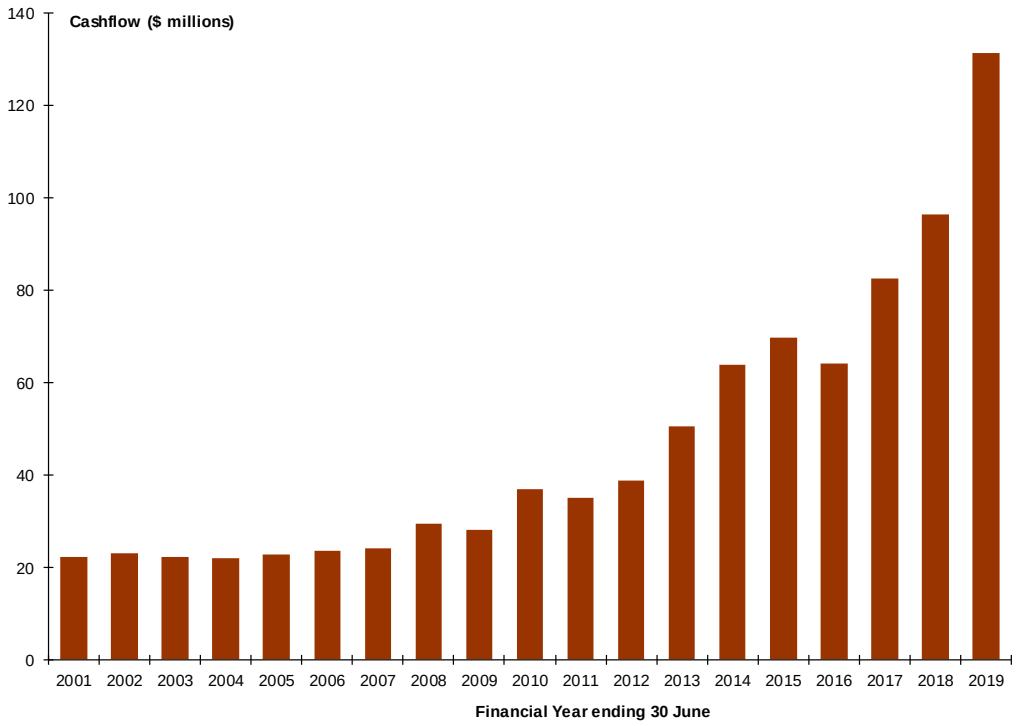
6.1.5 There are also lump sum incapacity payments that are made in addition to the normal fortnightly payments. Some of these payments are back-payments that fill in a gap in the fortnightly payments and, as noted above, we spread these and treat the episode as continuous. Other lump sum payments can be considered as additions to the normal fortnightly payments and we make an adjustment to the projected cashflows for the periodic payments for both short-term and long-term recipients to allow for these amounts.

6.1.6 This chapter deals with the valuation of short-term payments while the following chapter considers assumptions and results for long-term payments.

6.2 Recent Experience and Valuation Assumptions

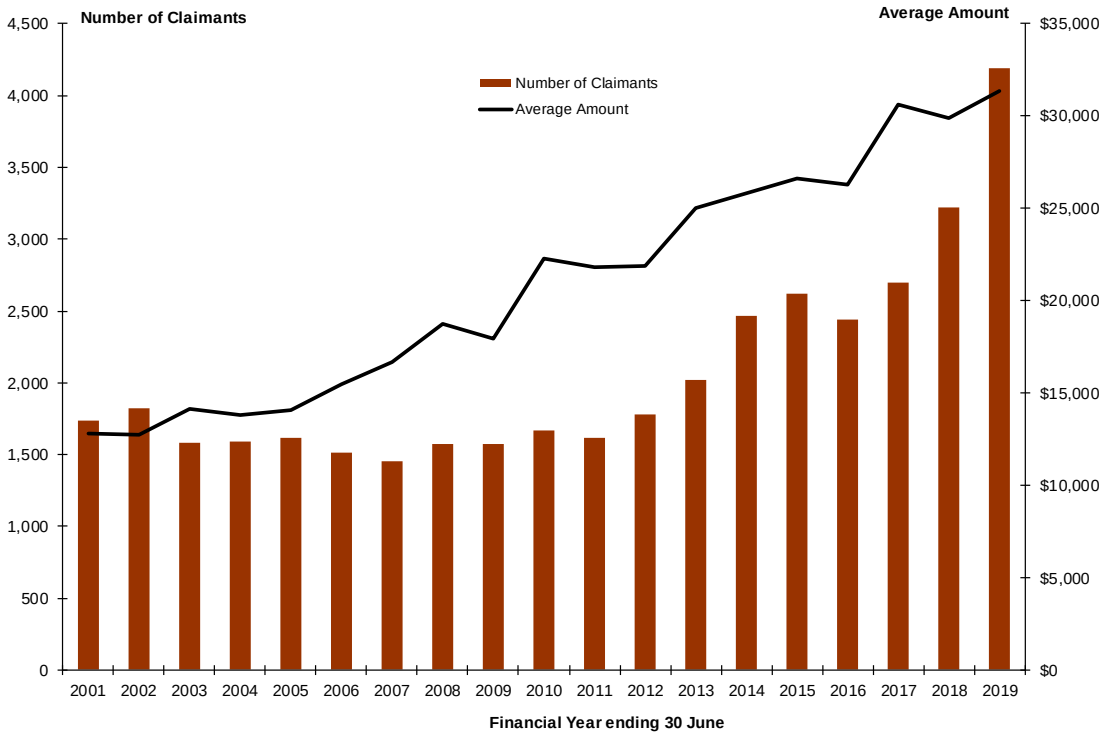
6.2.1 Figure 6.1 shows the expenditure on short-term incapacity payments since the turn of the century. It shows that outlays were virtually unchanged in nominal dollars until 2006-07. Since 2011, however, there has been a strong upward trend in expenditure, with a significant increase in expenditure in the latest financial year.

Figure 6.1: Total expenditure on payments in the first twelve months of receipt



6.2.2 Figure 6.2 shows that the early experience was a function of declining numbers of claims offsetting increasing average payments, but that since 2006-07, we have, for the most part, seen both increasing claimant numbers and increasing average payments. The increase in the payment per claim has averaged approximately 6% per annum over the last decade. (Note that the average payments are expressed in nominal dollars.) The average payment per claim will depend upon both the fortnightly rate at which benefits are being paid and the duration of the incapacity episode. Over the last year, the increase in payments has been primarily driven by the increase in claimants, with the average size remaining relatively stable.

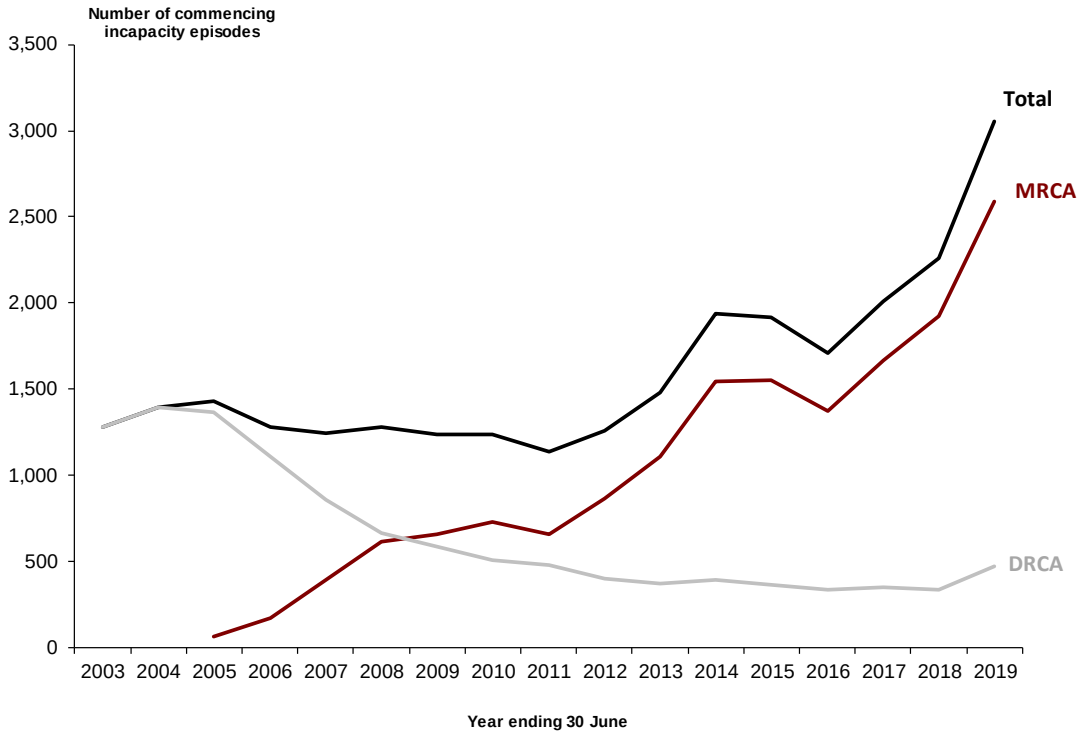
Figure 6.2: Number of short-term incapacity claimants and average annual payments



6.2.3 The approach to modelling incapacity used for the current valuation requires a projection of numbers of new incapacity episodes that commence during a year. Note that this is different from the figures shown in Figure 6.2 above, which include all people who received a payment during the year, not just those who commenced.

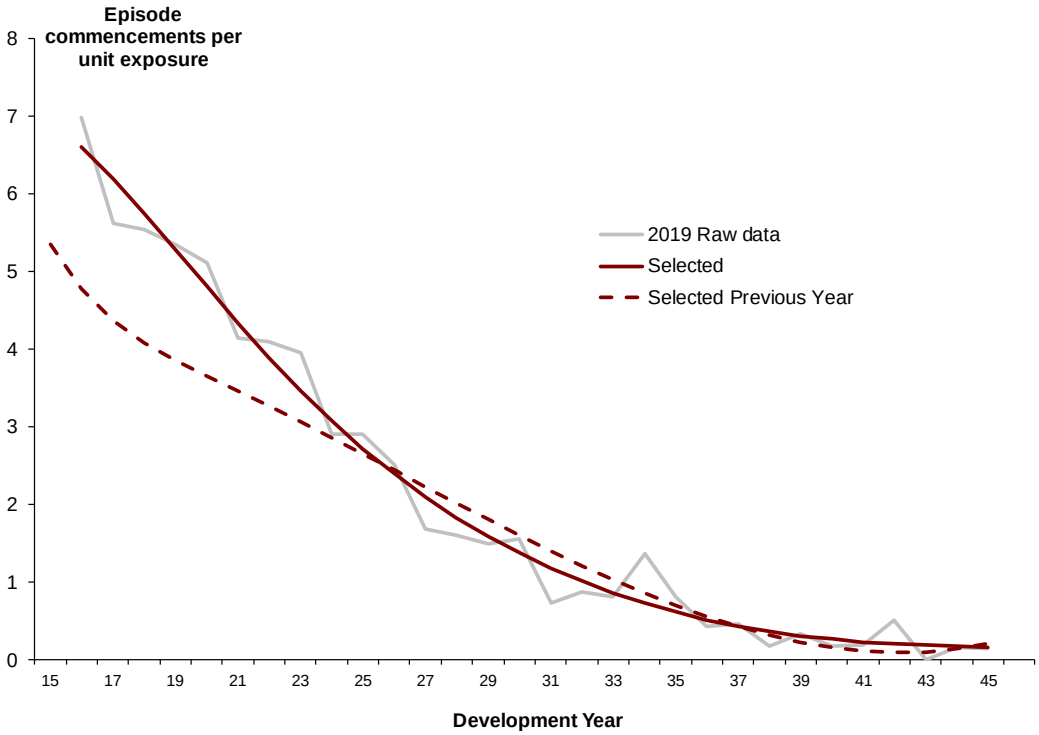
6.2.4 Figure 6.3 plots the numbers of new incapacity episodes under each scheme over the last 16 years. The total number of new recipients has again increased in 2018-19, driven by new MRCA claimants. The number of new DRCA claimants has continued to remain steady, with a slight increase in the latest financial year, despite the scheme closing almost 14 years earlier.

Figure 6.3: Commencements of incapacity episodes by financial year



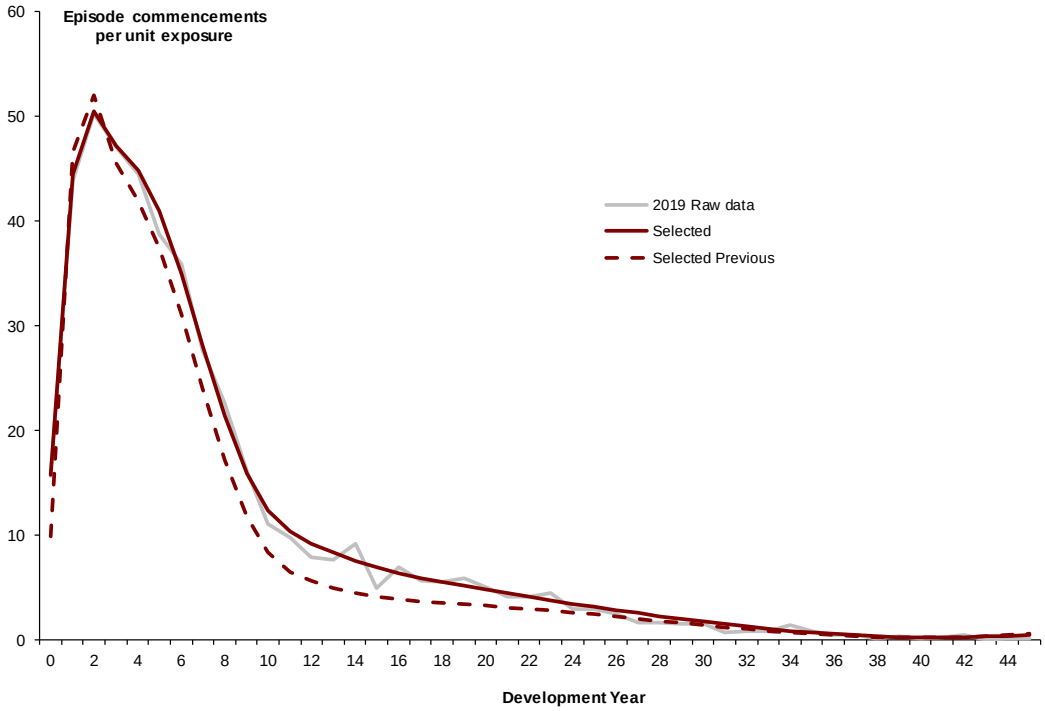
6.2.5 In order to project future claim numbers, we need to determine a pattern of episode emergence by accident year. Figure 6.4 shows the raw rates for DRCA commencements in 2019, together with the fitted assumption. The fitted claim rates have increased since the last valuation as a result of continuing levels of DRCA claimants emerging.

Figure 6.4: DRCA incapacity commencements by development year



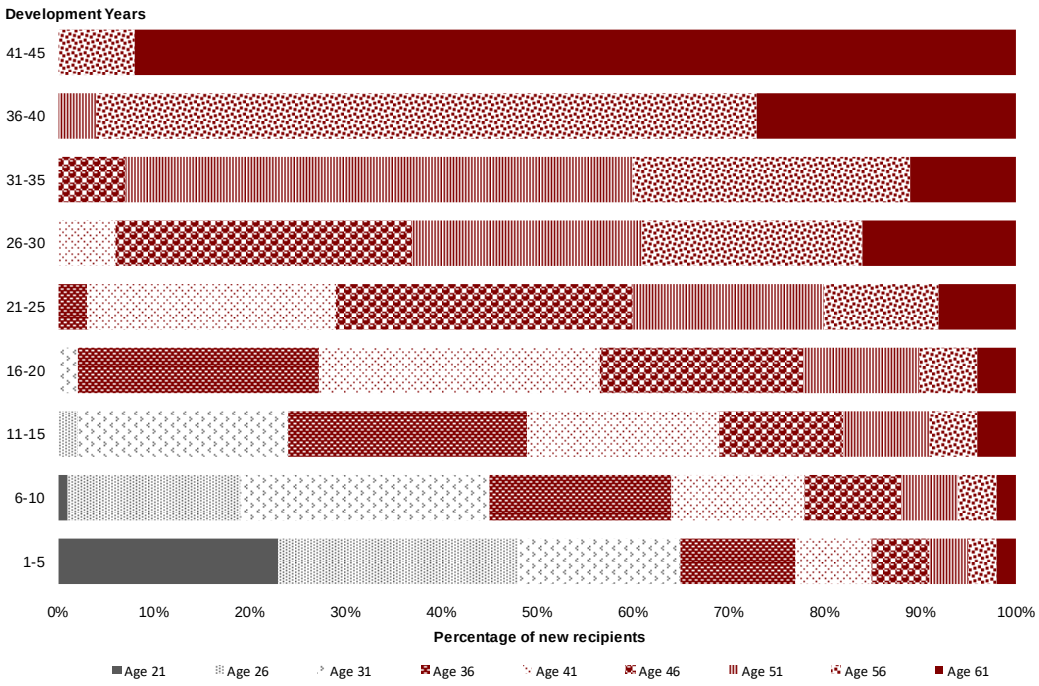
6.2.6 For MRCA, we need to make an assumption about rates at durations for which we have no data. MRCA rates are higher than the DRCA rates for the early development years observed prior to closure. This could mean that the ultimate MRCA claim pattern could differ to that of DRCA and that MRCA rates at longer durations will be lower than we are currently seeing for DRCA. At the same time, the observed rates at duration 14 where we have recent data for both MRCA and DRCA shows similar rates across the two schemes. For this valuation, therefore, we have used the DRCA data for these developments without adjustment. Figure 6.5 shows the resulting raw and fitted rates. The claim rate has increased across most development periods as a result of increased numbers of MRCA claimants in 2018-19.

Figure 6.5: MRCA incapacity commencements by development year



6.2.7 Our analysis of the duration on benefits found that age is an important determinant. The second step in the process is therefore to assign an age distribution to the population of new entrants. Clearly, there is a relationship between the development year and age. For example, someone who is projected to commence on incapacity benefits 40 years after the event giving rise to the claim cannot be aged under 55. On the other hand, the age distribution for those commencing on benefits in the year of the accident will reflect the current age distribution of serving ADF personnel. We have used the age distribution by development year shown in Figure 6.6 to assign ages to projected new short-term recipients. This takes account of the increasing age of new recipients as duration between incident and claim increases.

Figure 6.6: Age distribution of new recipients by development year



6.2.8 Having assigned ages, the next step is to determine the probability of remaining on benefits for a given period of time. As noted above, this probability depends upon a claimant's age. We have modelled survival probabilities i.e. the probability of claim continuation for three age groups: those aged less than 35 at the beginning of an incapacity episode, those aged between 35 and 49 inclusive, and those aged 50 or more. We have also modelled the two schemes separately as there do appear to be differences in experience.

6.2.9 Figure 6.7 shows the raw and fitted rates for DRCA and Figure 6.8 provides the corresponding information for MRCA.

Figure 6.7: DRCA survival probabilities

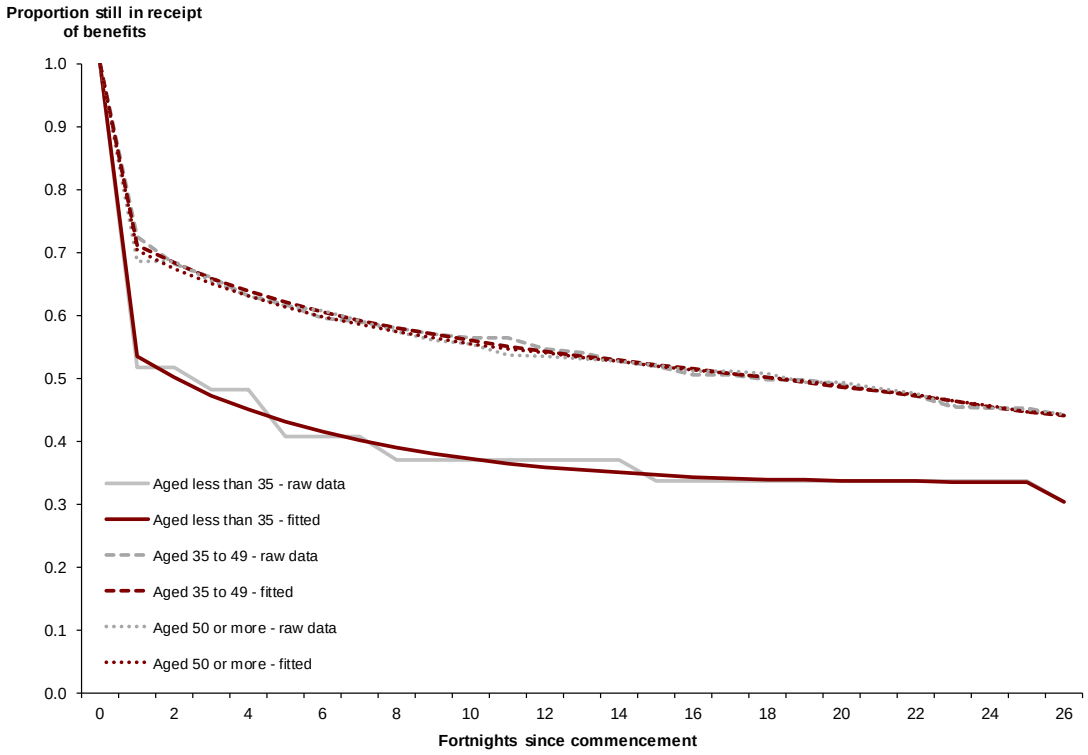
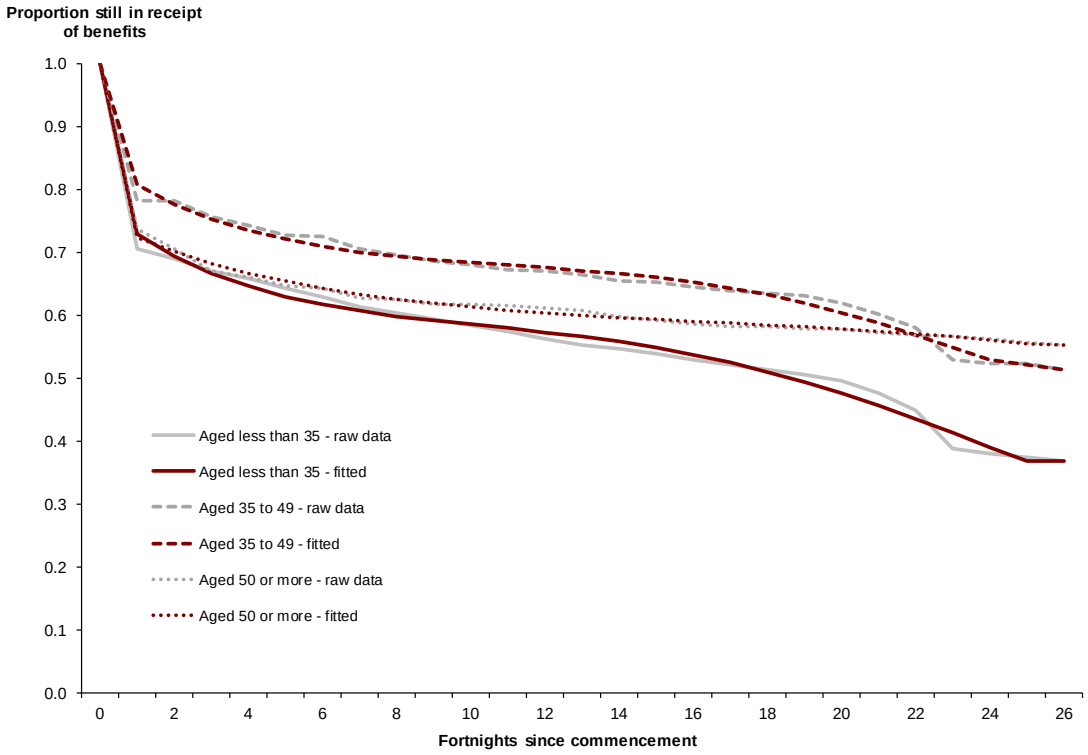
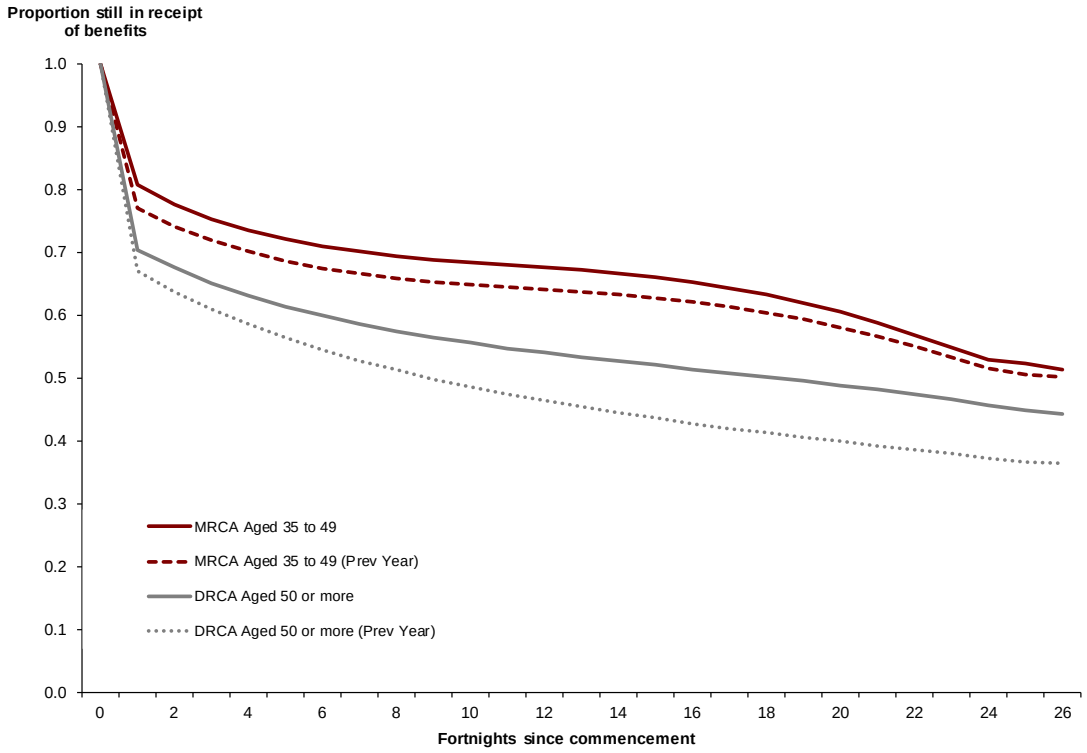


Figure 6.8: MRCA survival probabilities



6.2.10 The survival rates for older claimants in MRCA and DRCA have both increased from last year, showing a greater probability for new claimants to remain on benefits over time. Figure 6.9 below shows a comparison of the rates selected this year compared to those selected last year.

Figure 6.9: Comparison of selected survival rates



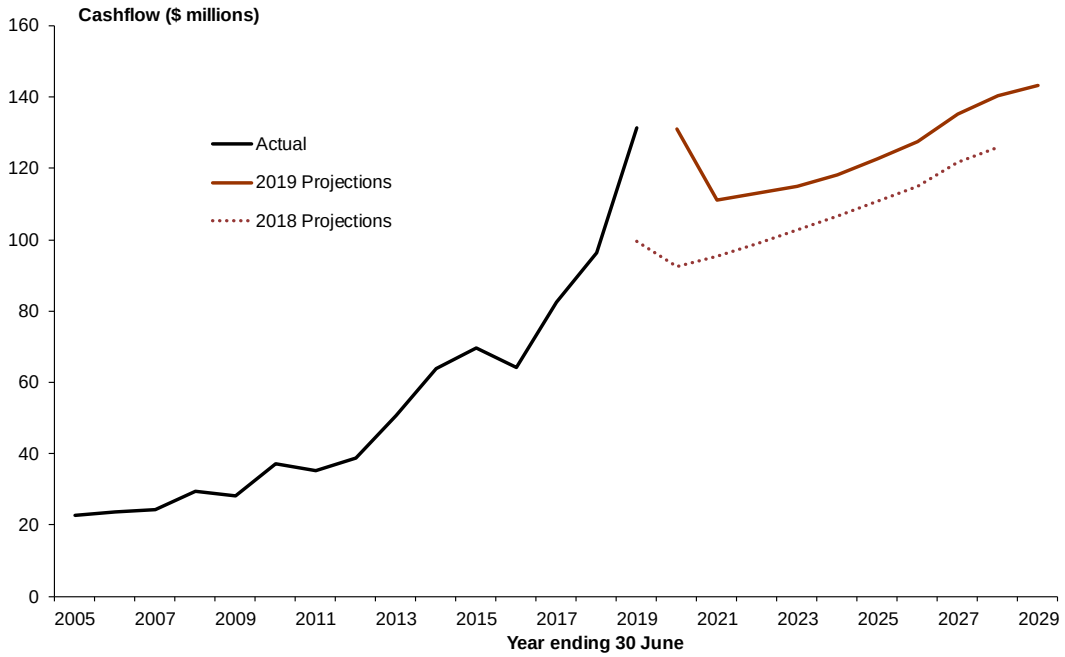
6.2.11 The final element needed for projecting future outlays is the average rate of payment. Again, we found this depended upon age, which makes sense given that the benefit is an income replacement and income prior to injury is likely to be positively correlated with age. We also found the average rate of payment in the first twelve months depended upon whether an individual was likely to become a long-term recipient. That is, the average fortnightly payment for those whose episode lasted for less than 12 months was lower than for those who went on to become a long-term recipient. This might reflect the relative severity of the injuries involved. Table 6.1 sets out the rates of payment that are assumed to apply in 2019-20. For later years, these rates are increased in line with the inflation rates set out in chapter 5.

Table 6.1: Assumed fortnightly rates of payment

Age Group	DRCA	MRCA
Assumed duration 12 months or less		
Less than 35	$1,526	$1,470
35 to 49	$2,121	$1,694
50 or more	$2,853	$2,037
Assumed duration more than 12 months		
Less than 35	$2,180	$2,100
35 to 49	$3,030	$2,420
50 or more	$3,170	$2,910

6.2.12 Putting all of these assumptions together gives the projection of cashflows shown in Figure 6.10. The overall results are higher than in the previous valuation as a result of the persistently high numbers of claimants in recent years and the increasing propensity of these claimants to remain on benefits. The increase in cashflow in the first year is driven by the number of claimants in the 2018-19 financial year. A large proportion of these claimants are expected to continue receiving some level of payment in the next financial year and, unless their first payment was at the very beginning of the year and they become classified as long term recipients, will remain as short term recipients into the next financial year. Beyond the first year, the cashflow is comprised only of our projected number of new claimants.

Figure 6.10: Historic and projected cashflows on short-term payments



6.3 *Liability Estimate for Short-Term Payments*

6.3.1 Table 6.2 shows the current estimate of the liability for short-term incapacity payments broken down by year of accident together with the liability estimated in the 2018 valuation.

Table 6.2: Outstanding claims liability as at 30 June 2019 for short-term incapacity payments by year of accident

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
1979 and before	1.5
1980 – 1984	3.6
1985 – 1989	9.2
1990 – 1994	20.0
1995 – 1999	34.2
2000 – 2004	60.0
2005 – 2009	97.4
2010	29.0
2011	33.4
2012	37.6
2013	43.4
2014	51.0
2015	58.7
2016	68.3

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
2017	78.2
2018	86.2
2019	90.8
Total	**802.4**
Expected at 30/06/2019	*610.3*
Total (30/06/2018)	**600.6**

6.3.2 In the 2018 valuation, we projected a liability as at 30 June 2019 of $610.3m. The revised estimate of the liability is $802.4m, this is $192m higher than the projected liability and reflects the higher cashflows shown in Figure 6.10 as a result of higher projected claim numbers.

7 Valuing Long-Term Incapacity Payments

7.1 Modelling Approach

7.1.1 As discussed in the previous chapter, long-term recipients are a subset of the short-term population; that is, every long-term recipient must commence as a short-term recipient and can only transition to long-term status once benefits have been paid for a continuous period of 12 months. The liability in relation to long-term recipients can be considered to arise from three sources.

7.1.2 The first is those who had already been in receipt of benefits for 12 months or more and hence were classified as a long-term recipient as at 30 June 2019. The age distribution, length in receipt of benefits and rates of payment for this group are known. Using exit rates derived from past experience, we can estimate the probabilities of continuing entitlement and hence determine the present value of expected future payments.

7.1.3 The second group is those who were in receipt of an incapacity payment as at 30 June 2019, but had not reached the 12 month threshold to be classified as a long-term recipient. A proportion of this group would be expected to remain on benefits for 12 months and become long-term recipients. We have estimated the probabilities of this occurring for different age groups, given the current length in receipt of benefits, and then valued them as new long-termers from that point.

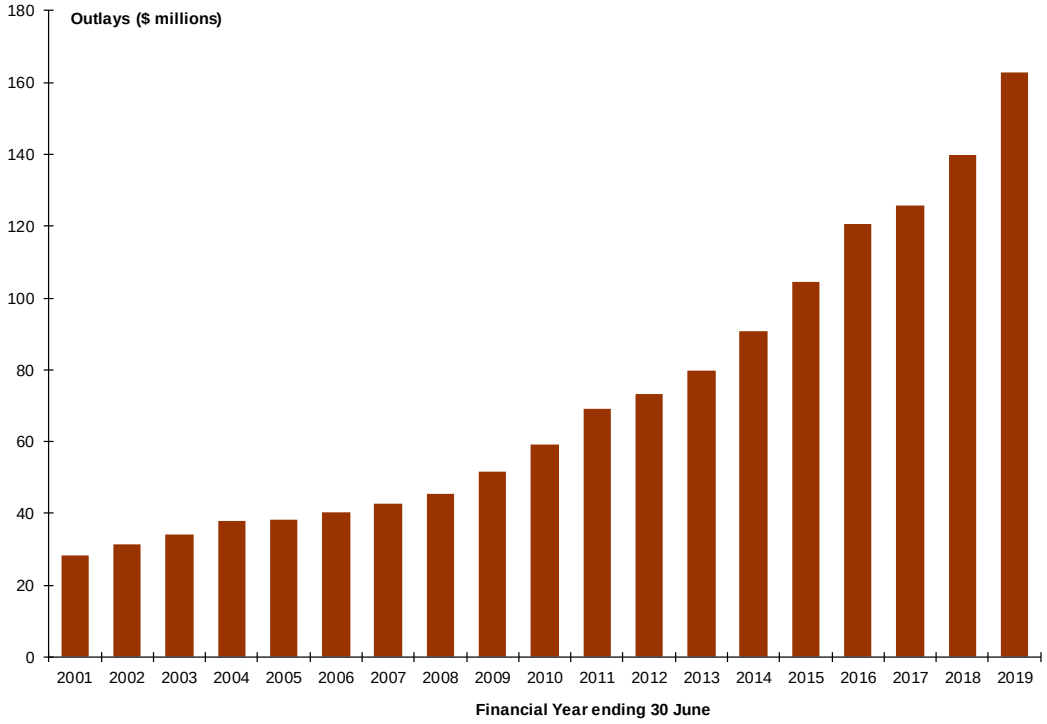
7.1.4 The third group is those who are expected to commence an incapacity episode in the future that relates to an incident that occurred prior to the valuation date. This is a subset of the projected short-term population described in the previous chapter. In this case, the probability of becoming a long-term recipient depends just upon age, since this group will have an initial duration in receipt of benefits of zero. Unlike the two previous groups, this group is entirely a construct of the model and therefore involves the greatest uncertainty.

7.1.5 The projected cashflows arising from the second and third groups together comprise what we refer to as the Incurred But Not Reported (IBNR) liability, that is the liability in respect of those who were not long-term recipients at the valuation date, but are projected to receive long-term incapacity payments in the future. Note that this differs from the normal insurance meaning where IBNR relates only to claims not reported at the valuation date.

7.2 Recent Experience and Valuation Assumptions

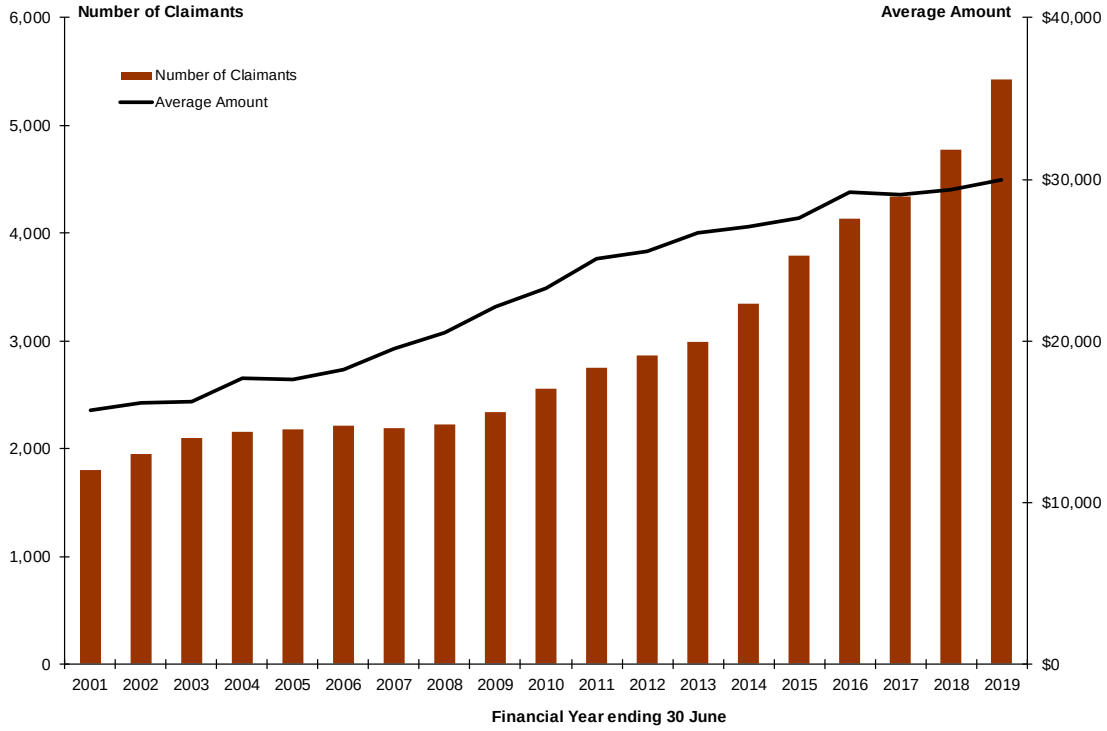
7.2.1 Figure 7.1 shows the expenditure on long-term incapacity payments since the turn of the century. The increasing trend in incapacity payments for long term recipients has continued in 2018-19.

Figure 7.1: Total expenditure on long-term payments (including adjustment payments)



7.2.2 As with short-term payments there was a period of relatively slow growth, but since 2010, outlays have grown substantially. Again, this has been driven primarily by the increase in the number of recipients, as shown in Figure 7.2. There has again been a significant increase in the total number of claimants in 2018-19 whilst the average payment has remained at a similar level to that in 2017-18. Note that the average payment is not the rate at which an individual claimant is being paid, but the average of the total amount paid during the financial year. Given that not everyone will be paid for the full year, the average payment shown here will be less than the average rate of payment at the end of the year.

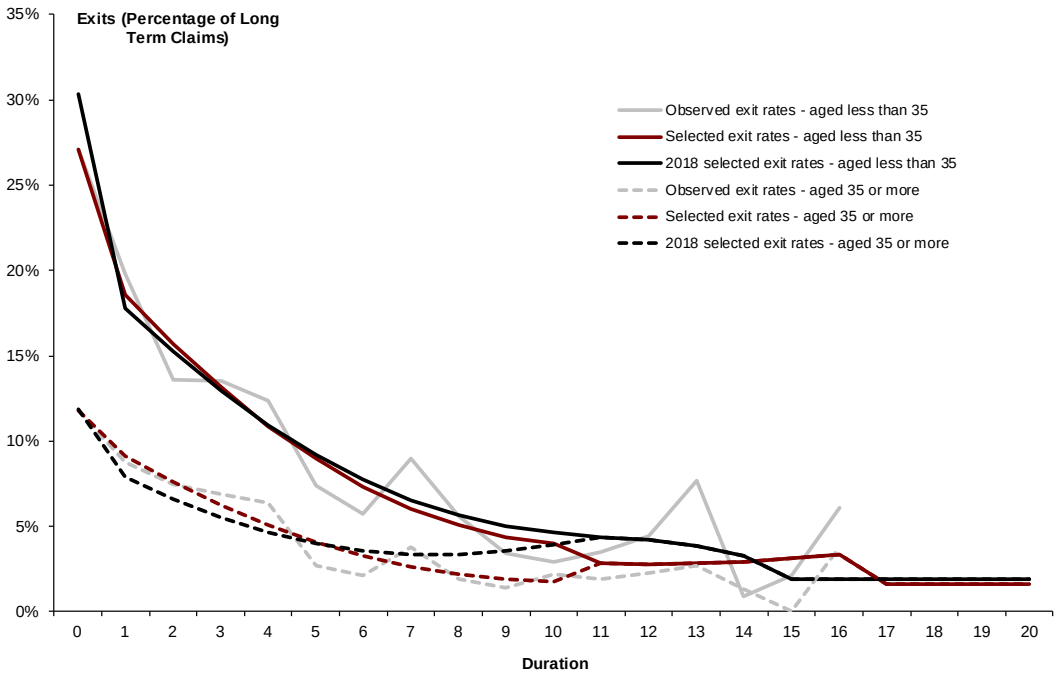
Figure 7.2: Total number of long-term incapacity claimants and average payments



7.2.3 For those who were long-term incapacity recipients as at 30 June 2019, the only valuation assumptions required relate to mortality, exits not due to mortality and payment inflation. We have used the mortality assumptions for invalidity pensioners from the latest available actuarial review of military superannuation. Payment inflation follows the assumptions set out in Chapter 5, which allow for lower growth in the short term.

7.2.4 The exit rate assumptions are a key driver of the liability estimate. In line with our analysis of short-term incapacity payments, we looked at exit experience using the same age groups. This showed a quite clear distinction between rates of exit for those aged more or less than 35 at the time the long-term episode commenced, but the age 50 threshold did not appear to be significant. We have therefore adopted separate assumptions for those aged less than 35 and those aged 35 or more. The two rates are assumed to converge after 10 years on incapacity benefits.

Figure 7.3: Observed and selected exit rates



7.2.5 Exit rates trended consistently downwards from 2008 onwards. Relative to 2018, we are assuming slightly lower rates of exit at duration zero and durations 5 to 14 at this valuation for those under the age of 35. For claimants who are 35 or more, the rate of exist has increased slightly for the earlier durations but has decreased significantly for durations between 7 and 14. The issue of low exit rates is not unique to the MCS and is a common concern amongst other schemes with periodic benefits such as civilian workers compensation schemes. These schemes have often required multiple actions such as benefit redesigns, active monitoring of experience, and additional policy measures to encourage and enable claimants to transition back into the workforce.

7.2.6 As discussed in the previous chapter, the number of future long-term claimants is estimated based on the proportion of actual and projected short-term claimants who are assumed to reach 12 months on benefits. For existing short-term claimants, a probability is determined based on the number of fortnights on benefits as at 30 June 2019 and age at the time incapacity payments were first made. Figure 7.4 shows the probabilities of attaining long-term status for DRCA claimants and Figure 7.5 the equivalent information for MRCA claimants.

Figure 7.4: DRCA probability of becoming a long-term recipient

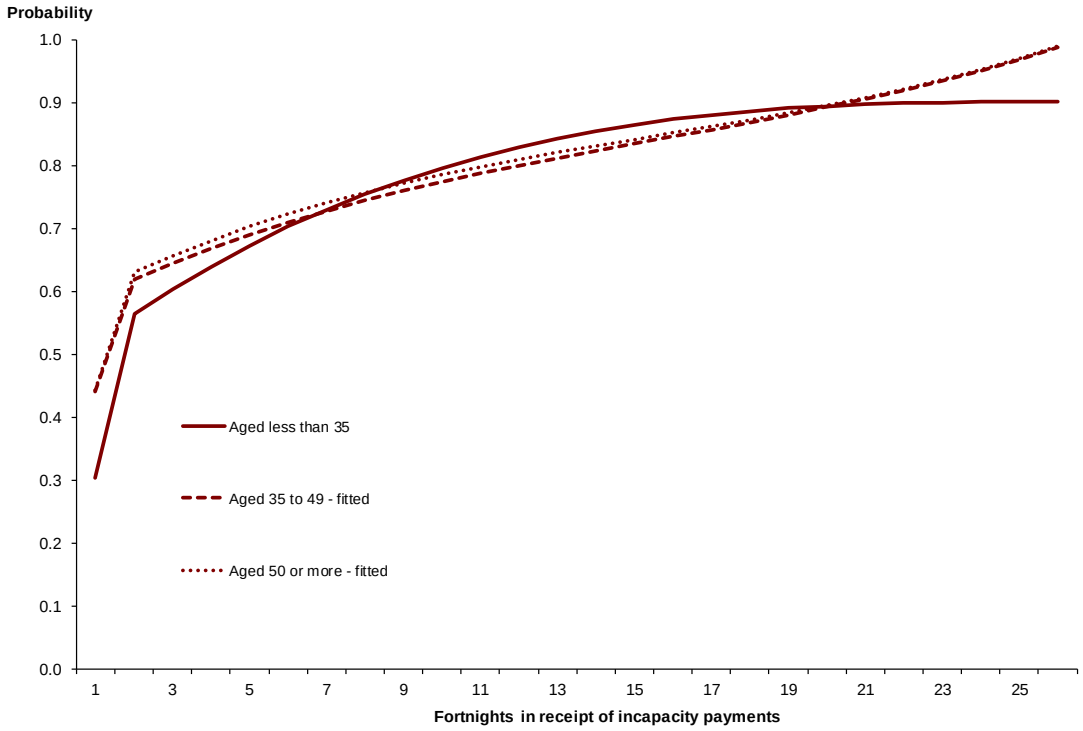
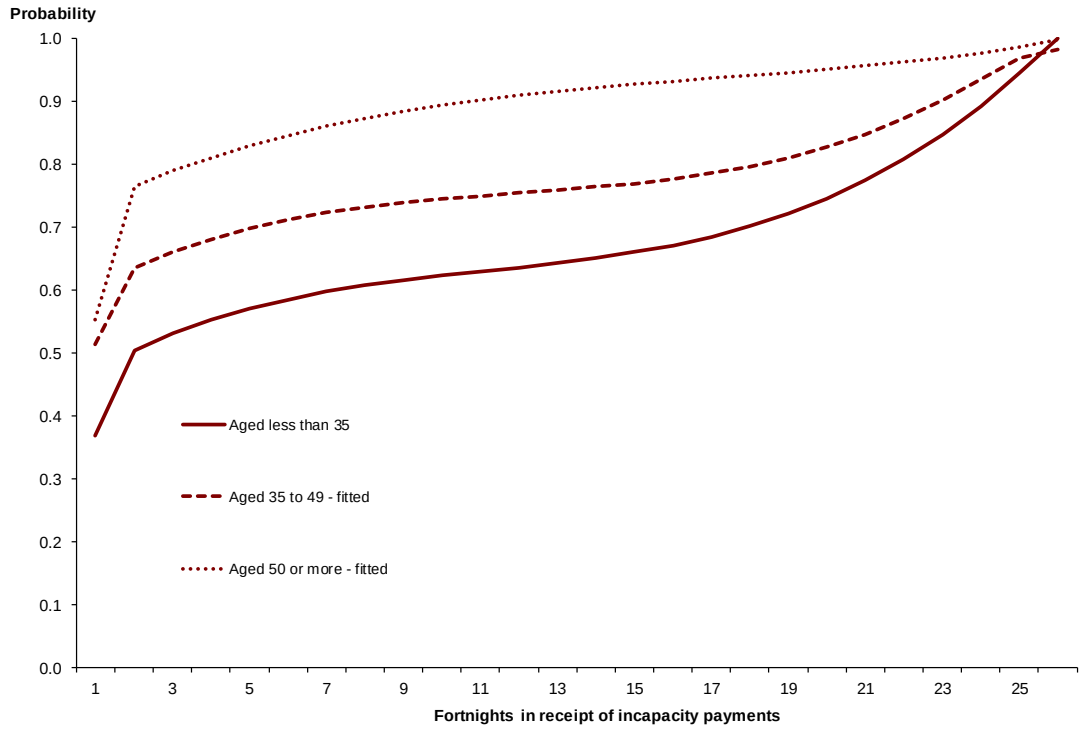


Figure 7.5: MRCA probability of becoming a long-term recipient



7.2.7 As would be expected, the probability increases with duration on benefits to date. What is perhaps more surprising, however, is the discontinuity between one and two

fortnights on benefits. Those that receive benefits for two fortnights are significantly more likely to become long-term recipients than those who receive just one payment.

7.2.8 For projected short-term claimants, we use the probability for those with one fortnight of payment to determine the number that will go on to become future long–term recipients. These probabilities are shown in Table 7.1.

Table 7.1: Probability of a future short-term recipient receiving benefits for twelve months or more

Age group	DRCA	MRCA
Less than 35	0.30	0.37
35 to 49	0.44	0.51
50 or more	0.44	0.55

7.2.9 Fortnightly payment rates for current long-term recipients are set at the rate that applied as at 30 June 2019 and inflated annually thereafter. Table 7.2 summarises the key statistics in respect of the 4,929 long-term recipients in payment as at the valuation date, together with the comparable statistics from the previous valuation.

Table 7.2: Profile of existing long-term claimants as at 30 June 2019

	2019 Valuation	2018 Valuation
DRCA		
Number of recipients		
- with lifetime entitlement	19	66
- without lifetime entitlement	1,707	1,506
Total	1,726	1,572
Average fortnightly entitlement	$1,484	$1,469
Average age	52.7	52.1
Average duration on benefit [3]	9.6 years	9.7 years

[3] Duration in this context is our estimate of continuous period on benefit.

	2019 Valuation	2018 Valuation
MRCA		
Number of recipients		
- with lifetime entitlement	0	0
- without lifetime entitlement	3,203	2,471
Total	3,203	2,471
Average fortnightly entitlement	$1,313	$1,261
Average age	41.5	41.4
Average duration on benefit	3.2 years	3.2 years

7.2.10 As would be expected, the average age has increased across both schemes. MRCA recipients are on average younger than DRCA recipients and, given the positive correlation between age and salary, this feeds through into lower average fortnightly payments. The average duration on benefit has decreased slightly in the case of DRCA and remained the same for MRCA. This could be a reflection of the higher numbers of new long term recipients who have had shorter durations on benefits.

7.2.11 For current short-term recipients, an allowance needs to be made for the fact that the rate of payment reduces after 45 weeks on benefits. The adjustment factors used have been derived from the experience data and are shown in Table 7.3. Note that these ratios are applied to the actual rates of payment for short-term recipients.

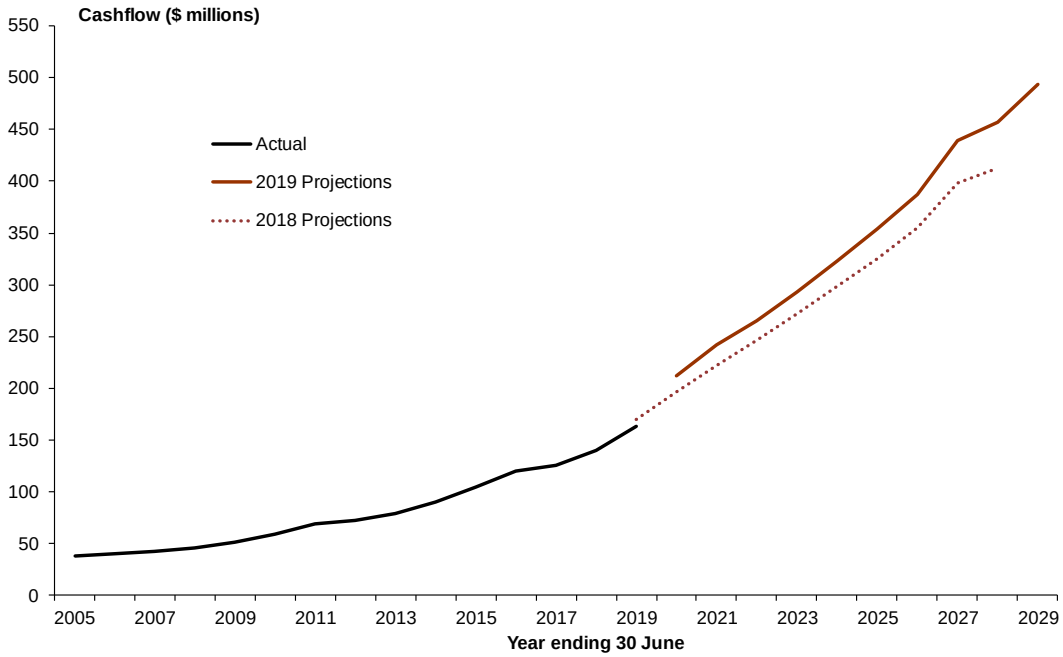
Table 7.3: Ratio between short-term and long-term fortnightly payments

Age group	DRCA	MRCA
Less than 35	0.75	0.55
35 to 49	0.60	0.55
50 or more	0.55	0.60

7.2.12 For projected future long-term recipients, these ratios are applied to the rates of payment set out in Table 6.1 for those who are expected to become long-term recipients.

7.2.13 In combination, these assumptions yield the following pattern of future cashflows. Note that the slight uptick in 2027 is the result of the 27 paydays in that year. The increase in cashflows from the last valuation is a result of higher numbers of expected long term recipients.

Figure 7.6: Historic and projected cashflows on long-term payments



7.3 Liability Estimate in respect of existing long-term claimants

7.3.1 Table 7.4 shows the incapacity payment liability estimate in respect of the existing long-term claimants broken down by year of accident. Note that we cannot definitively determine accident year for MRCA claimants and, where a claimant has multiple claims, we have used the average of all accident years recorded.

Table 7.4: Outstanding claims liability in respect of long-term claimants as at 30 June 2019

Year of Accident - year ending 30 June	Number of long-term claimants at 30/06/19	Liability ($'m)
1979 and before	97	8.0
1980 – 1984	114	25.9
1985 – 1989	175	53.7
1990 – 1994	285	101.8
1995 – 1999	441	173.2
2000 – 2004	614	260.8
2005 – 2009	928	461.4
2010	308	133.3
2011	387	181.3
2012	404	184.7
2013	368	142.1
2014	287	106.3
2015	213	70.8
2016	173	60.9
2017	105	28.6
2018	30	11.4
2019	0	0.0
Total	**4,929**	**2,004.3**
Expected at 30/06/2019		*1,919.8*
Total (30/06/2018)	**4,043**	**1,653.2**

7.3.2 Note that the definition of long-term claimant means that the liability estimate in Table 7.4 for accident year 2018-19 must be zero. The liability for those injured during 2018-19 and projected to become long-term claimants is included in the IBNR estimates below.

7.3.3 Based on the assumptions in the 2018 valuation, we were projecting 1,062 commencements of new long-term incapacity recipients. The actual number was higher at 1,130. Overall, the 2018 valuation would have projected the liability in respect of long-term incapacity claimants as at 30 June 2019 to be $1,919.8m (after allowance for the liability in relation to claimants commencing on incapacity benefits during 2017-18, which was included in the 2018 IBNR estimate). The liability at this valuation is $2,004.3m, which is $84.5m higher than projected and is primarily driven by higher than expected numbers of claimants.

7.4 Liability Estimate in respect of IBNR claimants

7.4.1 Table 7.5 shows the estimate of the liability for long-term IBNR claims broken down by year of accident. Again note that the allocation of liability to accident year should not be relied upon.

Table 7.5: Outstanding IBNR claims

Year of Accident - year ending 30 June	Number of claimants	Liability ($'m)
1979 and before	20	2.6
1980 – 1984	45	5.5
1985 – 1989	108	18.6
1990 – 1994	238	54.4
1995 – 1999	408	124.2
2000 – 2004	727	260.3
2005 – 2009	1,475	439.7
2010	449	134.5
2011	523	155.6
2012	599	179.9
2013	698	208.1
2014	819	241.7
2015	930	274.2
2016	1,073	310.1
2017	1,210	346.0
2018	1,317	371.1
2019	1,339	374.9
Total	**11,980**	**3,501.3**
Expected at 30/06/2019		*2,686.9*
Total (30/06/2018)	**8,876**	**2,580.3**

7.4.2 The liability as at 30 June 2019 is $3,501.3m. At the 2018 valuation, we were expecting a liability of $2,686.9m at 30 June 2019. This is an increase of $814m. The increase to IBNR has been driven by the increase in the number of claimants receiving incapacity payments and the continued low exit rates for long term recipients.

7.4.3 Overall, there has been an increase in the projected liability for incapacity payments. The increase was primarily driven by the higher number of incapacity claimants seen in 2018-19 which has increased the expected number of future claimants in addition to a flow-on effect to future long-term recipients.

8 Summary of Results for Incapacity Payments

8.1 Liability as at 30 June 2019

8.1.1 The following tables combine the results reported in the previous chapters to give a total liability for all incapacity payments. Table 8.1 provides a reconciliation, to the extent possible, between the liability estimate as at 30 June 2018 and the current estimate at 30 June 2019.

Table 8.1: Reconciliation of liability estimates for incapacity payments

	$m
Liability estimate at 30/06/18 (previous valuation)	**4,834.0**
Assumed interest	245.1
Projected payments	(269.7)
Notional premium	407.5
Projected liability as at 30 June 2019 (previous valuation basis)	5,216.9
Experience effects and assumption changes	
difference between actual and projected payments	(24.7)
change in experience	354.4
change in short term wage assumption	(289.2)
change in claimant projection	748.4
change in survival rates	169.1
change in exit rates	130.5
change in average size	(18.3)
change in other assumptions	20.8
Current estimate	**6,307.9**

8.1.2 The changes in model assumptions described in the previous two chapters have resulted in a substantial increase in the liability for incapacity payments. The increased numbers of projected short-term recipients and the consequent flow-on to future long-term recipients (the IBNR population) is the major contributor.

8.1.3 DVA has recently undertaken a major review of veterans' services with a focus on investments that might be expected to yield longer term savings. One area that received particular attention was incapacity payments and the very low rates of exit relative to other compensation schemes. The 2018-19 Budget included funding for the Veterans' Employment Program, which includes a number of elements designed to increase veterans' workforce participation, including rehabilitation and enhanced employment opportunities.

8.1.4 At present, these are small-scale initiatives that are unlikely to translate into experience that would alter our assumptions in the short term. Over the longer term, however, it is possible that changed processes might lead to lower numbers of veterans commencing on incapacity payments and higher exit rates from the payment once commenced. If this does occur, we could see a reduction in the liability.

8.1.5 Table 8.2 shows the disaggregation of the incapacity liability by type of payment and year of accident. It can be seen that the change for short-term and current long-term payments is relatively small but changes to the IBNR have grown by over 35%, in line with the increase in projected numbers of claimants.

Table 8.2: Outstanding claims liability for incapacity payments as at 30 June 2019 - by year of accident

Year of accident-year ending 30 June	Liability (inflated and discounted) $'m			
	Short-Term	Long-Term	IBNR	Total
1979 and before	1.5	8.0	2.6	12.0
1980 – 1984	3.6	25.9	5.5	34.9
1985 – 1989	9.2	53.7	18.6	81.5
1990 – 1994	20.0	101.8	54.4	176.3
1995 – 1999	34.2	173.2	124.2	331.6
2000 – 2004	60.0	260.8	260.3	581.1
2005 – 2009	97.4	461.4	439.7	998.5
2010	29.0	133.3	134.5	296.8
2011	33.4	181.3	155.6	370.2
2012	37.6	184.7	179.9	402.2
2013	43.4	142.1	208.1	393.6
2014	51.0	106.3	241.7	398.9
2015	58.7	70.8	274.2	403.7
2016	68.3	60.9	310.1	439.3
2017	78.2	28.6	346.0	452.8
2018	86.2	11.4	371.1	468.8
2019	90.8	0.0	374.9	465.7
Total	**802.4**	**2,004.3**	**3,501.3**	**6,307.9**
Total (30/06/2018)	**600.6**	**1,653.2**	**2,580.2**	**4,834.0**

8.1.6 Table 8.3 shows the breakdown of the liability estimate by Service Arm. Attribution to Service Arm was based on the relative percentages of incapacity payments made over the analysis period for each Service Arm. The IBNR was split in the same proportions as the existing long-term payments.

Table 8.3: Outstanding claims liability for incapacity payments as at 30 June 2019 - by service arm

SERVICE	Liability (inflated and discounted) $'m			
	Short-Term	Long-Term	IBNR	Total
Army	545.8	1,483.0	2,645.4	4,674.2
Navy	156.5	305.9	503.6	965.9
RAAF	100.1	215.4	352.3	667.8
Total	**802.4**	**2,004.3**	**3,501.3**	**6,307.9**

8.1.7 The proportion of the liability attributable to the different service arms are largely unchanged from the 2018 valuation, with the Army accounting for 75% and Navy and RAAF for 15% and 10% respectively.

8.2 Projected Cashflows

8.2.1 Cashflows have been projected for the following decade allowing for future injuries. Table 8.4 shows the projected cashflows in respect of injuries sustained before the valuation date under the DRCA, while Table 8.5 shows the cashflows in respect of injuries sustained before the valuation date under the MRCA. Table 8.6 shows the cashflows arising from injuries sustained after this date. Note that all figures are in nominal dollars, that is, they have not been discounted to 2019 dollars.

Table 8.4: Projected future incapacity payments for DRCA claims

Year ending 30 June	Payments (future dollars) $'m			
	Short-Term	Long-Term	IBNR	Total
2020	23.5	67.7	6.5	97.7
2021	16.3	64.0	14.6	94.9
2022	14.8	60.1	20.4	95.3
2023	13.5	57.9	25.1	96.5
2024	12.2	55.7	29.4	97.3
2025	11.2	53.5	32.9	97.5
2026	10.2	51.6	36.2	98.0
2027	9.4	51.4	40.6	101.4
2028	8.5	47.5	40.7	96.6
2029	7.5	45.5	42.0	95.0

Table 8.5: Projected future incapacity payments for MRCA claims incurred as at 30 June 2019

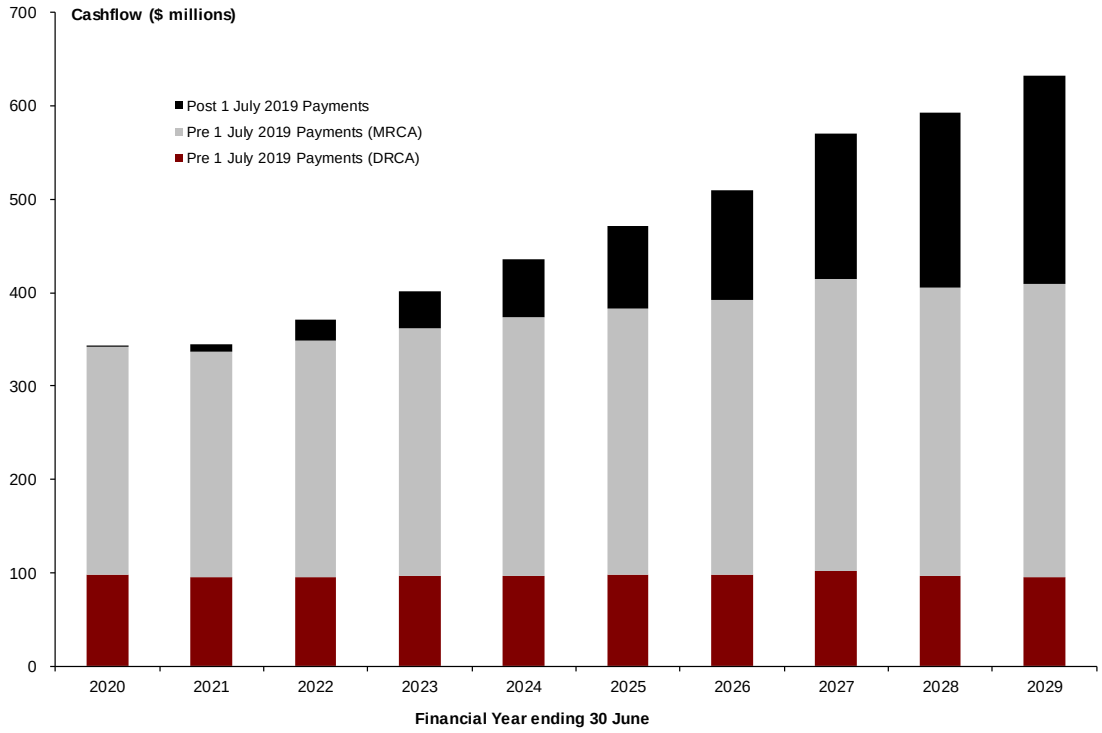
Year ending 30 June	Payments (future dollars) $'m			
	Short-Term	Long-Term	IBNR	Total
2020	105.7	113.9	24.3	243.9
2021	79.0	105.8	56.5	241.3
2022	72.6	99.9	80.8	253.4
2023	65.4	97.6	102.9	265.8
2024	58.4	95.6	122.8	276.8
2025	51.7	93.7	140.5	285.9
2026	45.4	92.6	155.9	294.0
2027	40.8	95.7	176.4	312.9
2028	36.6	91.3	180.5	308.4
2029	33.1	90.6	190.1	313.9

Table 8.6: Projected future incapacity payments for claims incurred after 30 June 2019

Year ending 30 June	Payments (future dollars) $'m			
	Short-Term	Long-Term	IBNR	Total
2020	1.8	0.0	0.0	1.8
2021	8.4	0.0	0.7	9.1
2022	18.7	0.0	3.6	22.3
2023	30.0	0.0	9.9	39.8
2024	42.0	0.0	19.7	61.7
2025	54.8	0.0	33.2	88.0
2026	67.4	0.0	50.8	118.1
2027	80.9	0.0	74.9	155.8
2028	91.2	0.0	96.9	188.1
2029	99.3	0.0	124.7	224.0

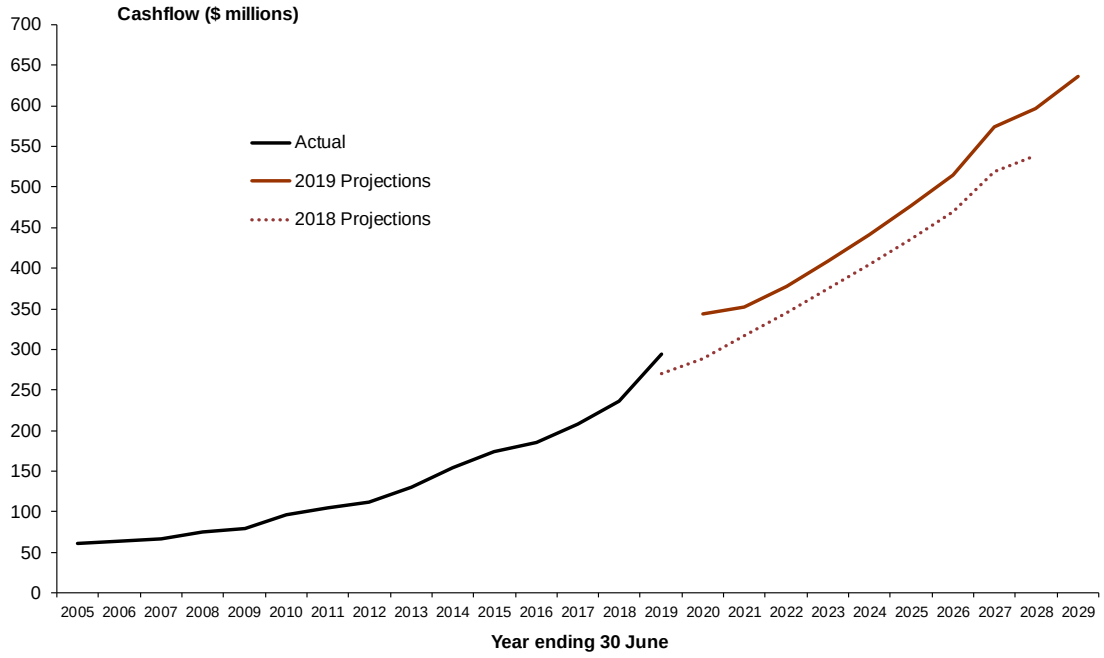
8.2.2 Figure 8.1 shows this information graphically. The long-term nature of the obligation to make incapacity payments is clearly evident, with payments in respect of claims incurred prior to the valuation date falling only very slowly over the projection period.

Figure 8.1: Projected incapacity payments



8.2.3 Finally, Figure 8.2 shows actual and projected cashflows for all incapacity payments. The projections from the previous year's valuation are included for comparison and illustrate the impact which the changes in assumptions have had on anticipated outlays.

Figure 8.2: Historic and projected cashflows on incapacity payments



9 Valuing Non-Incapacity Benefits – DRCA Permanent Impairment and Non-Economic Loss

9.1 Modelling Approach

9.1.1 Under DRCA, lump sum payments are made where a service person suffers a permanent impairment. In most cases, a further lump sum payment is made to compensate for non-economic loss. In the past, we have modelled these two payments separately. However, the strong correlation between the two payments has led us to simplify the approach and model the combined payment.

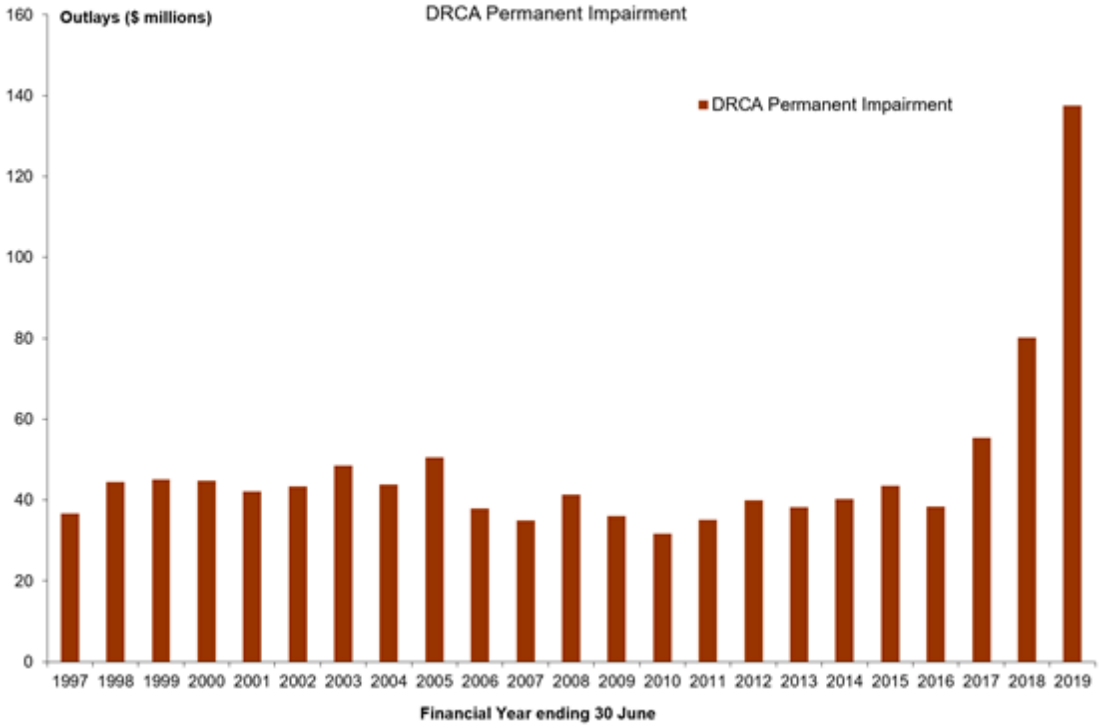
9.1.2 The modelling approach taken with DRCA payments was to look at the number of claims by development year per unit of exposure. Exposure is measured by the number of equivalent full time defence personnel, defined as the number of full time personnel plus 15% of the number of reserve personnel.

9.1.3 As in previous years, a statistical package was used to fit cubic splines to the raw data. In order to take account of the observed growth in claim frequency over recent years, we have also retained the allowance adopted last year for some on-going, but declining, growth over the next few years.

9.2 Recent Experience and Valuation Assumptions

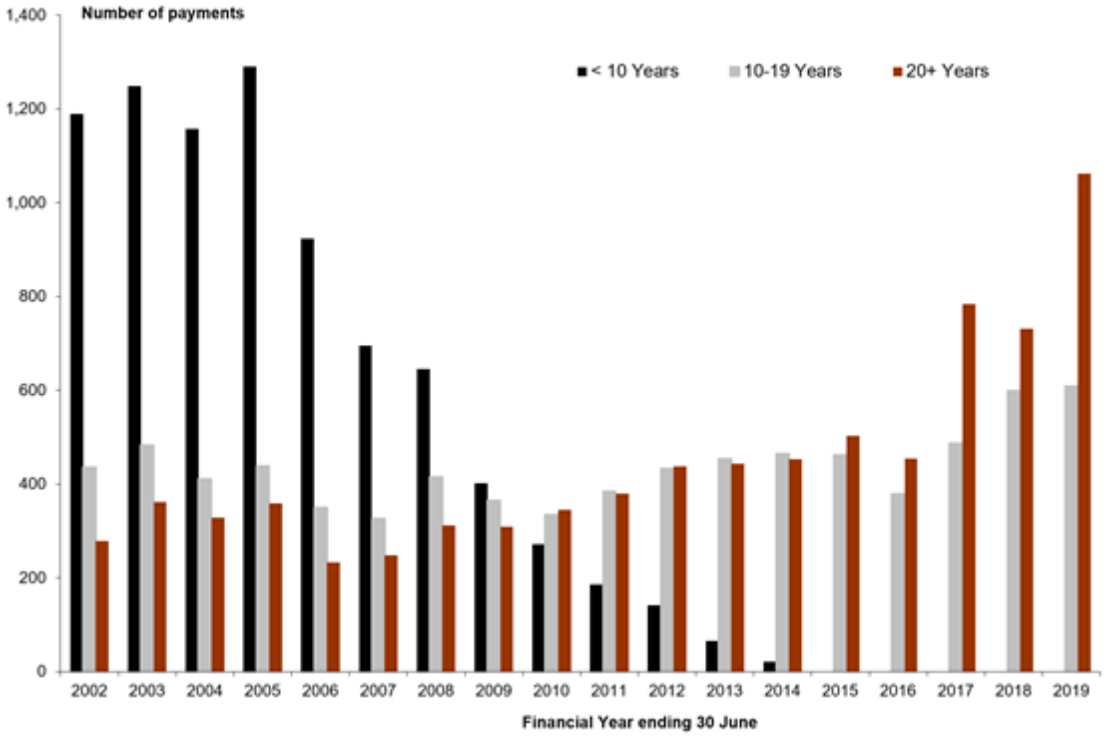
9.2.1 Figure 9.1 shows the expenditure on permanent impairment (including non-economic loss payments for DRCA) over the last two decades.

Figure 9.1: Expenditure on DRCA permanent impairment payments



9.2.2 It can be seen that despite the closure of DRCA for injuries occurring after 1 July 2004, DRCA outlays initially only declined slightly and, indeed, have been trending upwards since their minimum in 2009-10. Expenditure has significantly increased year on year since 2016-17, with the highest expenditure seen to date in 2018-19. The disaggregation of the claim numbers by the age of injury at the time of settlement in Figure 9.2 provides some evidence of what is driving this result.

Figure 9.2: Age of DRCA permanent impairment claims at time of payment



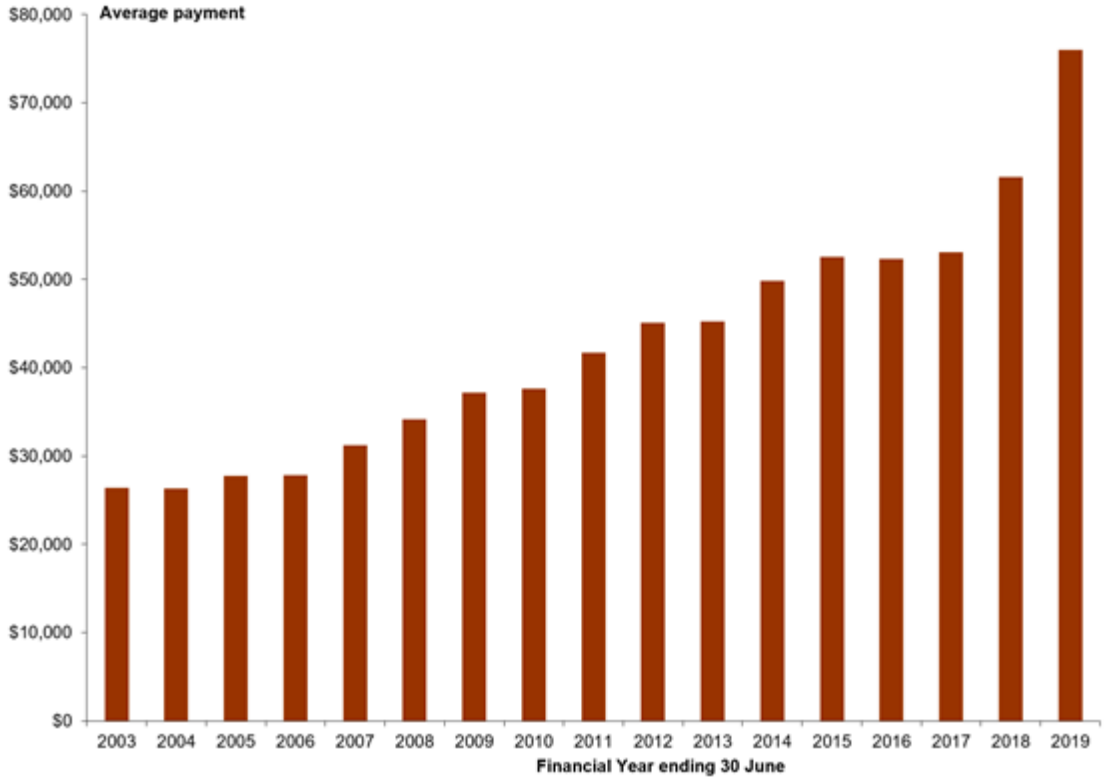
9.2.3 While the disappearance of short duration claims as a result of the time elapsed since closure of access to the scheme is clearly apparent, there has been an increase in long duration claims, particularly those made twenty or more years after the incident giving rise to the claim. For example, in each of the last six years the number of claims made after a lag of more than twenty years has been higher than at any time prior to 2011 with numbers in the most year particularly high. The number of claims with a lag of 10 to 20 years was declining, reflecting the fact that it is more than thirteen years since the closure of DRCA, however this trend has also appeared to reverse and there was an increase in 2016-17 which has continued into 2018-19.

9.2.4 Of particular note in Figure 9.2 is the strong increase in the number of claimants with durations of 20 years or more. The expected pattern of emergence is that this group would reach its peak after the 10 to 20 years duration group but the older cohort has now overtaken the number of claimants in the 10 to 20 years duration group. This suggests that there could be a higher proportion of older claimants from DRCA in recent years than anticipated.

9.2.5 Part of the explanation for the rise in long duration claims is likely to be the various Court decisions mentioned earlier which have effectively expanded access to permanent impairment payments. In this regard, it is important to note that, unlike MRCA, there is no limit on the total amount which can be paid to compensate for permanent impairment. Thus, there is a financial incentive to continue to make claims.

9.2.6 The impact of the increasing numbers of claims is magnified by the substantial increase in the size of payments made in respect of these claims, as shown in Figure 9.3.

Figure 9.3: Average size of DRCA permanent impairment payments

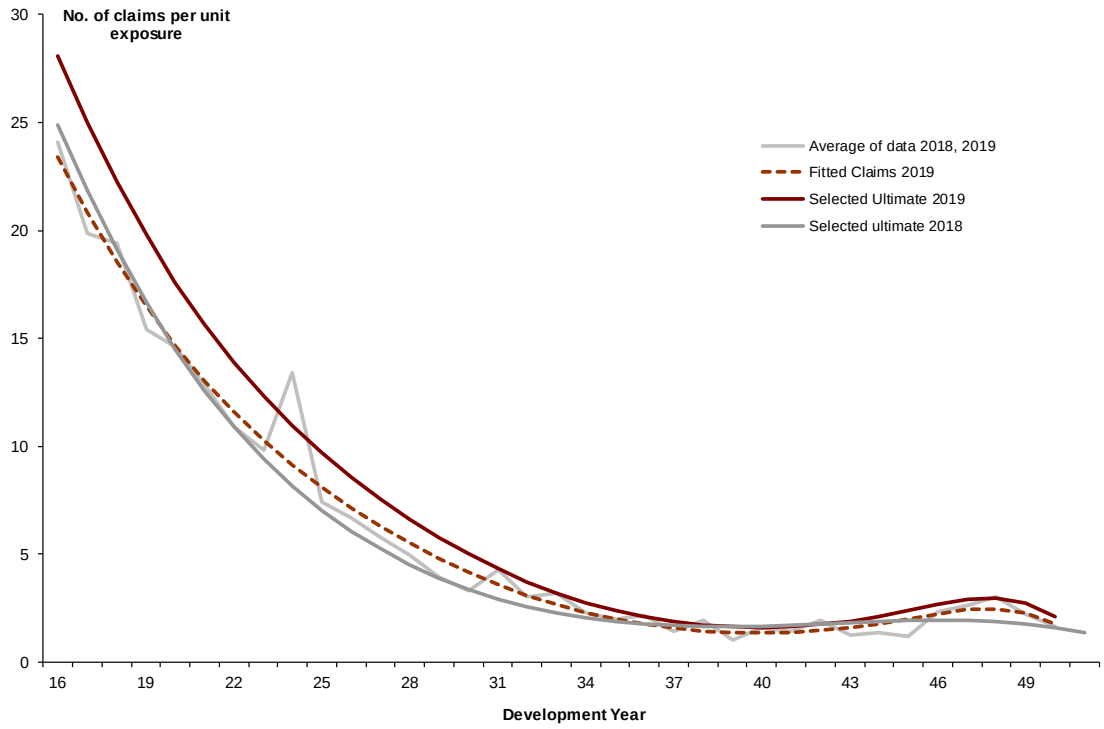


9.2.7 The average sizes of PI lump sums increased relatively slowly prior to closure of the scheme. However, since that time average payments trended strongly upwards, stabilising temporarily over the three years from 2015 to 2017. Since 2017, the average size has continued to increase year on year. Overall, the annual growth rate has averaged around 8% per annum since 2006. It might be expected that if claim numbers are growing more quickly that the growth in average payments might slow, since this might tend to suggest that claims are being received from those with a relatively less severe level of impairment. However, the recent growth in average payments suggests that the most recent claimants might also be presenting with higher severity injuries.

9.2.8 There continues to be an increase to the claims backlog as a result of sustained high levels of incoming lodged claims and some limitations to processing capacity within DVA. We have increased our ultimate number of expected claims by 20% from 2020-21 onwards to account for the existing backlog of unprocessed claims and the difference in the current rate of lodged and processed claims. Although there remains uncertainty as to the timing and quantum of when this growth might occur, should current rates of lodged claims continue, the level of paid claims must also grow in order to keep pace.

9.2.9 Figure 9.4 shows the raw figures on the number of permanent impairment claims per unit exposure, the fitted rates, the selected ultimate rates, and the fitted rates adopted for the 2018 valuation. We have set our assumptions for the current valuation in line with experience over the 2019 and 2018 calendar years, with greater credibility given to the most recent year.

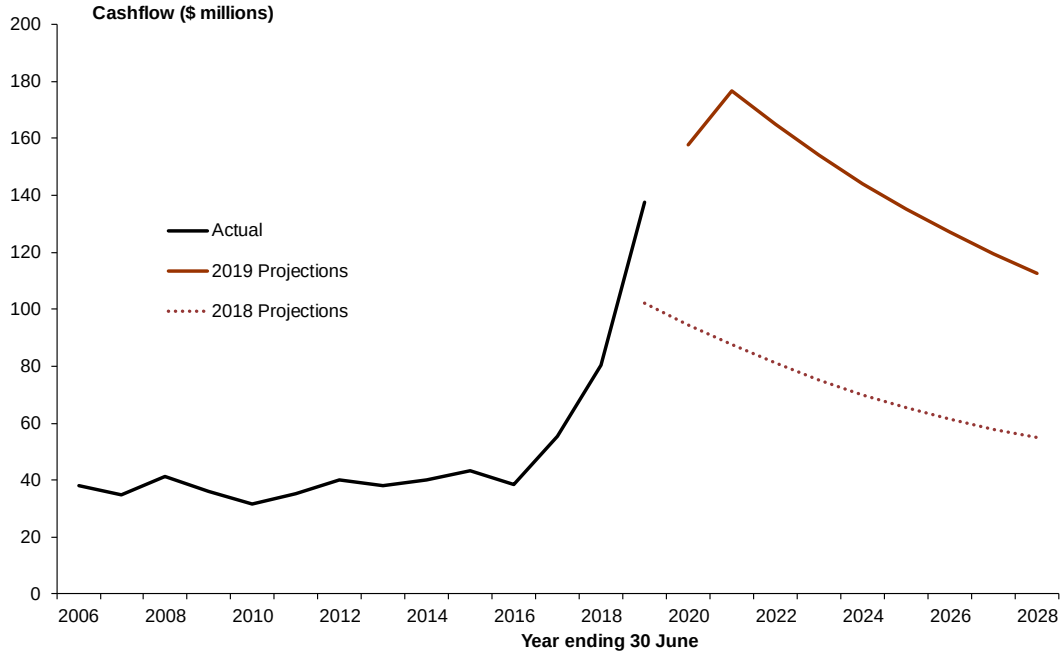
Figure 9.4: Number of claims per unit of exposure – DRCA permanent impairment claims



9.2.10 As in 2018, we have adopted a combined average claim amount which covers both permanent impairment and non-economic loss payments. For the current valuation, we have adopted a single rate of $80,000 per claim. This is a significant increase to the 2018 valuation assumption of $68,000. While, in theory, these payments are indexed in line with the CPI, in practice, the average payment has increased by more than double this index over the last 12 years. As such, we have retained the 2018 assumption that average claims will increase by 5% per annum in the long term.

9.2.11 Figure 9.5 shows the historical and projected cashflows for DRCA permanent impairment payments resulting from these assumptions. The surge in PI claims seen in 2018-19 has stabilised in the early experience for 2019-20, potentially as a result of processing capacity rather than a decline in claims experience. Aggregate payment data to the end of March 2019 ($110m) suggests the current projection is not unreasonable. The increase to cashflows in 2020-21 is the result of the increase in ultimate claims projected. There is great uncertainty as to the timing of these expected cashflows as a result of the increase in processing capacity. This is dependent on the required training time required as well as the availability of funding going forward. However, we have made this provision as the current level of claims processing appears to be unsustainable if current claims experience continues.

Figure 9.5: Historic and projected DRCA permanent impairment payments



9.3 Liability Estimate

9.3.1 Table 9.1 shows the outstanding liability at 30 June 2019 in respect of permanent impairment and non-economic loss claim payments broken down by year of accident. The total estimated liability for DRCA claims is $1,716.4m.

Table 9.1: Outstanding claims liability for permanent impairment and non-economic loss claims by year of accident

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
1979 and before	116.1
1980 – 1984	124.2
1985 – 1989	174.7
1990 – 1994	268.8

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
1995 – 1999	396.2
2000 – 2004	636.3
Total	**1,716.4**
Expected at 30/06/2019	*876.3*
Total (30/06/2018)	**934.3**

9.3.2 The 2018 valuation projected that the DRCA liability as at 30 June 2019 would be $876.3m. The current estimate is $1,716.4m. This is around $840m higher, reflecting an increase to both the claim rate assumption and the average claim size.

9.3.3 Table 9.2 reconciles the liability estimate with the corresponding estimate at the previous valuation.

Table 9.2: Reconciliation of liability for permanent impairment payments

	$m
Liability estimate at 30/06/18 (previous report)	**934.3**
Assumed Interest	44.2
Projected Payments	(102.2)
Notional Premium	0.0
Projected liability as at 30 June 2019 (previous valuation)	876.3
Experience effects and assumption changes	
difference between actual and projected payments	(34.1)
change in experience	395.3
change in claim rate	221.4
change in average size	257.5
Current Estimate	**1,716.4**

10 Valuing Non-Incapacity Benefits – MRCA Permanent Impairment

10.1 Modelling Approach

10.1.1 Under MRCA, the default entitlement in compensation for a permanent impairment is an income stream which can be converted to an age-related lump sum (reflecting the duration for which the income stream would have been expected to be paid). A small but significant number of MRCA PI payments are being taken as an income stream. We, therefore, model claimants and allow for a proportion of benefits to be paid as an income stream.

10.1.2 The amount of benefit payable depends upon a number of factors:

- the age of the claimant;
- the assessed impairment points;
- the lifestyle rating; and
- whether the incident giving rise to the impairment was related to warlike service or not.

10.1.3 Since 2013, we have been able to examine the distribution of claim severity. This is done separately for warlike/non-warlike claims and peacetime claims. For the current valuation, we have looked more closely at the distribution of impairment points. This showed clear evidence of consistent peaks in the distribution. The most obvious of these is at 5 impairment points, the minimum number of points required to receive a PI payment. A pronounced peak is also seen at 51 impairment points. Achieving an assessment of at least 50 impairment points brings with it a number of benefits; notably access to the Gold Card (which covers all health care costs, not just those related to the compensable injury), entitlement to the Special Rate Disability Pension and reimbursement of expenses for financial and legal advice to assist in making a choice between receiving PI compensation in the form of a lump sum or continuing periodic payments.

10.1.4 In setting assumptions regarding the severity distributions for the current valuation, we have had regard to these features in the data. We have examined the distribution of impairment points over time and have seen a shift in the proportion of claims at higher impairment point scores in recent years. As such, we have used the most recent 3 years of experience to set the severity distribution at this valuation.

10.1.5 There is continuing evidence that the MRCA PI experience is markedly different from the DRCA experience prior to closure. As in 2018, we have continued to give more credibility to the MRCA data in setting assumptions.

10.1.6 Setting an assumption regarding the mix of warlike and peacetime claims remains challenging in the absence of reliable data on accident year for PI claims. For the current year, we have used data from the case file for initial liability claims to come

up with an approximate mix of claims by accident year. This is intended to account for period-specific changes in operational tempo.

10.1.7 Increases in MRCA PI outlays since 2017 have been particularly marked, with payments approximately doubling year on year from 2016-17 to 2018-19. Growth from 2018-19 to 2019-20 has, so far, been less marked with aggregate figures suggesting full year outlays for the 2019-20 year could reach $800m compared to total expenditure of $742 in 2018-19. The recent high growth experience can be attributed to significant administrative and cultural changes within DVA which could have contributed to the shift in experience. There is considerable uncertainty in setting long term assumptions in such a volatile environment and the experience is extremely difficult to interpret. The slowing down of growth in the most recent aggregate data is more likely due to internal DVA processing limitations than an arresting of claims experience.

10.1.8 The administrative changes made within DVA have increased the accessibility of services and benefits to the veteran community and policy initiatives such as Veteran Centric Reform have encouraged veterans to claim early for DVA benefits and increased awareness of these benefits amongst existing ADF members and the veteran population. This may have a short term effect in bringing forward claimants who may otherwise have claimed for a benefit in later years and captured existing veterans who may have faced barriers to claiming in previous years. The exact impact of these changes will not be known for a number of years and there is currently not enough data to help determine what the magnitude or length of the impact could be.

10.1.9 A key uncertainty in determining the level of claims for PI is the level of exposure, that is, the total population of existing veterans and serving ADF personnel who may eventually make a claim. We currently have data relating to the number of active personnel in each year but this encompasses the entire active force. To allow for more nuanced analysis, information regarding the number of people injured and the type of injuries incurred would provide a more robust picture of the exposure as it would provide visibility on the upper limit of claimants likely to arise from a particular accident year.

10.1.10 Claims also arise from the existing population of veterans who may have separated from Defence a number of years ago and where injuries have deteriorated over time. Improved access to DVA services and greater awareness of benefits might be influencing the propensity of these veterans to make a claim and potentially claiming earlier than they otherwise would have. Information regarding discharges and the likely total veteran population may be useful in helping to narrow the exposure for claimants from the existing veteran population who might make a PI claim in future and provide an upper limit to the number of potential claimants likely to emerge over time from this cohort.

10.1.11 In the 2018 valuation, we utilised an approach where our claims rate and impairment distribution assumptions were based on weightings between the short term and long

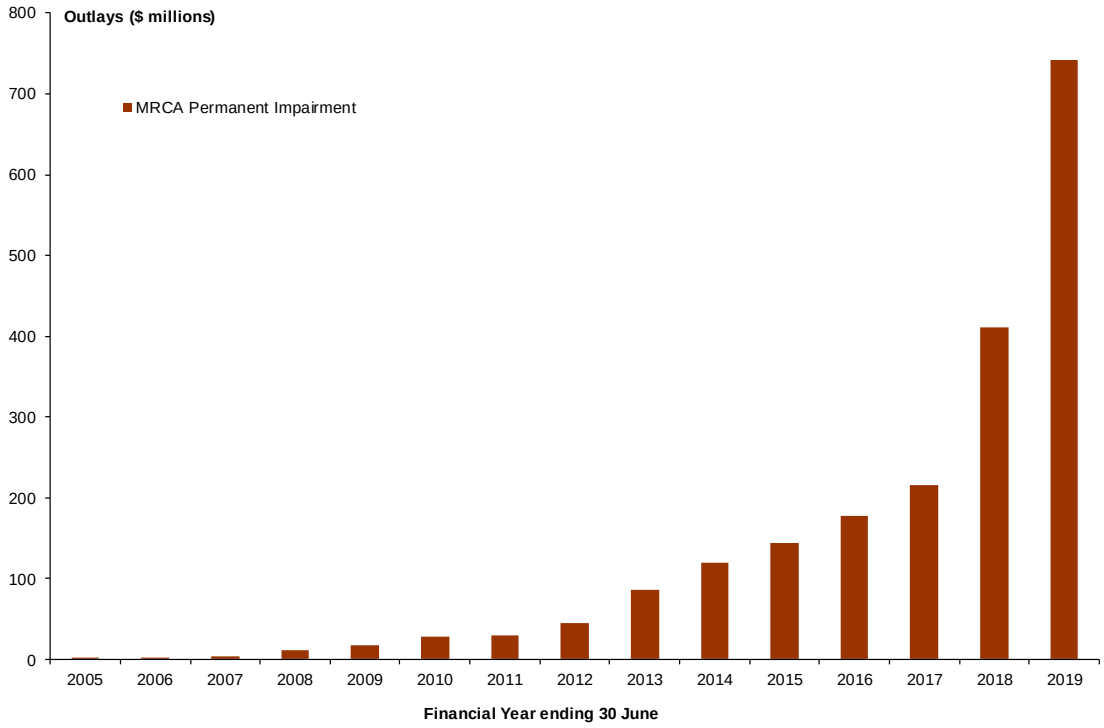
term experience. Specifically, a higher weighting was placed on the short term experience, which would gradually decay over 10 years and ultimately transition into the long term experience. This is to reflect a material difference in the then most recent 6 months of data to the historical experience. For the current valuation, the difference is less pronounced and as such, we have moved to using the most recent years of experience in setting the assumptions.

10.1.12 We have taken a similar approach in setting the assumptions for MRCA PI claims as we have for DRCA PI claims. To account for additional future growth, we have increased our projected level of ultimate accepted claims by 30%.

10.2 Recent Experience and Valuation Assumptions

10.2.1 Figure 10.1 shows expenditure on permanent impairment payments since the inception of MRCA. It can be seen that there were virtually no payments in the first two years of operation of the scheme and that even for the following five years, outlays increased only slowly. Over the past six years, however, payments have increased more than ninefold. Outlays for MRCA PI approximately doubled year on year from 2017 to 2019, driven by both an increase in the average size of claim payments and the number of claimants. The 6 month data for the first half of 2019-20 continued to exhibit some level of increase but not to the same magnitude as seen in previous years. This is more likely a result of limitations to DVA's processing capacity than a reflection of claims experience.

Figure 10.1: Expenditure on permanent impairment payments



10.2.2 The dramatic increases have been driven by both an increase in claimant numbers and an increase in the average payment amount. Figure 10.2 shows the number of claimants by the type of payment while Figure 10.3 shows the average lump sum payment for those electing to receive only a lump sum. .

Figure 10.2: Number of MRCA claimants by type of payment

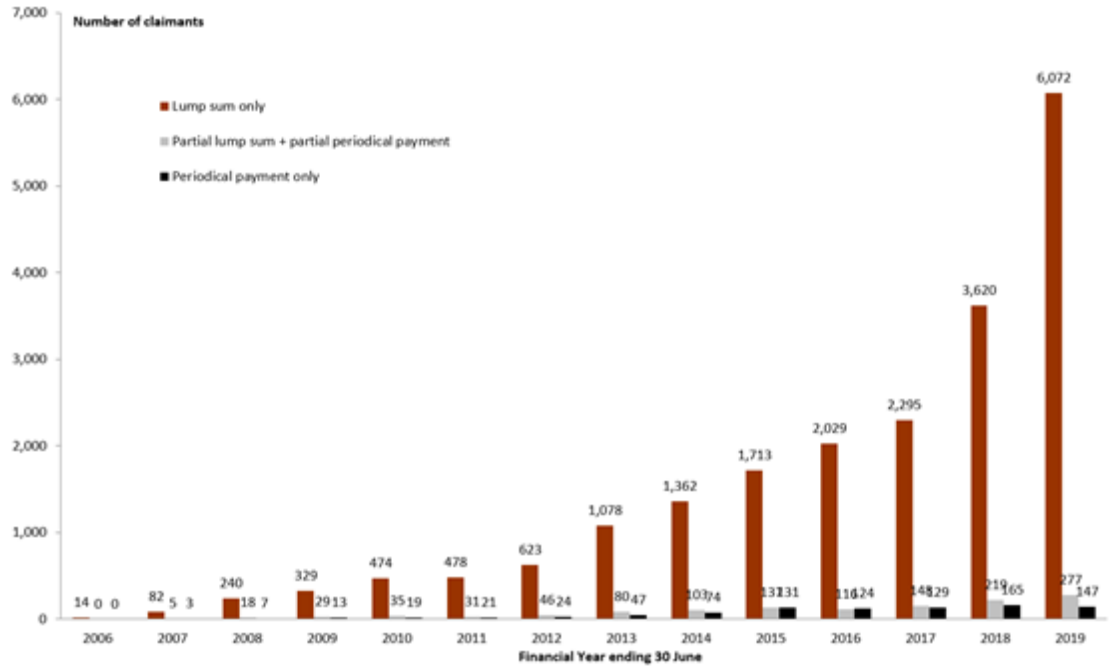
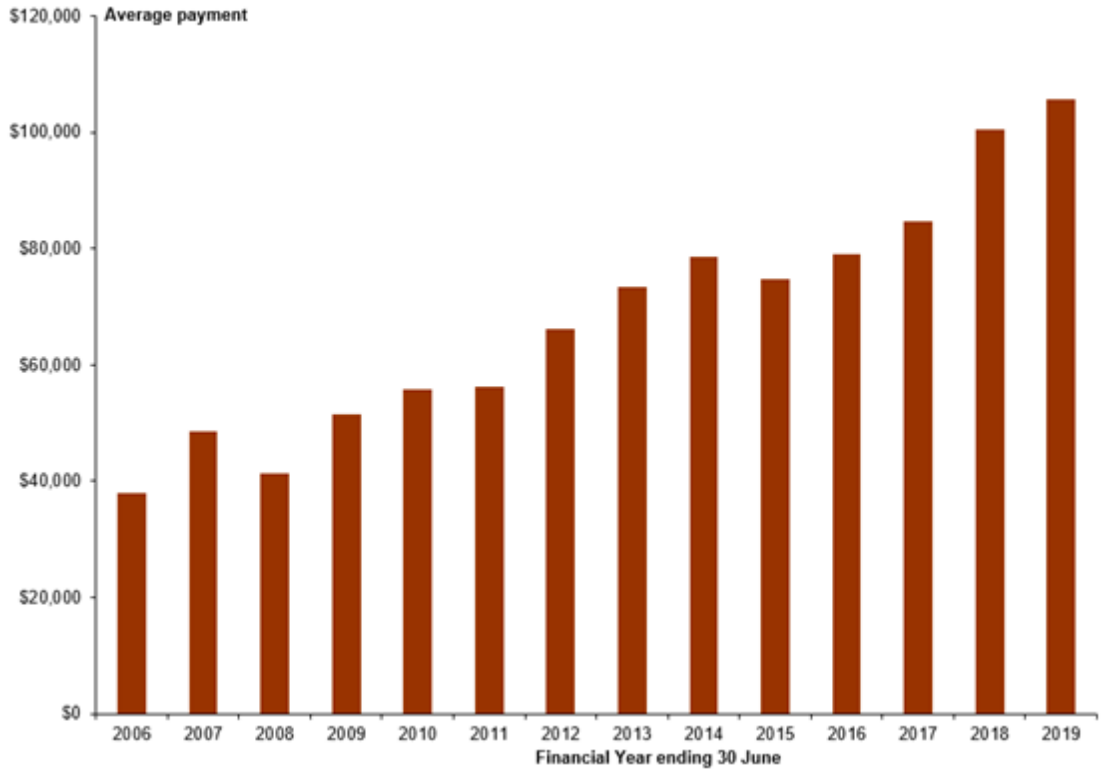


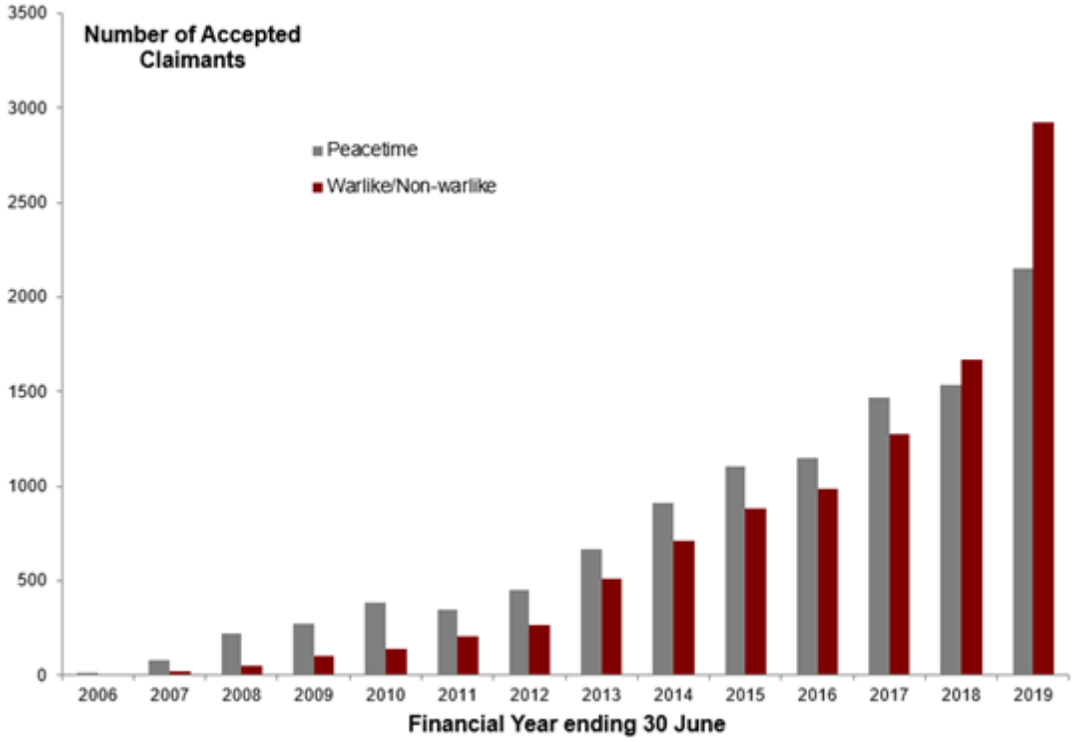
Figure 10.3: Average lump sum payment



10.2.1 The increase in the average amount over most of this period has been in part the result of a change in the mix of warlike and peacetime claims as shown in Figure 10.4. Note that in some cases it is not possible to unambiguously identify whether a claim

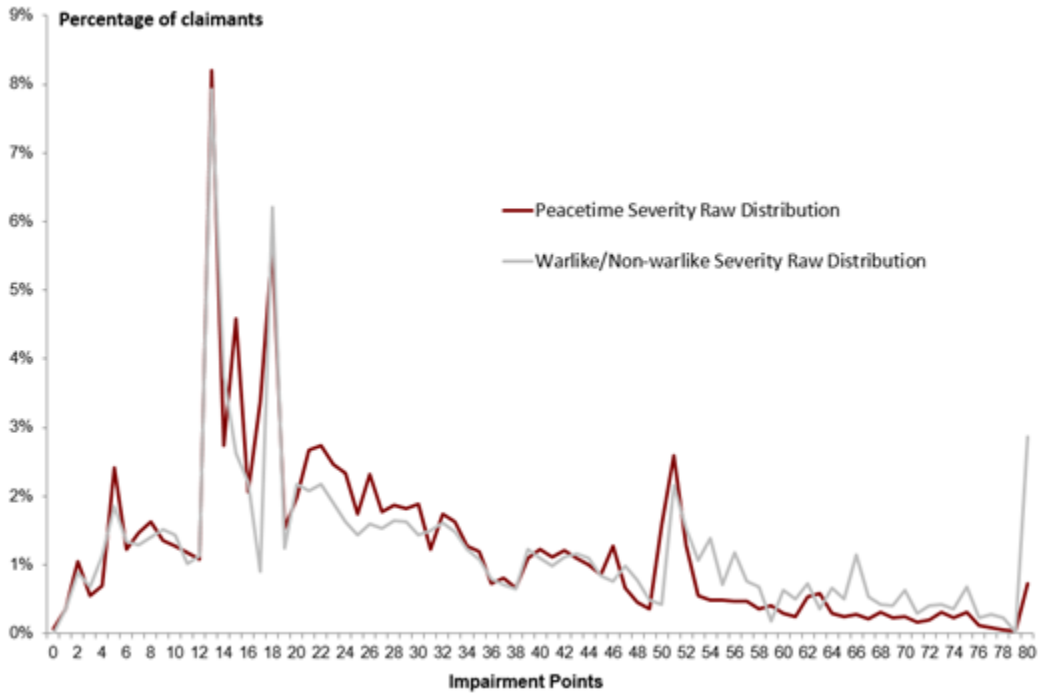
related to warlike or peacetime service. In these circumstances, we have assumed warlike service. While the number of both types of claims has grown substantially over the period since 2011, in recent years, the growth has been greater for claims associated with warlike service. Notably, 2017-18 was the first year where the number of claims with warlike service exceeded that of peacetime service. This has continued into 2018-19 where the proportion of claimants with warlike service was significantly higher than those with peacetime service only.

Figure 10.4: Number of recipients by nature of service



10.2.2 Claims arising from warlike service typically involve higher payments not just because the factors applying for a particular severity level are higher under the legislation, but also because the distribution of severity is quite different, as shown in Figure 10.5. It can be seen that the warlike service claims are more concentrated at the higher levels of severity. For example, over the last two calendar years 22% of warlike service claims have 50 or more impairment points, while only 14% of peacetime claims fall into this category. Conversely, 39% of warlike claims have fewer than 20 impairment points, compared with 43% of peacetime claims.

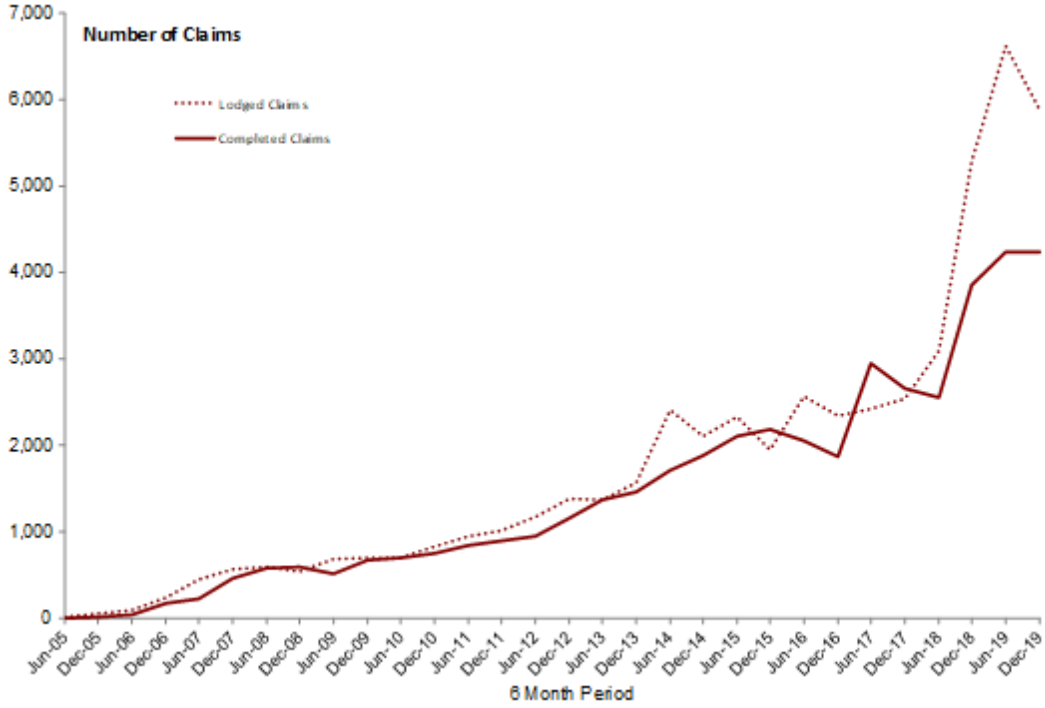
Figure 10.5: Comparison of claim severity distribution for warlike and peacetime claims – 2018-2019 raw data



10.2.3 The generally higher severity of claims relating to warlike service translates into higher average payments for these claims. In combination with the changing mix of claims, this has led to the average overall claim growing by 8% per annum on average since 2006. In 2017-18, the average lump sum claim increased to approximately $100,000, this has further increased, albeit at a much lower rate, in 2018-19 to $105,000.

10.2.4 In projecting future payments, we need to set assumptions on the numbers of claims, the mix of warlike and peacetime service related claims (with allowance for this to change over time), the severity distribution for each type of claim, the age distribution of claimants and the rate of future growth in payments. In setting assumptions for MRCA, we have historically based the claim rates for the early development years on the MRCA experience and blended this into rates derived from DRCA experience for the longer development years. We have continued to blend DRCA experience for development periods where none is available for MRCA. In the previous valuation, we developed a short term assumption for claim rates due to the stark difference in experience for the most recent 6 months compared to historical trends. At this valuation, we have returned to using previous experience in setting assumptions as experience over the recent two calendar years have not shown any distinct changes.

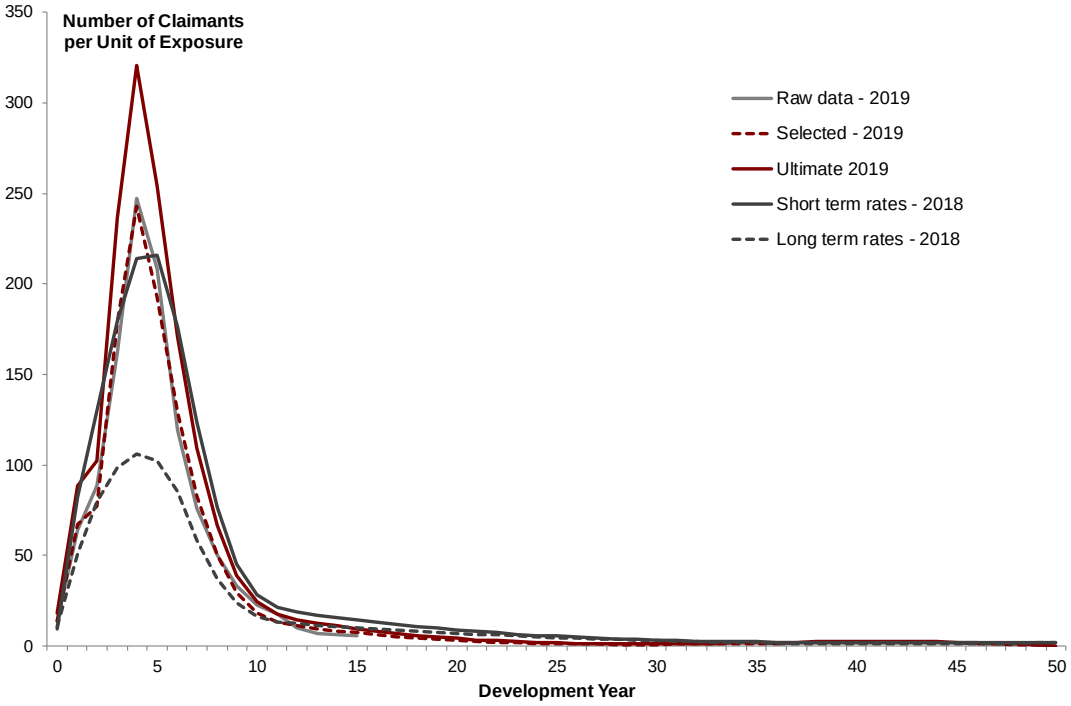
Figure 10.6: Lodged and completed claims



10.2.5 Although there is some decline in the number of claims lodged in the latest 6 months, it is clear from Figure 10.6 above that there remains a significant number of unprocessed MRCA PI claims in the backlog. The number of completed claims in recent periods have been, at least in part, restricted by the processing capacity within DVA and data from the latest 6 months does not suggest otherwise. Currently, there exists a considerable backlog of unprocessed claims for MRCA PI which continues to build over time and appears unsustainable should experience continue at this level in to the future. At this valuation, we have explicitly provisioned for some additional growth to the level of paid claims from current levels by increasing our ultimate claim assumption by 30% from 2020-21 onwards.

10.2.6 Figure 10.7 below shows the resulting assumptions over the full range of development years.

Figure 10.7: Assumed number of claimants per unit of exposure



10.2.7 The ultimate claims rate at this valuation is higher than both the short and long term claim rates adopted last year due to the additional 30% increase applied from 2020-21 onwards.

10.2.8 The heightened level of outlays in MRCA PI is primarily driven by a significant increase in the number of claimants over recent years. There are a number of factors which might be contributing to this including changes to DVA's administrative process, policy and cultural changes within the organisation, or an increase in the level of injuries sustained by claimants while at Defence. It is difficult to know at this stage what the true underlying causes of the increase are and whether or when they might stabilise or decrease. We will continue to monitor the emerging experience in MRCA PI in conjunction with discussions with DVA policy areas and review the assumptions at each future valuation.

10.2.9 As in the previous valuation, we have used the data available on the initial liability case file to determine the mix of warlike and peacetime claims by accident year. There are considerably more claims for initial liability than PI payments and so there is not necessarily a direct correspondence between the two measures. Nonetheless, the proportions derived from the initial liability file do not appear unreasonable when compared against the PI payment data.

10.2.10 For the current valuation, we have assumed that the proportion of warlike claims will continue to increase slightly before reaching a maximum in the 2020-21 accident year and then declining. This might appear inconsistent with the reduced deployment opportunities since 2013-14, but it needs to be remembered that for some psychological conditions, what is reported as the date of accident is in fact date of diagnosis and thus can be some time after the events which gave rise to the condition.

Furthermore, there are a range of on-going operations which have been determined to be warlike or non-warlike for the purposes of determining entitlements under MRCA. It is thus possible that the proportion could be sustained at a higher level for an extended period, if not indefinitely. The assumptions adopted at this valuation are higher for most accident years and reflects the continued higher proportion of wartime related injuries than we've seen in the past.

10.2.11 As discussed above, we have looked at the severity distributions for warlike and peacetime service by individual impairment point ratings. Over the last 10 years, there has been a shift in the distribution of impairment points for both warlike/non-warlike and peacetime claims which have contributed to the increase in average payment size. As in the previous valuation, we have used more recent experience to set the distributions of claim severity for both warlike/non-warlike and peacetime claims. This contrasts with the approach taken in previous years where the full MRCA experience was used in setting the claim severity distribution.

10.2.12 Figure 10.8 shows the raw and fitted rates for warlike service and Figure 10.9 shows the corresponding figures for peacetime service.

Figure 10.8: Distribution of claim severity for warlike/non-warlike claims

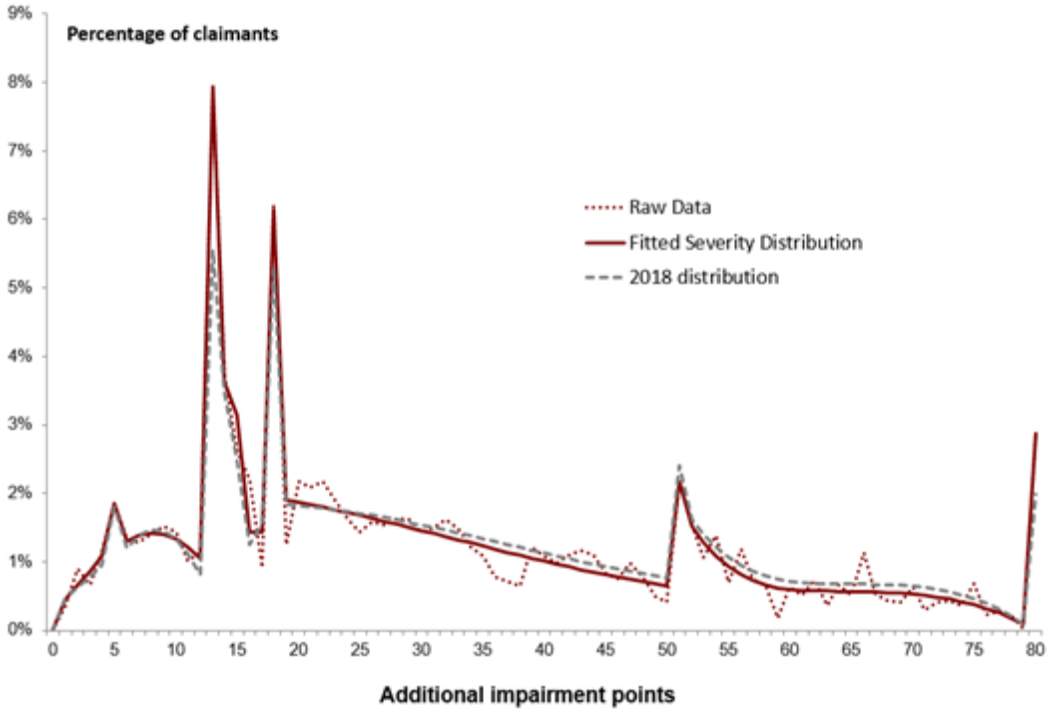
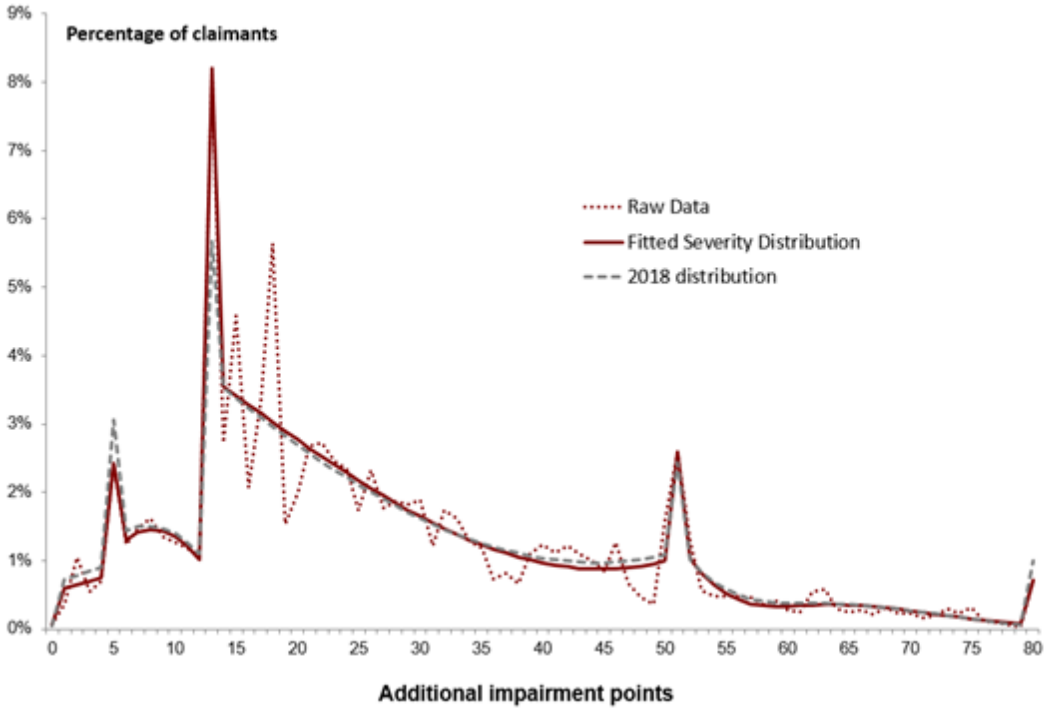


Figure 10.9: Distribution of claim severity for peacetime claims

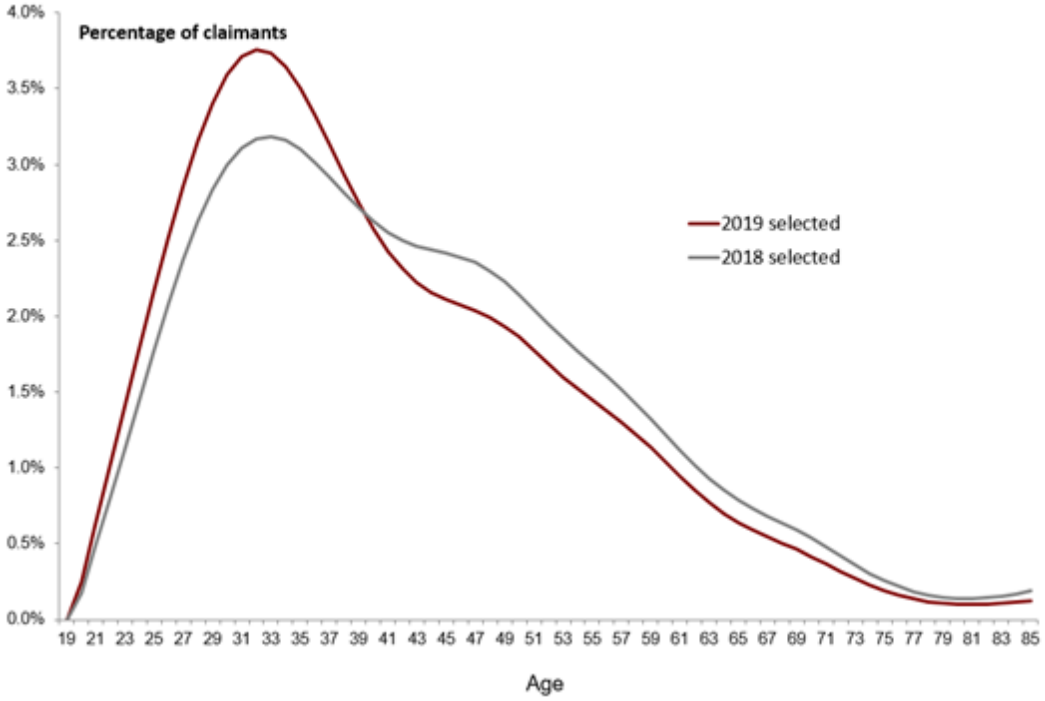


10.2.13 The claim severity distributions do not appear to depend upon age or gender or the number of claims received.

10.2.14 At present, MRCA claimants are significantly younger than their DRCA counterparts. Over time, it could be expected that there will be an increase in the proportion of older claimants and a corresponding decrease in the proportion of younger claimants. In order to model what this longer term profile might look like we looked at combined MRCA and DRCA experience. The age distribution derived from this combined experience was used as the long-term distribution to which MRCA would trend over the next 15 years.

10.2.15 At the 2016 valuation, we moved from using five year age bands to modelling a distribution based on individual years of age. We have continued to do so in the 2019 valuation and Figure 10.10 below shows the selected distribution in 2019.

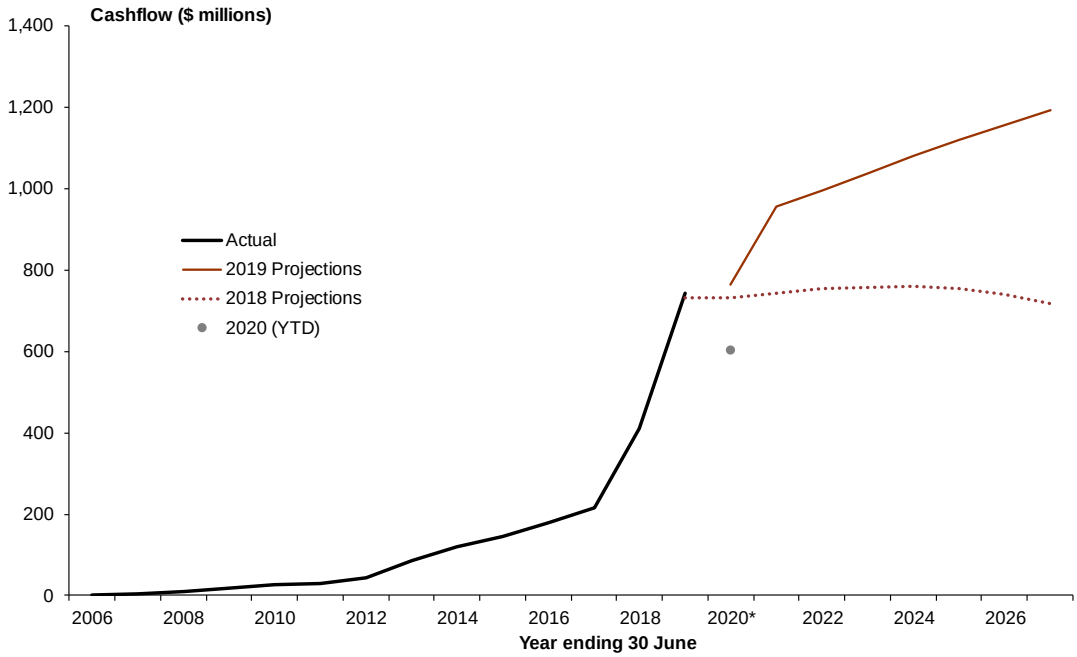
Figure 10.10: Ultimate age distribution of PI claimants



10.2.16 Under the MRCA, rates of payment for permanent impairment at a given level of impairment are indexed in line with the CPI. Given that the historical growth in average claim size has been driven by the mix of warlike/non-warlike and peacetime claims, which we explicitly allow for in our modelling process, and the relative stability in the severity distributions, we have assumed that the underlying payment rates to which the severity distributions will apply will increase by 2.5 per cent per annum, that is, the midpoint of the Reserve Bank of Australia target range for inflation. This is the same as the rate assumed in the 2018 valuation.

10.2.17 Figure 10.11 shows the historical and projected cashflows for MRCA permanent impairment payments generated by these assumptions. The assumptions of significantly higher underlying number of claims and higher average size are responsible for the increase in projected cashflows.

Figure 10.11: Historic and projected MRCA permanent impairment payments



10.2.18 The rate of growth experienced since 2016-17 is likely to slow in the 2019-20 year, in part due to processing limitations within DVA. We expect payments from 2020-21 to increase to account for the current backlog of claims and the persistent high levels of lodged claims in recent experience but it is important to note that there exists uncertainty around the timing of when this might occur. However, it is important to note that should experience continue at current levels, the current processing capacity will mean an increase to the backlog of claims year on year.

10.3 Liability Estimate

10.3.1 Table 10.1 shows the outstanding liability at 30 June 2019 in respect of permanent impairment claim payments broken down by year of accident. The total estimated liability for MRCA claims is $4,574.3m.

Table 10.1: Outstanding claims liability for permanent impairment claims by year of accident

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
2005	33.0
2006	37.3
2007	44.0
2008	52.9
2009	64.5
2010	80.4
2011	105.2
2012	140.2
2013	195.7
2014	290.2

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
2015	431.8
2016	619.4
2017	770.0
2018	830.0
2019	879.7
Total	**4,574.3**
Expected at 30/06/2019	3,989.3
Total (30/06/2018)	**3,905.5**

10.3.2 The 2018 review projected that the MRCA liability as at 30 June 2019 would be $3,989.3m. The current estimate is $4,574.3m, which is approximately $585m higher, and reflects changes to the claims rate and severity assumptions from the last valuation.

10.3.3 Table 10.2 reconciles the liability estimate for PI payments with the corresponding estimate at the previous valuation.

Table 10.2: Reconciliation of liability for permanent impairment payments

	$m
Liability estimate at 30/06/18 (previous report)	**3,905.5**
Assumed Interest	192.6
Projected Payments	(731.1)
Notional Premium	622.3
Projected liability as at 30 June 2019 (previous valuation)	3,989.3
Experience effects and assumption changes	
difference between actual and projected payments	3.0
change in experience	331.2
change in claims rate	(428.4)
growth in ultimate claims	1,047.5
change in impairment distribution	(368.1)
Current Estimate	**4,574.3**

11 Valuing Non-Incapacity Benefits – DRCA Medical Costs

11.1 Modelling Approach

11.1.1 Serving ADF personnel are entitled to medical treatment provided by ADF health services. Thus, DVA typically only becomes involved in providing medical services at the time an individual is discharged. An exception applies for reservists whose health care costs related to a compensable injury will be covered by DVA. For non-reservists, however, the existence of a medical expenditure transaction indicates that the individual concerned has been discharged. Given this feature, it is reasonable to conclude that all future costs in relation to medical services for non-reservists have been accrued at the time the first transaction arises.

11.1.2 For DRCA, by definition, all incidents giving rise to medical expenditure have already occurred. Accident dates after the closure of DRCA can occasionally be present in the data. This tends to occur where a specific date cannot be determined and instead the date of diagnosis is recorded. In reality, however, to be compensable the condition must have been caused by ADF service, which, in turn, must have occurred prior to 1 July 2004 for a DRCA claim.

11.1.3 There are a small number of claimants whose medical claims are several times larger than the average. These are claimants who have been severely injured and have had exceptionally large payments under the medical head of damage over an extended period. Payments to these claimants can amount to around 20 to 25 per cent of total expenditure for a year and significantly distort the pattern of payments by development year.

11.1.4 Accordingly, we have taken the approach of separately identifying these claimants and valuing them individually, assuming that their total annual payments grow by 4% per annum in nominal dollars and that they experience a mortality rate of 3% regardless of age. This latter assumption has been set on the basis of the small amount of experience we have which suggests that the injuries suffered by this group are such as to make normal age related mortality rates largely irrelevant. As a group, these claimants are referred to as ‘Big Medical’.

11.1.5 For the current review, we have identified 7 DRCA claimants with medical payments which have been substantially higher (payments greater than $100,000 per annum) than average over a period of at least 3 years and who therefore appear likely to continue receiving such high payments on an ongoing basis.

11.1.6 For the remaining medical payments under DRCA, we have retained the approach used in the last three years, which models the number of active claimants by accident year by applying a rate of attrition to the current number of active claimants.

11.1.7 This experience is now being perceptibly affected by the introduction of health care cards for DRCA claimants and the hierarchy which exists in relation to these cards. Specifically, where a client has been issued with a health card and has entitlements

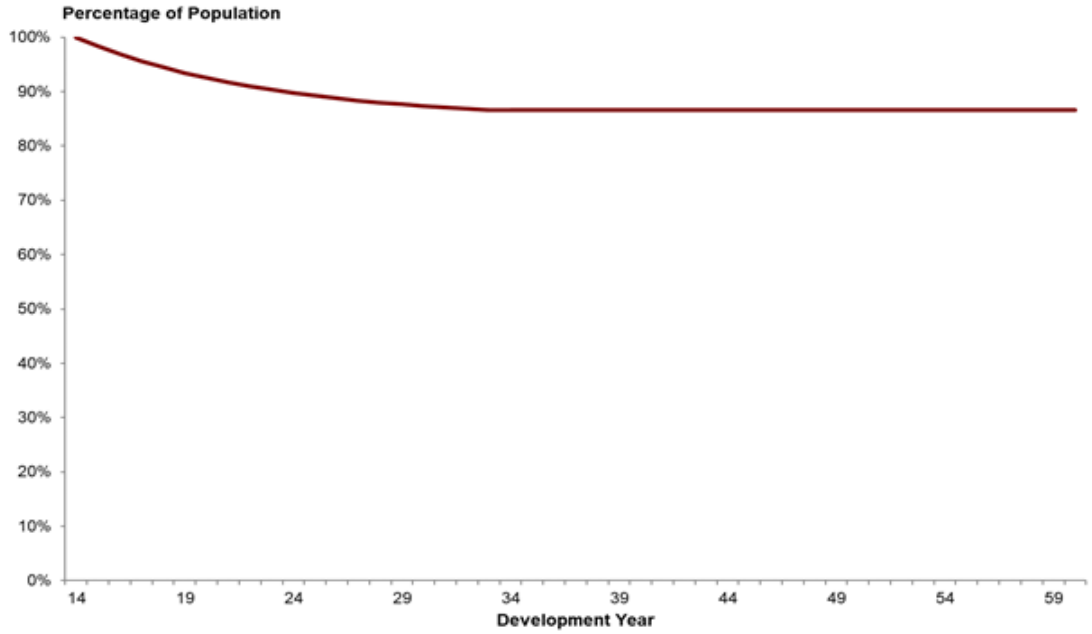
under both DRCA and MRCA, any medical expenditure will become a liability under MRCA and the individual will not appear as an active DRCA claimant. This has no effect on the earlier cohorts since they will have completed their service well before the transition to MRCA. For later cohorts, however, there are significant numbers of claimants with an entitlement under both schemes and the sharp drop-off observed for the more recent cohorts reflects the fact that such claimants will be classified as MRCA recipients.

11.1.8 We have not attempted to model this transition between schemes and this will lead to some outlays which we project as occurring under DRCA actually being made under MRCA. It is therefore important to consider the outcomes for this head of damage in aggregate across both schemes.

11.1.9 It is important to note that the entitlement for coverage of medical costs associated with a compensable condition continues for life. The virtually flat lines for the earliest accident years reflect this feature of the scheme. Accordingly, we have assumed there will be a relatively slow rate of reduction in numbers of active claims over the first thirty development years, with any subsequent attrition being the result of mortality. We explicitly allow for mortality by applying age based mortality rates to the active population aged 75 or more.

11.1.10 Figure 11.1 shows the assumed reduction in the number of active claims by development year (that is, excluding mortality). These factors and the relevant mortality rates are applied to the observed number of active claims in 2018-19 to estimate the active claim numbers for future years. The pattern of non-mortality attrition has been updated to incorporate more recent experience. Note that we exclude active claims with a reported year of accident after 30 June 2004 from this analysis and adjust the results to allow for the additional cashflows arising from this group.

Figure 11.1: Assumed decay rates for active DRCA medical claims

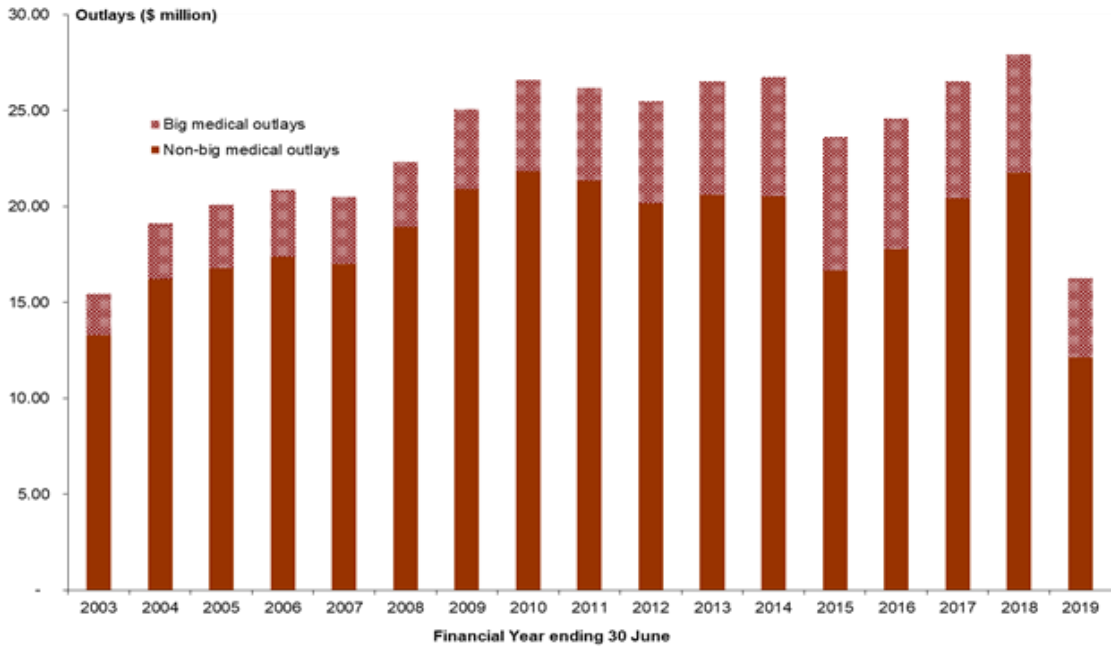


11.1.11 Future cashflows are then calculated by multiplying the resulting projections of active claims by an average payment per active claim. We allow for both the average number of transactions per active claimant and average cost per transaction to vary with age. Further details on the assumptions adopted are provided in the following section.

11.2 Recent Experience and Valuation Assumptions

11.2.1 Figure 11.2 shows the annual expenditure on DRCA medical payments over recent years. It can be seen that, after a period of growth, annual expenditure stabilised at around $26m in 2010. This stability in experience was disrupted by the introduction of health care cards for DRCA claimants in 2013 and the associated transition of medical expenses to MRCA for those with claims under both Acts. The result was a decline in DRCA outlays in 2015 which has since been reversed. Outlays were at their highest point of $28m in 2017-18 but have since declined to $16m in the latest financial year.

Figure 11.2: Expenditure on DRCA medical payments by type of claim



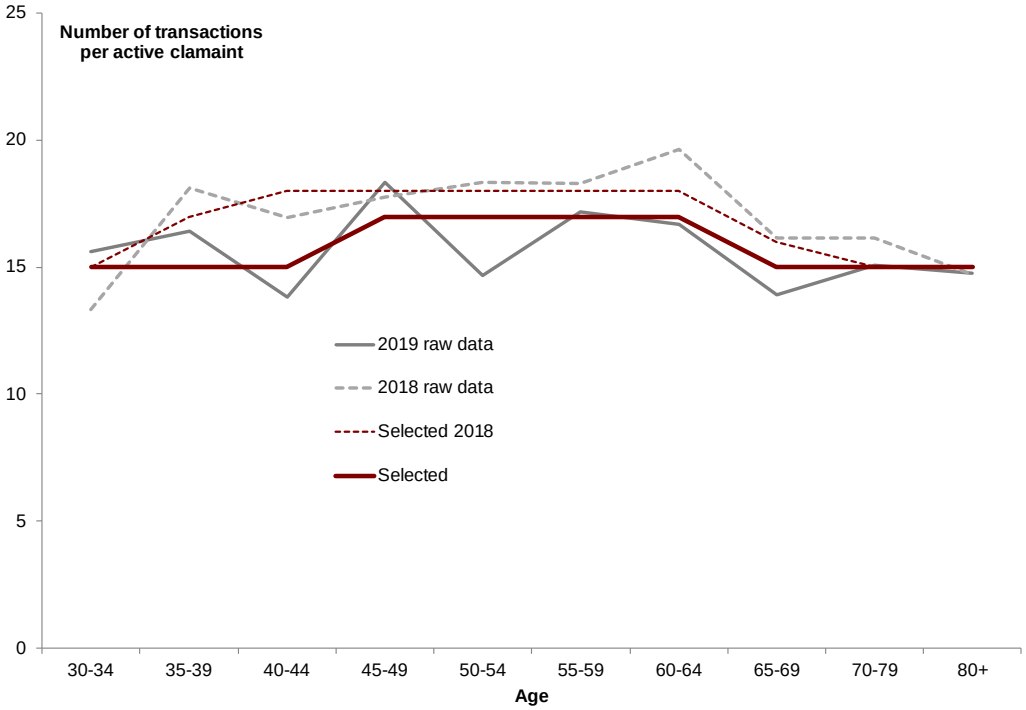
11.2.2 Table 11.1 shows the annual payment amount in each of the last three calendar years for the 7 large DRCA claimants who have been modelled separately together with the assumed annual payment amount adopted for valuation purposes. Note that actual payments are in nominal dollars.

Table 11.1: Summary of large DRCA medical claims – experience and assumptions

Claimant	Payments in 2016/17	Payments in 2017/18	Payments in 2018/19	Assumed Future Payments (p.a.)
1	394,915	399,133	438,045	410,000
2	539,412	628,155	307,571	490,000
3	410,091	741,374	238,567	460,000
4	1,836,790	1,524,774	594,260	1,300,000
5	50,661	123,443	130,362	100,000
6	546,380	621,059	275,484	480,000
7	438,927	528,322	314,744	430,000

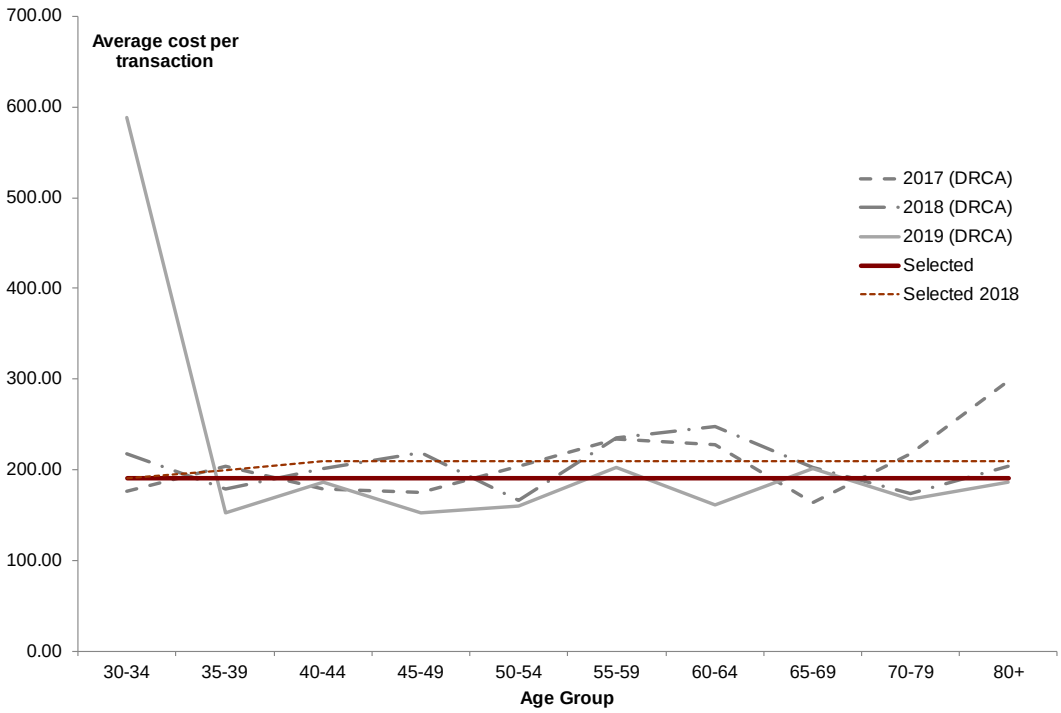
11.2.3 Figure 11.3 shows the usage rates over the last two calendar years and the selected assumption, together with the assumption adopted in 2018. We have increased the usage rates slightly compared to last year for older age groups. Overall, the usage rate assumption is lower than that in 2018, and reflects the most recent experience.

Figure 11.3: Usage rates by age



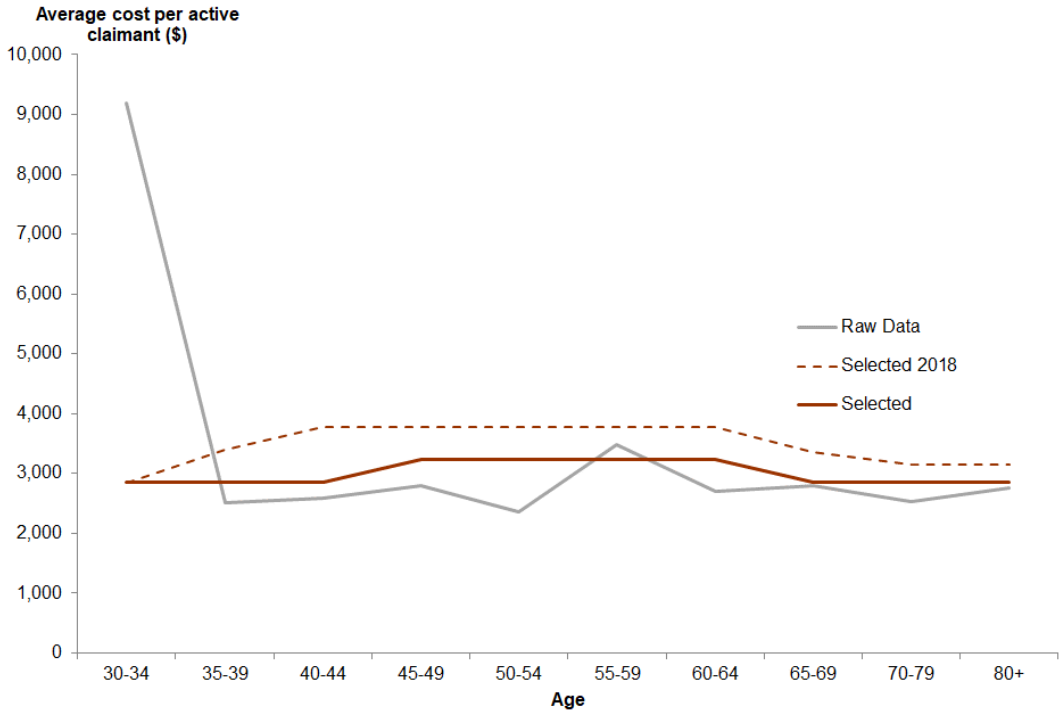
11.2.4 Costs per service rise with age over the youngest age groups but then appear to be flat from about age 30 onwards. Figure 11.4 shows the experience over the last three years together with the assumptions adopted for the current valuation and those adopted last year. We have again lowered the assumption compared to 2018 to reflect the most recent experience. Note that where there may be multiple transactions in a day, we treat them as a single transaction.

Figure 11.4: Cost per transaction by age



11.2.5 The resulting costs per active claimant are shown in Figure 11.5 together with the DRCA card data in respect of 2019 and the assumptions adopted in 2018.

Figure 11.5: Average annual costs per active claimant by age



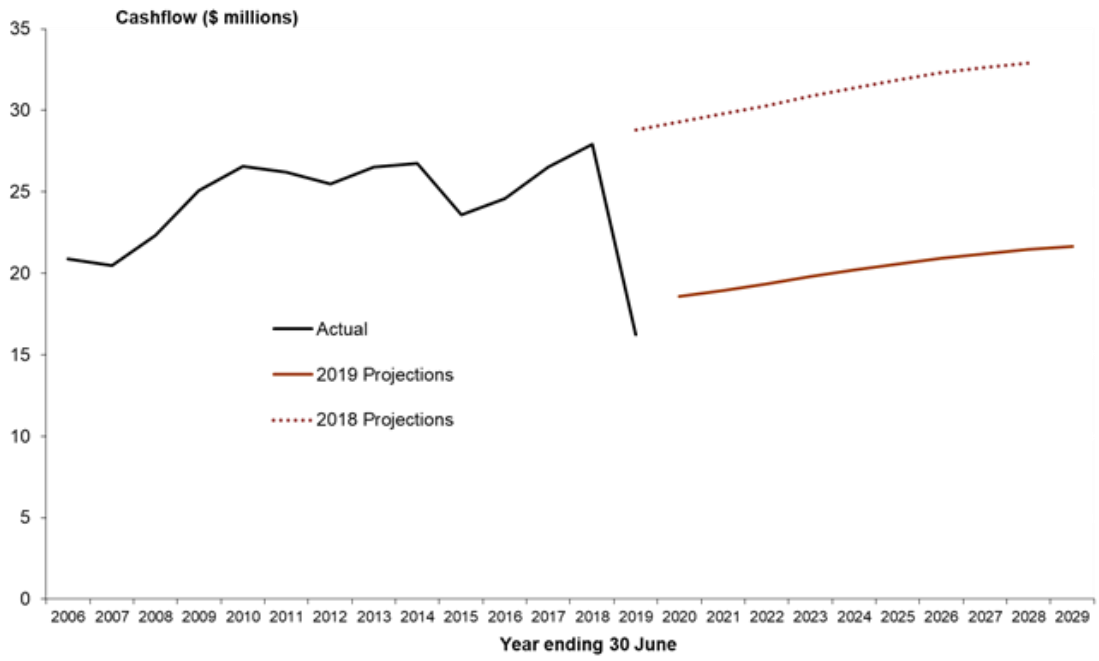
11.2.6 As in 2018, we have assumed that the average cost per transaction will increase by 4% per annum in future. This is somewhat higher than the inflation seen over the past few years but I regard it as a reasonable assumption going forward given that costs should be driven in large part by wages.

11.2.7 For big medical claims, the average assumed cost per claim decreased from $616,939 to $589,651, which is below our inflation assumption. However, this reflected a change in the composition of the big medical population and a tendency for the larger claimants to have lower payments for 2019, thus skewing the average. As can be seen from Table 11.1, these averages mask considerable volatility in the outcomes for individual claimants.

11.2.8 As noted above, the decay rates derived from the experience of different accident year cohorts were applied to the current population in order to project future active claims.

11.2.9 Figure 11.6 shows the historical and projected cashflows for DRCA medical claims including the big medical claimants. The decrease reflects the reduced number of big medical claimants and reductions in the number of claimants and average cost of benefits.

Figure 11.6: Historic and projected DRCA medical payments



11.3 Liability Estimate

11.3.1 Table 11.2 shows the estimate of the liability to meet medical costs broken down by year of accident. As noted above, we have treated the claims shown with an accident

date of after 2004 as having accrued before that date and pro-rated up the observed claims with an accident date prior to closure of the scheme.

Table 11.2: Outstanding claims liability for medical costs by year of accident

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
1979 and before	30.4
1980 – 1984	16.9
1985 – 1989	39.1
1990 – 1994	96.2
1995 – 1999	105.2
2000 – 2004	84.0
Total	**371.7**
Expected at 30/06/2019	*570.9*
Total (30/06/2018)	**571.8**

11.3.2 The projected liability as at 30 June 2019 in the 2018 valuation for DRCA medical claims is $570.9m. The liability at the 2019 valuation is $371.7m, which is approximately $200m lower than expected, reflecting the sharp decrease in projected cashflows seen in Figure 11.7. The difference between these two figures is reconciled in Table 11.3.

Table 11.3: Reconciliation of liability for DRCA Medical cost

	$m
Liability estimate at 30/06/18 (previous report)	**571.8**
Assumed Interest	27.9
Projected Payments	(28.8)
Notional Premium	0.0
Projected liability as at 30 June 2019 (previous valuation)	570.9
Experience effects and assumption changes	
difference between actual and projected payments	12.5
change in experience	(176.5)
change in cost usage	(51.6)
change in decay rate	16.3
Current Estimate	**371.7**

12 Valuing Non-Incapacity Benefits – MRCA Medical Costs

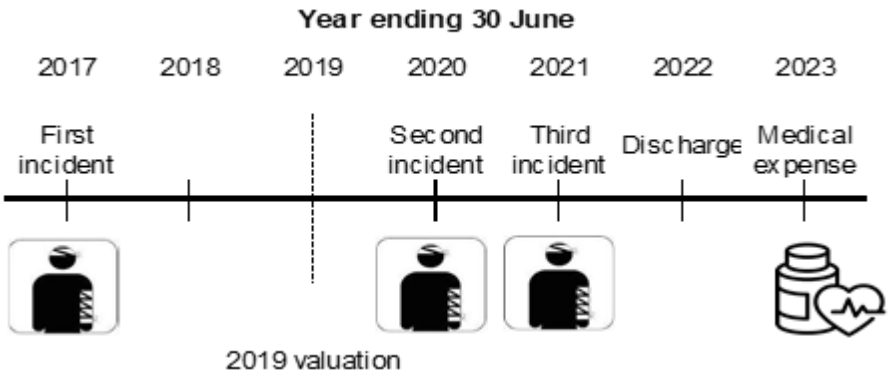
12.1 Modelling Approach

12.1.1 We have retained the same approach to modelling MRCA medical costs as at the 2018 valuation. As with the previous year, we have used the first year of accident for determining development year. However, most MRCA claimants have multiple claims spanning a range of accident years. Furthermore, expenditure is incurred through the use of health care cards and the data does not record the particular condition to which a service was related. For those with gold cards, all medical expenditure is covered, not just that related to compensable conditions. This means there is considerable ambiguity about the proportion of expenditure that should be treated as part of the liability at the valuation date.

12.1.2 As with DRCA, we have used the existence of ADF health to conclude that those who have incurred expenditure will have been discharged from the ADF. Thus any future projected expenditure for claimants who have had any medical transactions in the past can be treated as fully accrued, regardless of what date of accident might be recorded on future claims. That is, all future expenditure arising from these claimants forms part of the liability as at 30 June 2019. This is not necessarily true for reservists, but the assumptions we have adopted are intended to allow for this.

12.1.3 There is a further population of potential claimants who have already suffered an incident that could be expected to lead to future MCS medical expenditure, but have not incurred any such expenditure to date. It is possible that these people have been discharged from service. However, it is also possible that they are still serving members of the ADF. For this latter group, future expenditure may relate to incidents that occurred before the valuation date but there is the potential for expenditure to arise from future incidents that occur after the valuation date. Figure 12.1 illustrates a hypothetical scenario of this type.

Figure 12.1: Illustrative claim scenario



12.1.4 In this example, one of the three incidents which will give rise to future medical expenditure has occurred before the valuation date, but the other two are later. Conceptually, only that portion of expenditure that relates to the first incident should be treated as a liability for the current valuation. In estimating the liability, therefore, we need to treat the population that have not yet given rise to medical expenditure differently from those who have already incurred expenditure.

12.1.5 For those who have had medical expenditure in the past (and, hence, can be assumed to have been discharged from the ADF), we have used transition probabilities to simulate whether or not they will incur expenditure in future years. We allow for mortality to gradually reduce this population over time.

12.1.6 For the population who have not incurred medical expenditure (and whose ADF status is therefore unknown), we have used claim rates based on development year from data of earliest claim to project the number of claimants we might expect to see in future who have an earliest accident year prior to the valuation date. A proportion of these future claimants will have only one claim. For this subset, all future expenditure forms part of the liability.

12.1.7 Based on experience to date, however, we would expect most future claimants to have multiple claims. This is particularly the case for those with a long period between the earliest incident and first medical expenditure. To determine the proportion of future expenditure that should be treated as accrued at the valuation date and included in the liability, we have used information on the historical distribution of claims conditional upon the period of time between the earliest accident year and the year in which expenditure is first incurred. In the scenario illustrated in Figure 12.1 above, one of the three incidents occurs prior to the valuation date and, hence, we would treat one third of the expenditure as having accrued as at 2019, while the remaining expenditure for this individual would form part of the notional premium for future years.

12.1.8 Once we have a projected population and an accrued proportion, we apply assumptions on usage and average cost per transaction to estimate the future cashflows that should be included in the liability.

12.1.9 Note that, as in 2018, we have not included those receiving only pharmaceutical benefits in the claimant population, but instead applied a 10% loading to projected non-pharmaceutical cashflows in line with the historical relationship between the two components of expenditure.

12.1.10 Note also that we have not made any explicit allowance for the provisions in MRCA that entitle all veterans who have rendered warlike service on or after 1 July 2004 to a gold card at age 70. Given the current information available, this is impossible to model since we would need to know the potentially eligible population and the proportion who would not already have a health care card prior to reaching age 70. Costs for this group might also be expected to be somewhat lower, since by definition they would not be existing MRCA claimants. The first of this group might be expected

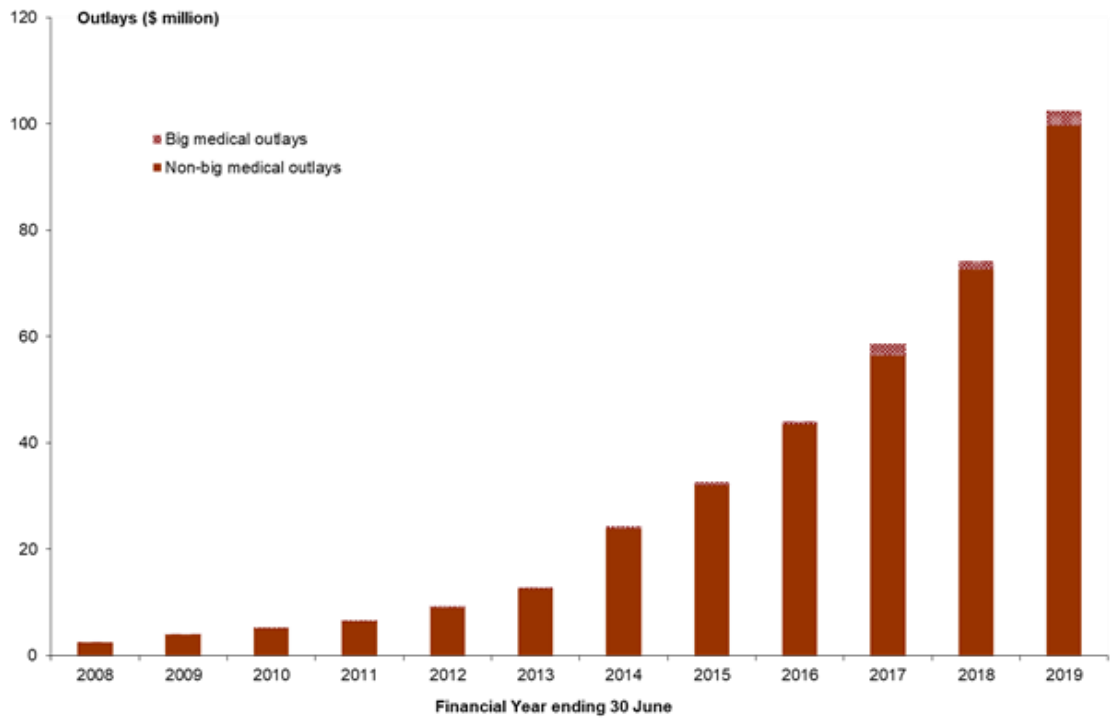
to qualify in around ten years, but significant numbers are unlikely for another thirty years or so. This is a practical example of how access to improved information on the veteran population could improve the estimate of the projected cashflows.

12.2 Recent Experience and Valuation Assumptions

12.2.1 As for the 2018 valuation, we received unit record data beyond the valuation date to 31 December 2019 for the 2019 valuation. This allowed us to analyse experience based on calendar years to 31 December 2019 and to set assumptions based on this more contemporaneous data.

12.2.2 Figure 12.2 shows MRCA expenditure with the outlays on big claimants separately identified. Outlays grew very slowly over the early years of operation of the scheme, but, as with PI, have increased very rapidly over the last few years with an increase of 38% in the latest financial year. Note that the unit record data for medical expenditure in 2012-13 is incomplete as records could not be provided in relation to spending on pharmaceutical benefits. We have included an allowance of $1.2m in the following chart based on advice from DVA. This addition has been shown as non-big expenditure; in practice, it is likely that some of this expenditure relates to the 'big' claimants.

Figure 12.2: Expenditure on MRCA medical by type of claimant



12.2.3 Table 12.1 shows the thirteen big medical claims that have been modelled separately. As for DRCA, these claims have been modelled on an annuity basis. An allowance has also been made for future big medical claims to emerge. Given the generally

higher levels of medical usage from more recent accident years, we would expect big medical claims to account for a somewhat lower proportion of the total expenditure than has been the case under DRCA.

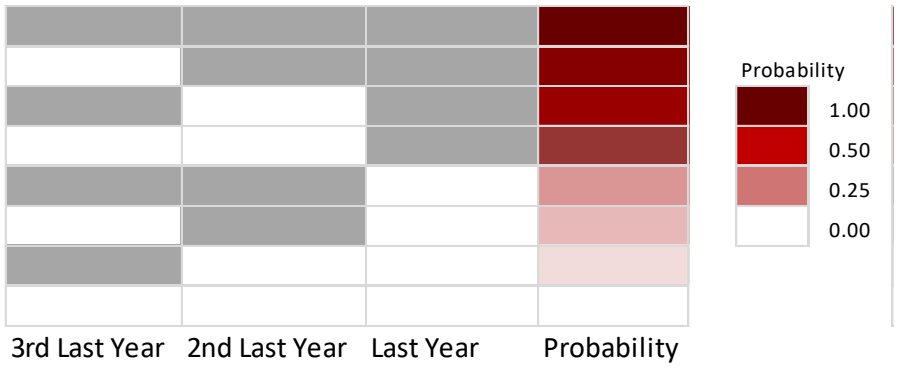
Table 12.1: Summary of large MRCA medical claims – experience and assumptions

Claimant	Payments in 2017	Payments in 2018	Payments in 2019	Assumed Future Payments (p.a.)
1	1,263,432	1,004,360	969,040	1,000,000
2	148,807	96,905	149,476	130,000
3	27,374	138,455	105,730	100,000
4	54,568	147,459	136,021	130,000
5	20,622	206,040	124,068	150,000
6	64,163	106,388	154,675	110,000
7	42,209	148,628	112,016	120,000
8	37,526	136,198	198,128	150,000
9	72,195	110,604	123,031	110,000
10	125,888	84,959	133,693	110,000
11	111,417	97,002	108,476	100,000
12	146,441	39,023	115,020	100,000
13	199	152,491	119,246	120,000

12.2.4 The group of large MRCA medical claimants has not remained static over time with some existing claimants moving off large benefits and new large claimants entering the group year on year. We currently do not hold information regarding treatment details and thus, cannot determine whether the claimants have medical conditions which require ongoing access to treatment. Ideally, this group would be determined by the nature of the claimants' injuries and anticipated future treatment requirements but in the absence of this data, the proxy of multiple years of high expenditure has been selected to separate this group from the remaining MRCA claimants. This is important to ensure the analysis for the remaining MRCA medical claimants is not skewed by the significantly higher expenditure experience of those included in the large medical group.

12.2.5 In the last valuation, the transition probabilities for those claimants who had already incurred medical expenditure depended upon the existence of medical expenditure in up to four previous years prior to the valuation date. This year, we have changes these transition probabilities to be based on 3 previous years of expenditure experience. This update was implemented to include more recent experience in the derivation of the probabilities and to provide additional stability to these year on year. The assumed probabilities and their dependence upon the experience of the three previous years are shown in Figure 12.3. For the experience data, a grey cell indicates there was expenditure, while for the transition probabilities, the intensity of the red fill indicates the likelihood that an individual with a given pattern of usage in the preceding three years will incur medical expenditure in the following year.

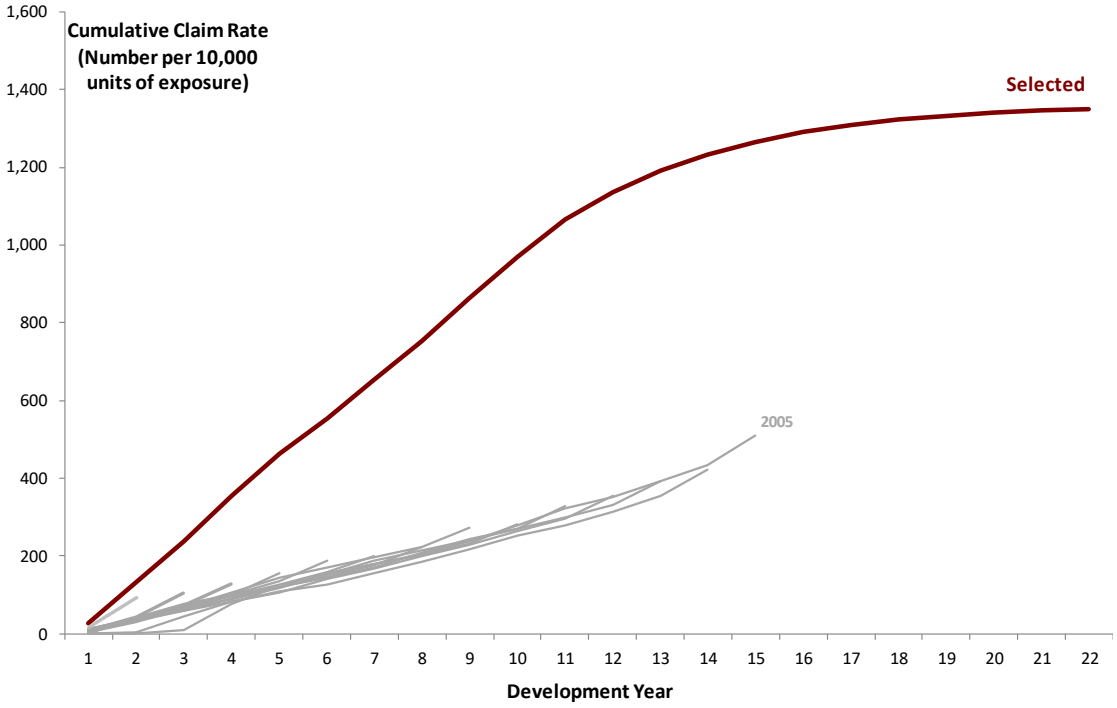
Figure 12.3: Assumed transition probabilities



12.2.6 As would be expected, the greater the number of years in which expenditure has previously been incurred, and the more recent those years of expenditure are, the higher the probability the expenditure will be incurred in the next year. For claimants who do not have the full three years of claims history, we have used their most recent claims experience to set their transition probability. That is, for existing claimants who have only been in the data set for two years or less, only their previous year of claim experience is used. For those who had a claim in the previous year, the probability of receiving a payment again in the following year was selected to be 90%. For those who did not receive a payment in the previous year, the probability of receiving a payment in the next year was selected to be 20%. These selected probabilities were based on the most recent experience for claimants with two years of payment history.

12.2.7 The second set of assumptions relates to incurred claims that have not yet given rise to expenditure. Figure 12.4 shows the relationship between earliest accident year and the year in which medical expenditure is first incurred. The selected rate appears well above that of the previous years. This is primarily driven by the significant increase in the number of new claimants emerging in MRCA medical who are claiming for medical benefits in the same year as their accident. Older accident years also appear to have new claimants emerging a number of years post the first injury date. This combined effect results in a significantly higher projected ultimate number of claimants. We have made some provision to account for a timing difference. That is, we have not applied the same rates of growth seen in previous experience to the higher numbers of new claimants but adjusted these downwards to account for potential timing differences. As more claimants emerge in earlier periods, the pattern of claims emergence in later periods could be lower than what has been seen historically. Currently, it is too early to determine what proportion of the most recent experience is due to timing or process changes and what proportion is a genuine increase in the rate of claiming amongst DVA's clients. As such, we will continue to closely monitor the emergence of new claims as more experience emerges and adjust any assumptions in future accordingly. Should claim rates reduce for these years, the liability is likely to reduce significantly.

Figure 12.4: Cumulative claim rate by lag between earliest accident year and first expenditure



12.2.8 We use these rates for the accident years for which we have some data by applying the increases implied by the selected rates in Figure 12.4 to claims to date. For future accident years, where no data is available, we use the selected series shown in Figure 12.4. There are two main areas of uncertainty in setting the claims rate assumption. One is the significant changes in experience seen in the last few years as mentioned in 12.2.7. The second area of uncertainty is in regards to when claims will stabilise for a given accident year. It can be seen from the chart above that each of the recent years (represented by the grey lines) has ended at a higher point than the year prior. This shows that claims are continuing to emerge at a higher rate in each year than in the previous year. Of particular note is the 2005 year, the earliest accident year for MRCA, which is still exhibiting an upwards trend rather than any stabilisation represented by a flattening of the cumulative claims curve, thus showing more claimants are still emerging over time. As medical benefits can be accessed for a long period of time, sometimes for over 60 years, it might still be some time before experience is mature enough to set the claims rate assumption with more certainty.

12.2.9 As with DRCA, average expenditure per active claimant has been derived by looking separately at numbers of transactions per claimant and average cost per transaction.

12.2.10 Figure 12.5 shows the usage rates observed for MRCA over the last three years. It can be seen that over the age range where most MRCA expenses have been incurred, the most recent experience has been higher than the rates assumed for the 2018 valuation and the selected rates for the current valuation have been adjusted accordingly. Figure 12.6 shows the selected size per transaction by age. These are

higher compared to the 2018 valuation assumptions to reflect the most recent experience.

Figure 12.5: Usage rates by age group

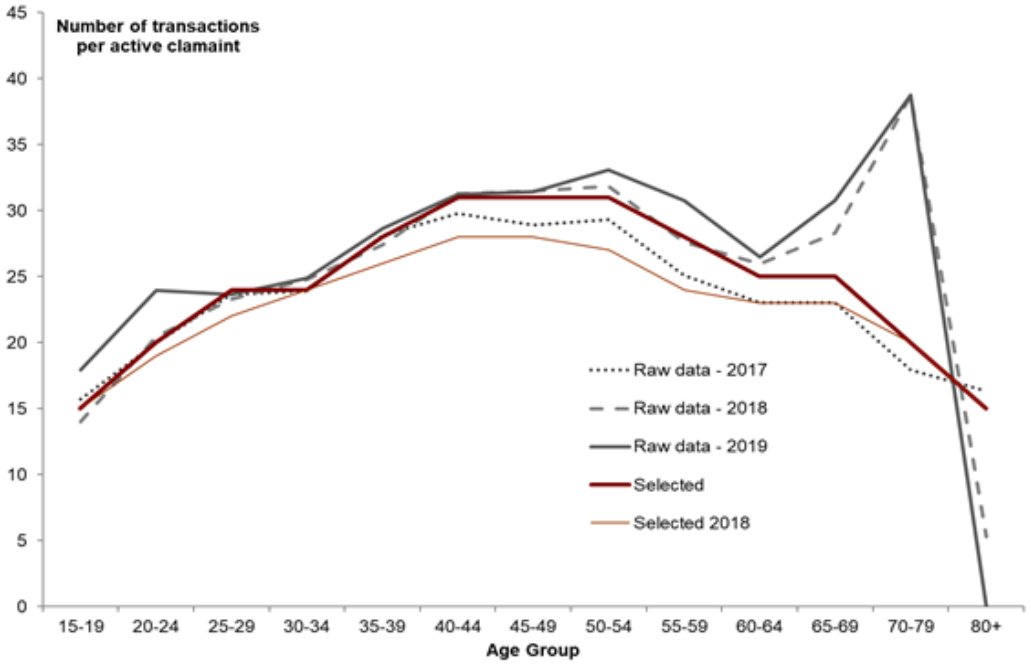
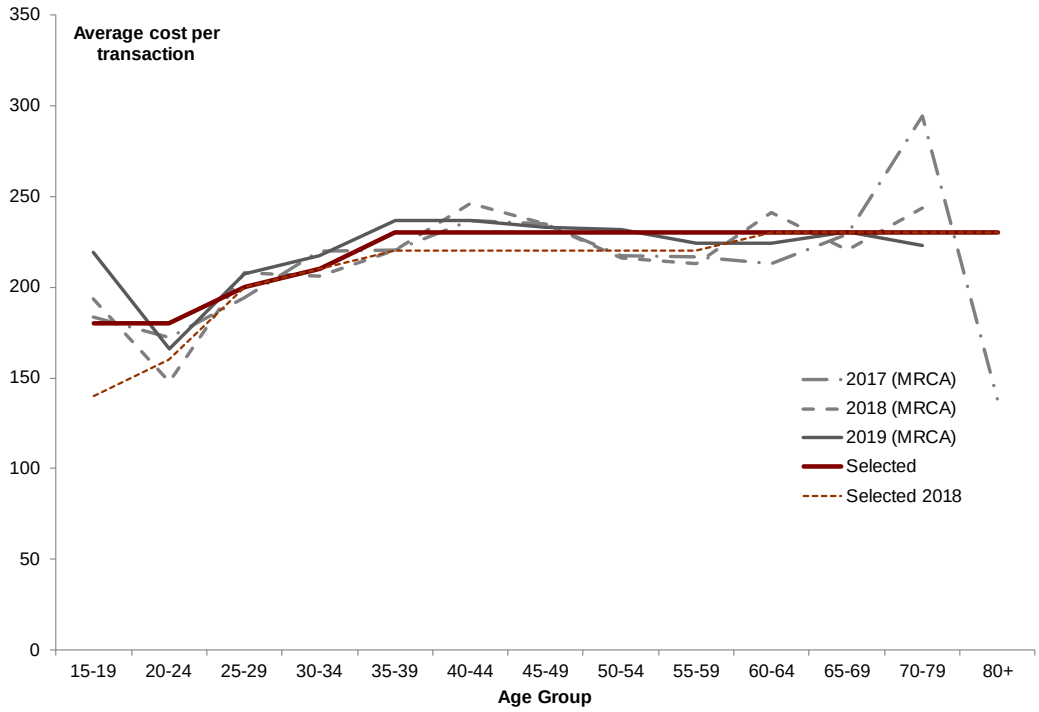


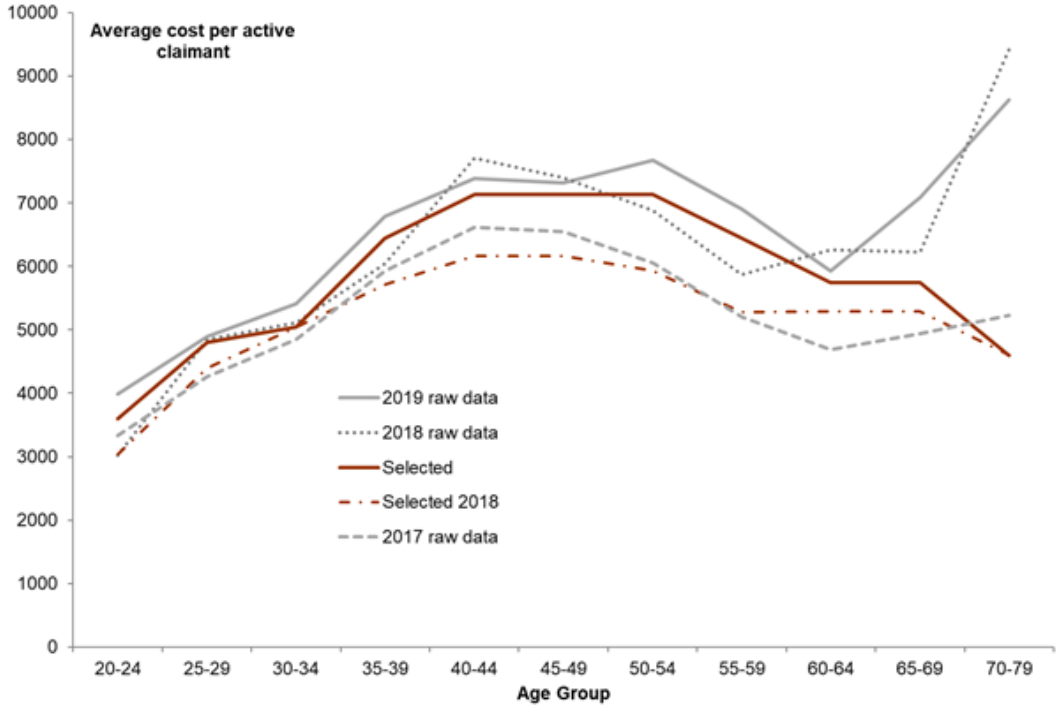
Figure 12.6: Cost per transaction by age



12.2.11 The assumption for expenditure per claimant is based on the usage rate and average size per transaction. The assumptions on expenditure per claimant are shown in

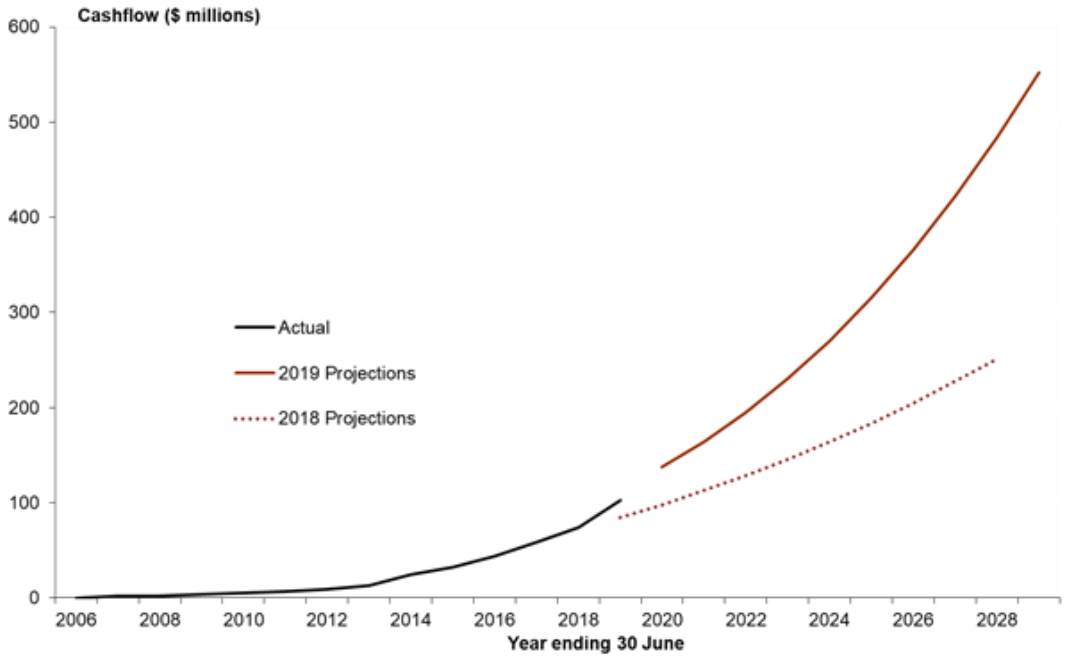
Figure 12.7. The increase in assumed expenditure is driven by the increase in assumed utilisation rates. These amounts are assumed to grow by 4% per annum.

Figure 12.7: Assumed expenditure per claimant



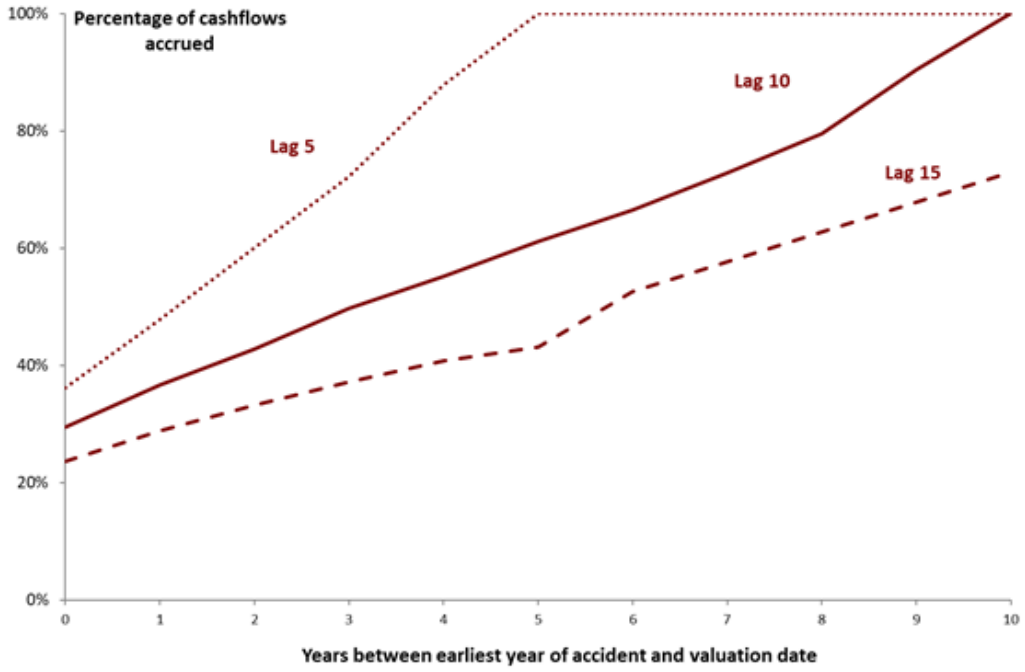
12.2.12 Applying these average cost figures to the projected population figures gives an estimate of total future cashflows as shown in Figure 12.8.

Figure 12.8: Historic and projected cashflows for MRCA medical



12.2.13 However, some of these cashflows will relate to incidents that occur after the valuation date. In order to arrive at an estimate of the incurred expense, we have examined how accident dates are spread over the period between the earliest accident year and the year in which expenditure is first accrued. Figure 12.9 shows the proportion of claims with an accident prior to a given date within this period for those with more than one claim for three different lag periods.

Figure 12.9: Distribution of claims



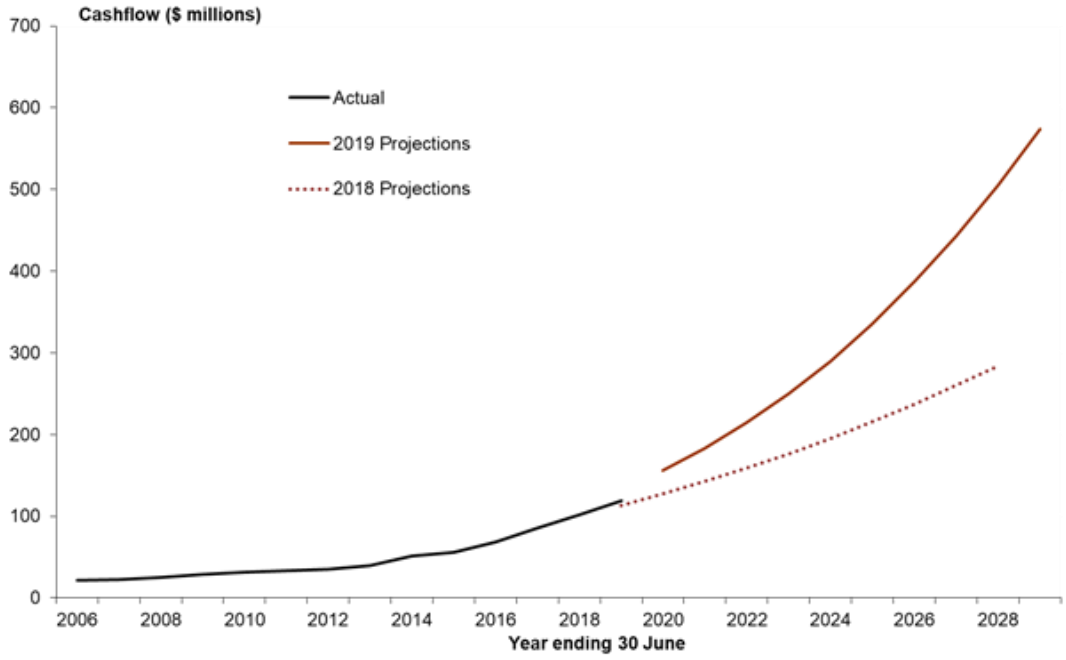
12.2.14 Note that we would not expect the average cost per claim to be constant for different claim numbers, since, on a per claim basis, the first claim is likely to involve more expense than subsequent claims. However, there is a strong positive correlation and, as a simplifying assumption for those with multiple claims, we have used the percentages shown in Figure 12.9 to split projected expenditure between amounts accrued at the valuation date and amounts expected to be accrued in future accident years. For example, for a claimant with an earliest accident year of 2014 and a ten year lag until medical expenditure is incurred, the proportion of expenditure that is assumed to be accrued as at the valuation date of 30 June 2019 can be found by looking at the Lag 10 curve where the x-axis value is 5, that is 61 per cent.

12.2.15 While this might slightly underestimate accruals for full-time ADF personnel there is an offsetting effect from reservists, for whom the assumption that claims have fully accrued at the time of first expenditure may not be true. Given the high level of uncertainty around the estimates of medical costs, I do not believe that this simplifying assumption is unreasonable.

12.2.16 Under our assumption that an individual has discharged at the point at which expenditure first occurs, all future expenditure is assumed to be accrued from that time.

12.2.17 As noted in the previous chapter, there has been a drift of DRCA expenditure to MRCA cards that could be expected to continue for some time yet. As a result, the split of liabilities between the two schemes is somewhat arbitrary and it is preferable to look at combined expenditure across both schemes. This is done in Figure 12.10.

Figure 12.10: Historical and projected medical payments (DRCA and MRCA)



12.3 Liability Estimate

12.3.1 Table 12.2 shows the estimate of the liability to meet medical costs broken down by earliest year of accident. As noted in the previous chapter, there is now some MRCA liability related to accident years prior to 1 July 2004 and some of the liability shown against later accident years will arise from those with DRCA claims and a MRCA health care card.

Table 12.2: Outstanding claims liability for medical costs by year of earliest accident	Liability (inflated and discounted) ($'m)
1979 and before	5.1
1980 – 1984	3.7
1985 – 1989	9.7
1990 – 1994	16.4
1995 – 1999	24.7
2000 – 2004	25.1
2005 – 2009	1,660.0
2010	340.4
2011	355.7
2012	322.3
2013	314.6
2014	333.3
2015	318.1
2016	322.6
2017	358.4
2018	512.2
2019	587.8
Total	**5,510.0**
Expected at 30/06/2019	3,592.2
Total (30/06/2018)	**3,184.0**

12.3.2 Across both DRCA and MRCA, the total estimated liability at 30 June 2019 is $5,881.6m. The projected liability in the 2018 valuation for 30 June 2019 was $4,163.1m. The estimated liability at this valuation is $1,719m higher than the projected liability last year and has been primarily driven by an increase in the number of claimants, the update to the transition probabilities, and the increased utilisation and cost of medical services.

12.3.3 Table 12.3 below shows the reconciliation of liability results for MRCA from last year to this year.

Table 12.3: Reconciliation of liability for combined MRCA medical costs

	$m
Liability estimate at 30/06/18 (previous report)	**3,184.0**
Assumed Interest	165.2
Projected Payments	(84.5)
Notional Premium	327.5
Projected liability as at 30 June 2019 (previous valuation)	3,592.2
Experience effects and assumption changes	
difference between actual and projected payments	(17.9)
change in experience	924.4
change in claimant projection	390.1
change in transition probabilities	875.2
change in cost usage	(340.8)
other adjustments	86.8
Current Estimate	**5,510.0**

12.3.4 The increase in the MRCA liability may appear anomalous given the relatively small difference between projected and actual cashflows for 2018-19. However, it needs to be remembered that medical liabilities are extremely long tailed and relatively small changes in the propensity of claimants to continue to receive benefits from one year to the next can have a substantial impact on the liabilities. The increase in the number of gold cards on issue is probably also playing some part in the increased usage rates both within any given year and from one year to the next. As at September 2019, there were around 3,800 MRCA gold card holders. This is an increase from 2,600 in 2018 and 1,700 in 2017. This is an annual growth of almost 50%.

13 Valuing Non-Incapacity Benefits – DRCA Rehabilitation

13.1 Modelling Approach

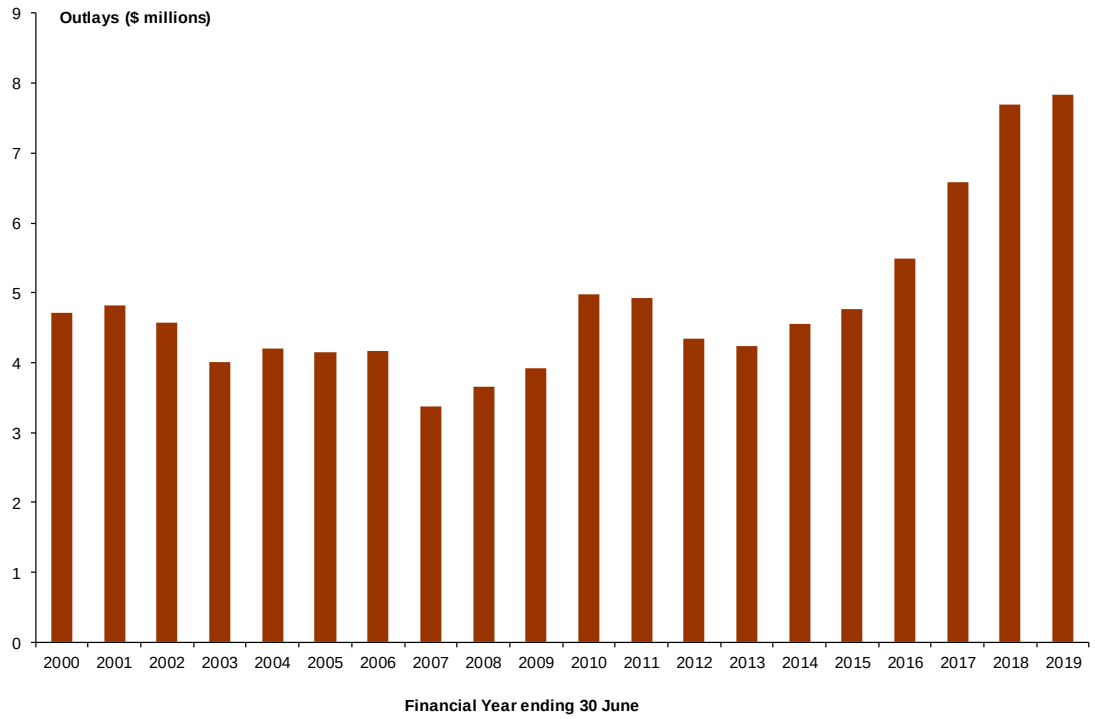
13.1.1 Rehabilitation is the smallest component of the DRCA non-incapacity liability. However, it has grown quite strongly over recent years despite the closure of the scheme.

13.1.2 Our modelling approach involves fitting a cubic spline to the pattern of claims per unit exposure by development year observed over the last two years and then applying an assumption around average amounts paid per claim in a year.

13.2 Recent Experience and Valuation Assumptions

13.2.1 Figure 13.1 shows the expenditure on rehabilitation for DRCA since the turn of the century. The experience has been quite volatile, with a rapid increase over the period from 2007 to 2010 followed by a dip which has now been fully reversed with expenditure in 2019 being the highest observed to date.

Figure 13.1: Expenditure on DRCA rehabilitation



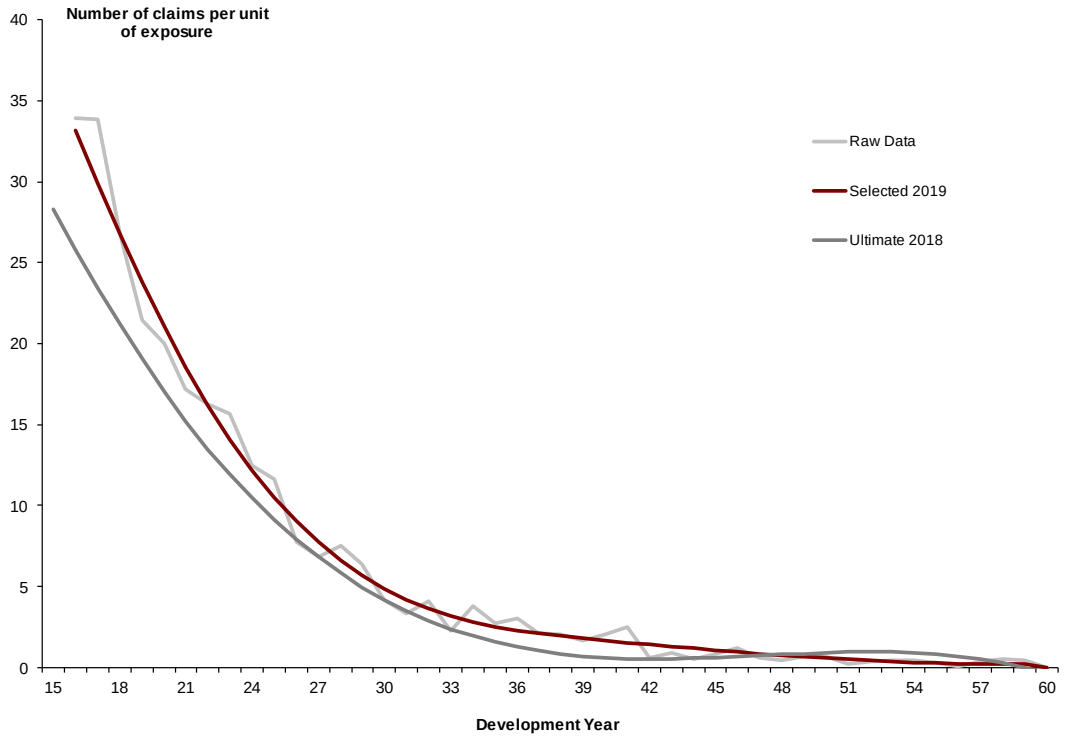
13.2.2 Rehabilitation expenditure tends to have two broad objectives: minimising claimants' functional impairments and returning them to work. DRCA claimants will, due to their higher average age, tend to have reduced prospects for a return to the labour force. At the same time, the degree of functional impairment is likely to increase with advancing age. The relative importance of the two objectives in DVA's approach to

rehabilitation is therefore likely to influence DRCA outlays in this area. For example, DVA advised that the period of rapid growth between 2007 and 2010 was the result of an increased focus on rehabilitation for all veterans, not just those with a prospect of returning to work. Subsequently, rehabilitation efforts became more focussed on return to work programs and, given the older age profile of DRCA claimants, this is likely to have explained the decline until 2012-13. The most recent increases are a result of higher utilisation rates, particularly among those with accident years in the mid to late nineties and early 2000s.

13.2.3 A new scheme is currently in place where claimants who are studying can retain 100% of their incapacity benefit past the initial 45 week period. DVA staff have advised that this has led to increasing numbers of claimants remaining on rehabilitation programs than they have seen historically.

13.2.4 Figure 13.2 compares the number of claims per unit of exposure over the 2019 year with the assumptions adopted for the current valuation for DRCA and the assumed number of ultimate claims from the 2018 valuation. It can be seen that we are allowing for a higher number of claims over the earlier development years.

Figure 13.2: Number of claims per unit of exposure – DRCA rehabilitation

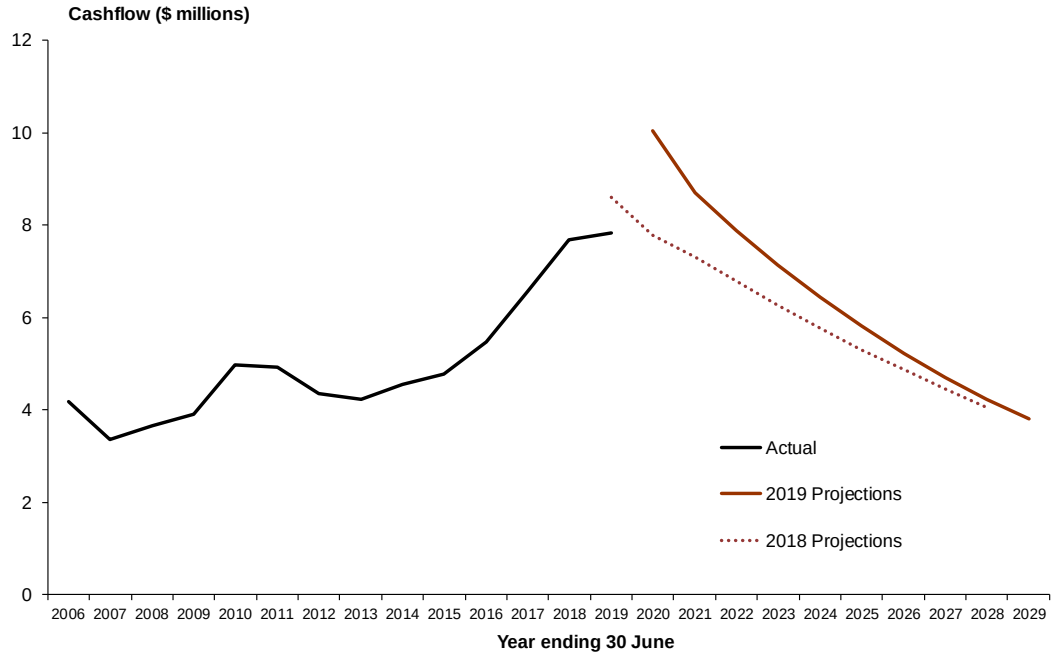


13.2.5 The average cost per claimant has decreased and was selected to be $4,830 in 2019, compared to $5,200 in 2018.

13.2.6 The resulting projected cashflows are shown in Figure 13.3, together with the historic cashflows and the projections from the 2018 valuation. The increased utilisation rate

assumptions has led to an increase in projected cashflows over the next ten years, though the gap diminishes over time, partly due to the decrease in the inflation assumption. The level of expenditure to date in 2019-20 ($8.5m to 31 March 2020) indicates that the current projections are not unreasonable.

Figure 13.3: Historic and projected DRCA rehabilitation payments



13.3 Liability Estimate

13.3.1 Table 13.1 shows the estimate of the liability for DRCA rehabilitation costs broken down by year of accident. The total liability estimate is $71.4m.

Table 13.1: Outstanding claims liability for rehabilitation costs by year of accident

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
1979 and before	3.6
1980 – 1984	3.6
1985 – 1989	6.0
1990 – 1994	10.4
1995 – 1999	17.3
2000 – 2004	30.5
Total	**71.4**
Expected at 30/06/2019	*65.2*
Total (30/06/2018)	**70.4**

13.3.2 The 2018 valuation projected a liability of $65.2m as at 30 June 2019. The current estimate is $71.4m, which is approximately $6m higher, reflecting the adjustments to assumptions. Table 13.2 reconciles the current liability estimate with the earlier figure.

Table 13.2: Reconciliation of liability for rehabilitation costs

	$m
Liability estimate at 30/06/18 (previous report)	**70.4**
Assumed Interest	3.3
Projected Payments	(8.6)
Notional Premium	0.0
Projected liability as at 30 June 2019 (previous valuation)	65.2
Experience effects and Assumption changes	
difference between actual and projected payments	0.8
change in experience	7.5
change in claim rate	10.9
change in average cost	(6.0)
change in inflation rate	(7.0)
Current Estimate	**71.4**

14 Valuing Non-Incapacity Benefits – MRCA Rehabilitation

14.1 Modelling Approach

14.1.1 MRCA rehabilitation was modelled based on the number of claimants per unit of exposure and the average expenditure per claimant. The pattern of claimants by development year was derived by fitting a cubic spline to a composite series derived from MRCA data for the 2018 and 2019 calendar years and DRCA claims experience for the later development years where we have no MRCA experience.

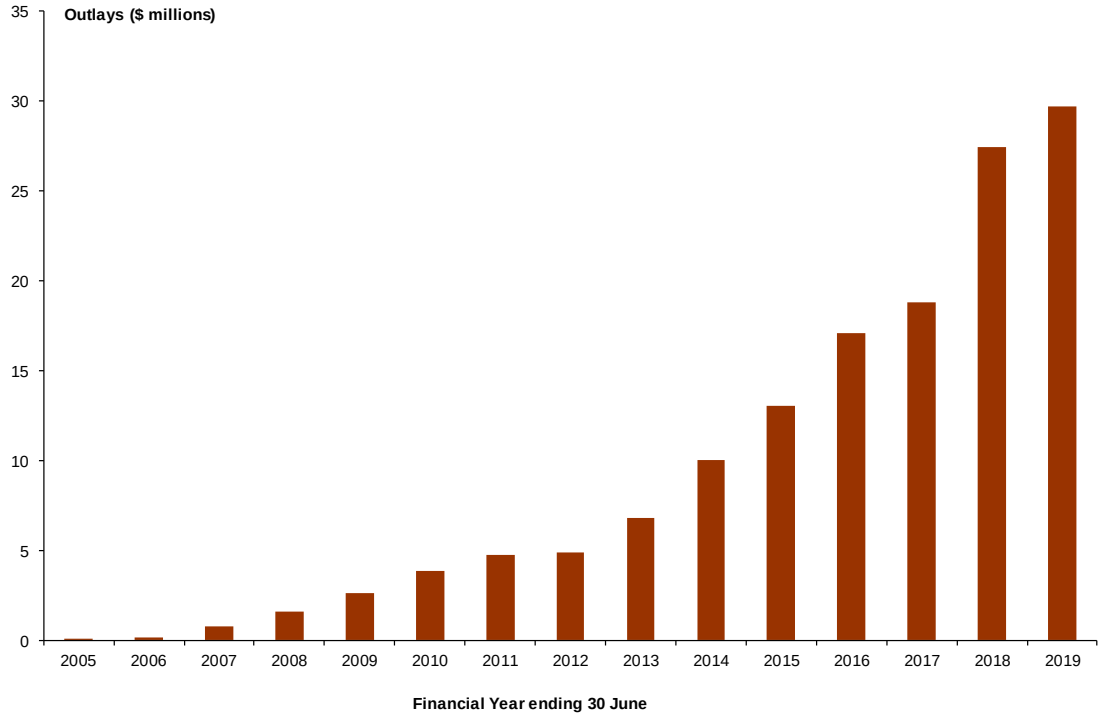
14.1.2 The MRCA claim rates observed to date are well above those seen for DRCA immediately prior to closure of the scheme, but the MRCA rates for durations where we have recent data for both schemes are lower than the rates we are now seeing for DRCA. It does not seem unreasonable that the higher rates of utilisation of rehabilitation services in the early development years could lead to lower utilisation rates in later years. We have therefore used an average of the most recent DRCA experience and the rates which applied immediately prior to closure in 2004 as the basis for setting assumptions for the later development years.

14.1.3 The average cost per claimant has been derived from the most recent MRCA experience.

14.2 Recent Experience and Valuation Assumptions

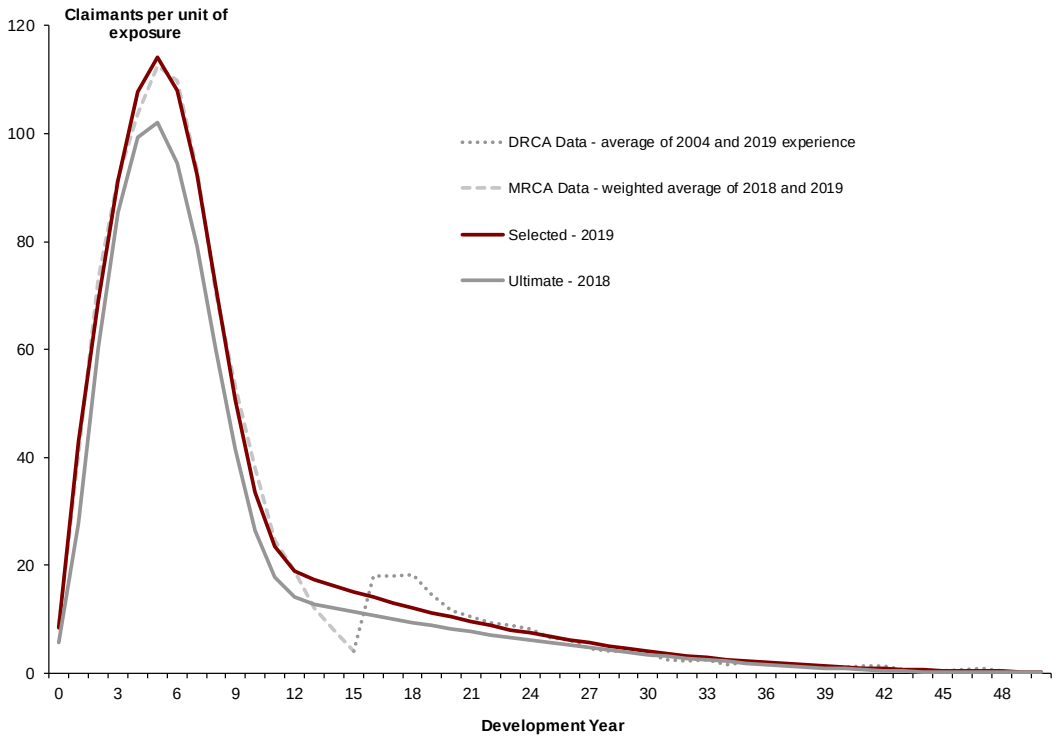
14.2.1 Figure 14.1 shows the expenditure on rehabilitation for MRCA since the scheme's inception. Apart from a pause in 2011-12, expenditure has grown strongly over the period. DVA's advice is that they expected rehabilitation outlays to continue to increase, particularly for those with a prospect of returning to work, which would comprise the bulk of the MRCA population.

Figure 14.1: Expenditure on MRCA rehabilitation



14.2.2 Figure 14.2 shows the raw data that was used for setting assumptions, together with the cubic spline fitted to this data and the selected ultimate MRCA assumption which applies from 2020-21 onwards. The ultimate rates assumed in the 2018 valuation are also shown for comparison. The 2019 selected ultimate is higher for some of the earlier periods as a result of higher than expected numbers of claimants in the most recent experience.

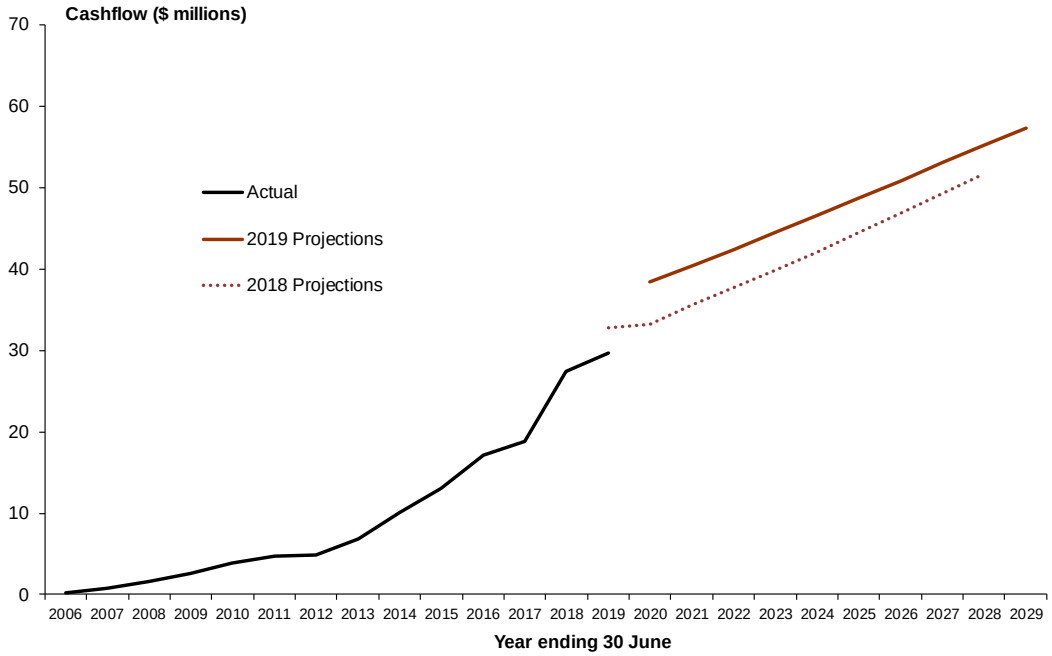
Figure 14.2: Claimants per unit of exposure – MRCA rehabilitation



14.2.3 An assumption on the average payment per claimant was also required and this was based on the most recent two years of experience and set at $6,520. This is lower than the assumption adopted in 2018 of $6,900.

14.2.4 Figure 14.3 shows the historical and projected cashflows for MRCA rehabilitation payments, together with the projections from the 2018 valuation. Note that aggregate data to the end of March 2020 shows expenditure at approximately $37m, suggesting that the current projections are not unreasonable.

Figure 14.3: Historic and projected MRCA rehabilitation payments



14.2.5 The increase in the projected cashflows is largely driven by the increase in claim numbers and is in line with advice received from DVA where business areas have seen a continued increase in the number of rehabilitation claimants over the last few years.

14.3 Liability Estimate

14.3.1 Table 14.1 shows the estimate of the liability for MRCA rehabilitation costs broken down by accident year.

Table 14.1: Outstanding claims liability for rehabilitation costs by year of accident

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
2005 - 2009	33.9
2010	10.3
2011	12.6
2012	15.3
2013	18.5
2014	22.7
2015	27.2
2016	31.5
2017	35.1
2018	37.3
2019	39.4
Total	**283.8**
Expected at 30/06/2019	*258.0*
Total (30/06/2018)	**242.5**

14.3.2 The 2018 valuation projected a liability of $258.0m as at 30 June 2019. The adjustments to the assumptions have resulted in an increase in the estimated liability. The liability is $283.8m; this is $26m higher than projected last year. Table 14.2 reconciles the current liability estimate with the 2018 projection.

Table 14.2: Reconciliation of liability for MRCA rehabilitation costs

	$m
Liability estimate at 30/06/18 (previous report)	**242.5**
Assumed Interest	12.2
Projected Payments	(32.8)
Notional Premium	36.1
Projected liability as at 30 June 2019 (previous valuation)	258.0
Experience effects and Assumption changes	
difference between actual and projected payments	3.1
change in experience	43.0
change in claim rates	18.6
change in average cost	(17.8)
change in inflation	(21.1)
Current Estimate	**283.8**

15 Valuing Non-Incapacity Benefits – Death Benefits

15.1 Modelling Approach and Assumptions

15.1.1 Death benefits are the second smallest liability among the various heads of damage and the number of deaths can be highly volatile from year to year. The assumptions made therefore involve a more significant degree of judgement relative to the other components of the liability.

15.1.2 Under DRCA, lump sum benefits are payable to surviving spouses on death due to work related causes. In addition, fortnightly benefits are payable to dependent children. Under MRCA, a lump sum death benefit is payable on death where the deceased had suffered impairment as a result of service assessed at 80 or more impairment points, and an additional benefit is payable to a dependent spouse where the death occurred in service. The lump sum death benefit is broadly equivalent to the VEA widow's pension and can be taken as a periodic payment or a lump sum. As at 31 December 2019, there were 74 widows and 181 dependent children in receipt of periodic payments. A further lump sum benefit is payable in respect of each dependent child as well as an additional lump sum where the death has been accepted as having been related to ADF service.

15.1.3 The DRCA lump sum death benefit payable as at 1 July 2019 was $562,979, while the maximum MRCA lump sum benefit was $944,450 with the actual amount payable dependent upon the age of the widow or widower and whether or not the death is accepted as having been related to ADF service.

15.1.4 Apart from deaths due to long latency diseases, such as asbestos related illnesses, the main compensable cause of death is likely to be accidental. Lump sum benefits payable on death would also generally be expected to be paid within a relatively short time after the death. Thus, in most cases, the lag between the time of the injury causing death and the payment of benefits will be relatively short.

15.1.5 From September 2017, the smoking policy was amended to allow claims for smoking-related illnesses if they satisfy certain criteria under the DRCA scheme. There is a possibility that this could increase the number of DRCA death claims. Further to this, policy changes were made in November 2018 to lower the level of evidence required in relation to asbestos exposure for veterans who served on certain RAN ships from 1940 to 2003. In addition, changes to straight through processing for mental health conditions related to operational service could mean posthumous mental health diagnoses become easier to determine for suicide cases. Anecdotal evidence from the DVA policy area suggests that the broader suite of services provided by Service Coordination within DVA could have been proactively seeking out potential death payment claimants. All these factors could have led to the sustained high levels of death payments seen in 2017-18 and 2018-19 financial years.

15.1.6 For MRCA, almost all death benefits paid to date have been paid within two years of the date of death, with over 50 per cent of the benefits being paid in the year of death

and a further 35 per cent being paid in the following year. This might be expected to change in future as the scope for lagged claims increases with the ageing of the scheme. At this stage, however, we have not made any allowance for the emergence of lagged death claims under MRCA. This does not mean that such claims will not arise in future, but at present we have no basis for making a judgement about the quantum of any liability. In particular, the DRCA experience with asbestos related diseases might not be expected to be a good guide to future MRCA outcomes.

15.1.7 For DRCA, however, typically around 30% of death benefits paid in a given financial year are for deaths occurring more than two years prior to the end of the financial year and it makes sense to model payments rather than deaths. This pattern of lags between deaths and payment has been fairly consistent over the last three years and needs to be allowed for in the valuation since the amount of the death benefit entitlement will depend upon the year of death rather than the year of payment.

15.1.8 Table 15.1 shows the number of death benefits paid in each of the last fourteen financial years under DRCA and MRCA.

Table 15.1: Number of death benefits in recent financial years

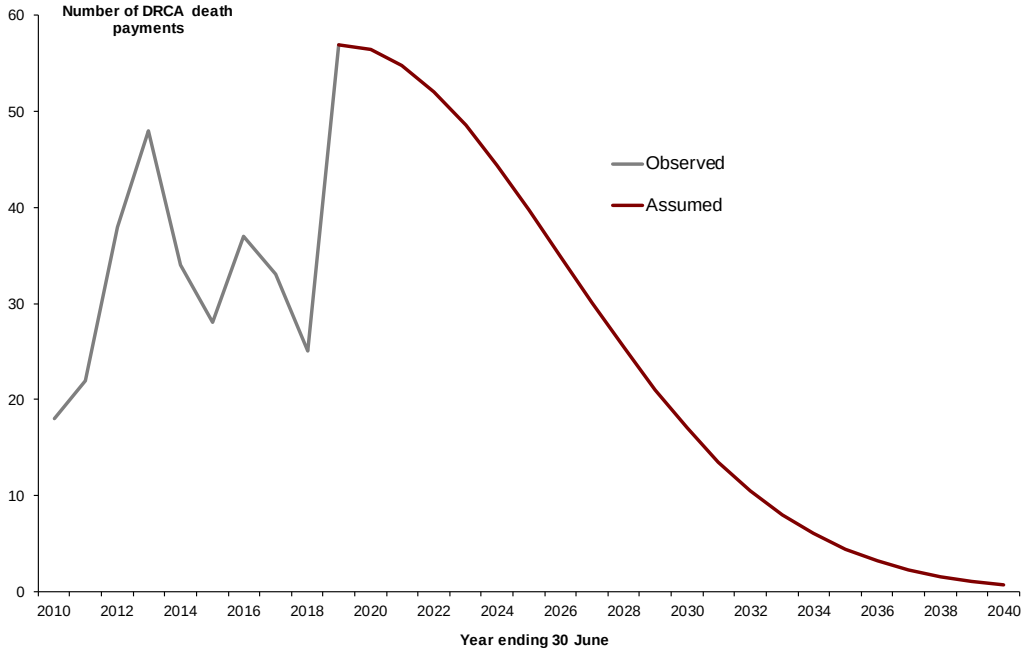
Financial Year	DRCA Deaths	MRCA Deaths
2004/05	14	4
2005/06	10	6
2006/07	13	5
2007/08	14	6
2008/09	22	5
2009/10	18	4
2010/11	22	14
2011/12	38	12
2012/13	48	13
2013/14	34	5
2014/15	28	16
2015/16	37	5
2016/17	33	15
2017/18	25	19
2018/19	57	27

15.1.9 DRCA death benefit claims did not decline as expected following the closure of the scheme in 2004 but rather trended upwards until reaching a peak in 2012/13. This peak was surpassed in the latest financial year, 2018-19, where payments reached over $30 million. It seems likely that most of these claims have arisen from long latency diseases such as those related to asbestos exposure. The future trajectory of these claims is quite uncertain. However, other information on claim patterns for asbestos related diseases suggests that such death claims are likely to continue for an extended period and the liability for these claims will be material. The sustained high numbers of claims seen since 2011/12 supports this view. The possibility of

future claims where exposure to jet fuel or other toxic chemicals is identified as a contributory factor increases the level of uncertainty around these assumptions.

15.1.10 Figure 15.1 plots the run-off in claims assumed in 2019 against recent experience. We have seen a sustained high level of death payments over the last two calendar years for DRCA. It is likely that recent policy changes could have had an impact on the level of claims arising. As such, we have increased the level of DRCA death claims expected over future periods compared to the adopted assumptions at the last valuation.

Figure 15.1: Observed and assumed number of DRCA death payments from long latency diseases



15.1.11 We have assumed that these payments relate to deaths occurring up to 3 years prior to the year of payment. All the benefits are assumed to be paid at the higher rate which came into effect from 1 July 2009. In practice, a small number of claims relate to still earlier years and would be paid at the lower rates; this was the case for only 5 of the 57 claims in 2018-19. In view of the other uncertainties, I do not consider that this assumption gives rise to any material error.

15.1.12 We have increased our assumption regarding the number of MRCA death benefit payments to fifteen deaths per year. Over the fifteen years of operation of the scheme, which encompasses a period of multiple overseas deployments, the number of deaths has averaged roughly ten deaths per year. The number of deaths was lower in the earlier years of the scheme than in more recent years with the number of deaths averaging approximately fourteen deaths per year over the last eight years of operation compared to roughly seven deaths per year in the first seven years of operation.

15.1.13 The age distribution assumed for surviving dependants affects how long periodic payments made to a spouse or children are assumed to continue. Table 15.2 shows the age distribution adopted in the 2019 valuation for surviving spouses together with the latest observed data. The distribution is slightly different to that adopted in 2018 which are also included in the table.

Table 15.2: Observed and assumed age distribution for surviving spouses

Age Group	Observed	2019 Assumption	2018 Assumption
Less than 25	7%	5%	10%
25-29	19%	20%	20%
30-34	9%	10%	10%
35-39	20%	20%	15%
40-44	15%	15%	15%
45-49	10%	10%	10%
50-54	9%	10%	10%
55-59	4%	4%	5%
60 or more	7%	6%	5%

15.1.14 The assumed distribution of children is shown in Table 15.3 below. The assumptions are slightly different to those adopted at the 2018 valuation which are also included in the table.

Table 15.3: Observed and assumed age distribution for dependent children

Age Group	Observed	2019 Assumption	2018 Assumption
Less than 5	27%	30%	30%
5-9	28%	30%	30%
10-14	23%	22%	25%
15-19	19%	15%	12%

Age Group	Observed	2019 Assumption	2018 Assumption
20 or more	2%	3%	3%

15.1.15 The average number of children per surviving spouse was 1.3; this was in line with the assumption adopted in 2018, which was retained. Children's pensions are assumed to cease at age 21, while spouse pensioners are assumed to experience mortality in line with the most recent Australian Life Tables (ALT 2015-17).

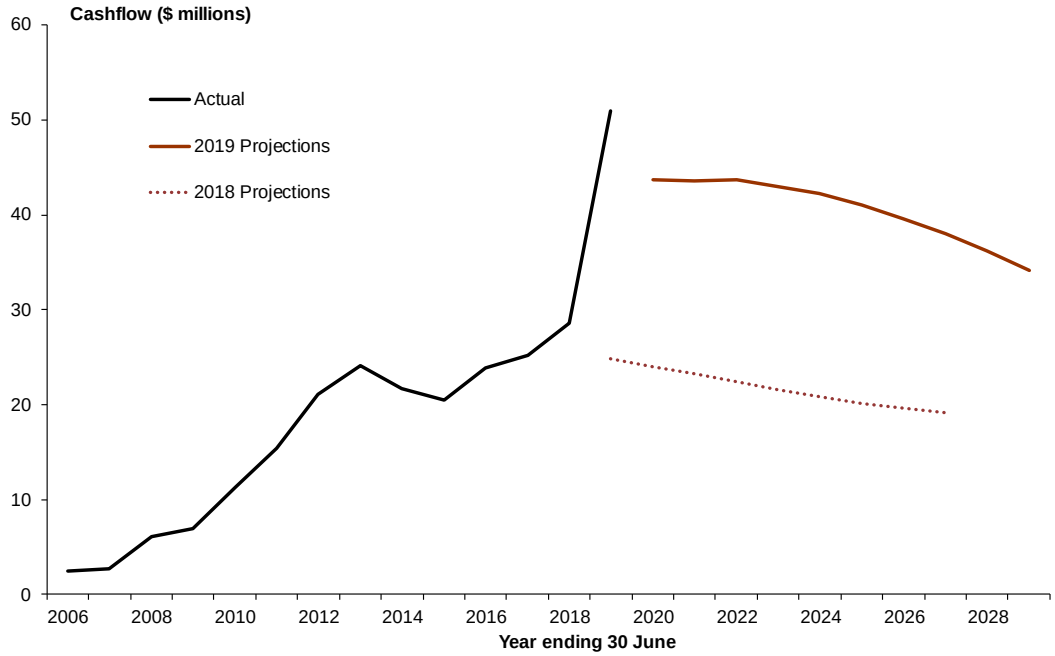
15.1.16 Benefits are assumed to increase in future in line with the relevant statutory provisions. For DRCA, this means that we are allowing for indexation of the lump sum benefit, which constitutes the bulk of the liability, in line with general wage growth and indexation of any periodic payment for children in line with price inflation. For MRCA, all benefits are indexed in line with price inflation.

15.2 Liability Estimate

15.2.1 The liability estimate for death benefits amounts to $314.8m. This is significantly higher than the estimate of $140.1m as at 30 June 2018, and reflects the increase in assumptions adopted at this valuation. The bulk of the liability relates to DRCA claims and the estimate is extremely sensitive to the assumed number of DRCA death payments. The suite of policy changes in relation to death claims is likely to have had some impact on the sustained higher level of payments seen in death benefits over recent years and we have updated our assumption on the expected number of DRCA future payments to reflect this experience. However, it is important to note that death benefits are extremely volatile and the degree of uncertainty around this assumption cannot be overstated. I consider the assumption adopted to be reasonable but note that actual outcomes may turn out to be significantly different.

15.2.2 Figure 15.2 shows the projected cashflows for both schemes combined.

Figure 15.2: Projected cashflows – DRCA and MRCA death benefits



15.2.3 At the previous valuation, we were projecting a total liability of $134.0m as at 30 June 2019, which is significantly lower than the 2019 valuation result of $314.8m. Aggregate expenditure to 31 March 2020 shows total death benefits of $35.3m which suggests that our current projections are not unreasonable.

16 Valuing Non-Incapacity Benefits - DRCA Other

16.1 Modelling Approach

16.1.1 The residual category of 'other payments' covers transactions in respect of costs of household services, attendant care, legal costs, general services/medical examinations, travel, funeral expenses and damage to property.

16.1.2 We have historically divided expenditure under this head of damage into two categories. The first is payments associated with medical examinations and legal services undertaken as part of the claim process. We refer to this as the Other 1 category. The Other 2 category covers all other payment types, which relate primarily to attendant care and household services.

16.1.3 Other 1 expenditure has been split between medical examinations and legal expenses in order to take account of their quite divergent experience over recent years. For each type of payment, we have modelled the number of claims per unit exposure and applied an average cost to the resulting estimate of future claims.

16.1.4 For the Other 2 category, we have adopted essentially the same approach as we have used for DRCA medical outlays. That is, we use the most recent figures on the active claims and apply a decay rate to estimate future active claim numbers.

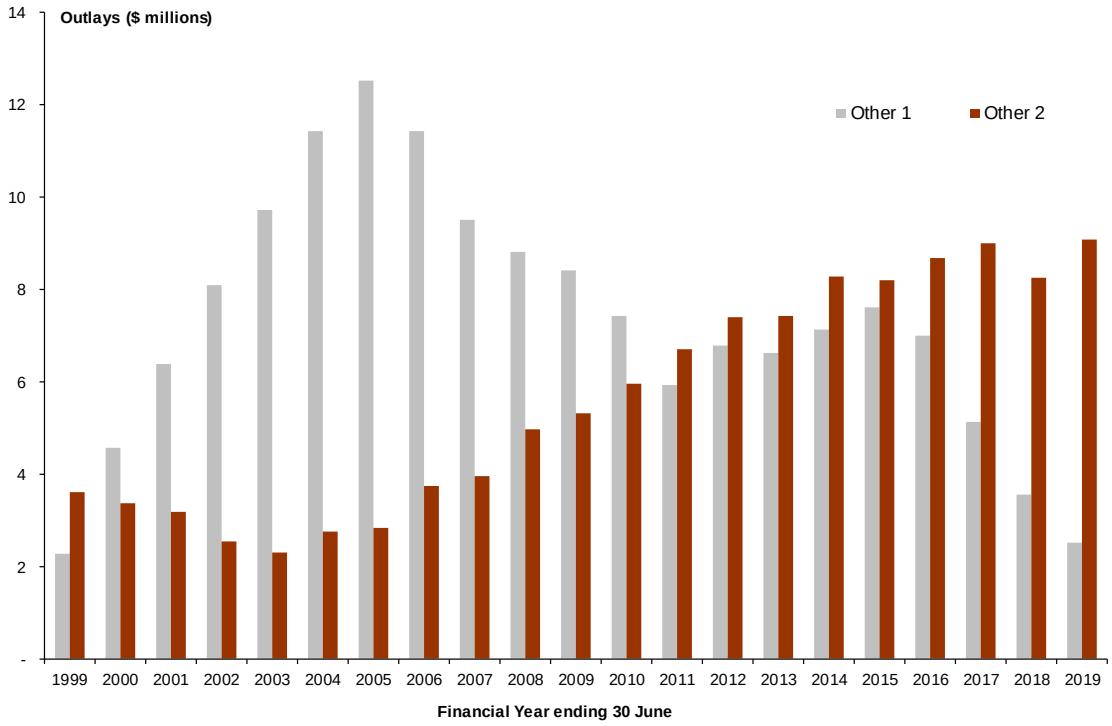
16.2 Recent Experience and Valuation Assumptions

16.2.1 Figure 16.1 shows the expenditure on other payments since 2000 split between Other 1 and Other 2. DRCA Other 1 expenditure underwent rapid growth in the years leading up to the introduction of MRCA. This was probably attributable to the influx of claims for liability and then permanent impairment, both of which will generally involve medical examinations. Subsequently, the Other 1 expenditure fell quite sharply reaching a minimum in 2010-11. Since that time, outlays have trended upwards, but only slowly and have been decreasing rapidly over the last four financial years. The decrease in Other 1 payments had been driven primarily by a significant reduction in the number of claims for medical exam costs. This could be a result of the change in medical evidence requirements moving from specialist reports to GP reports for claims.

16.2.2 By contrast, Other 2 expenditure has remained steady in recent years. This sustained level of payments is likely to be due, at least in part, to DVA's goal of maintaining a high level of functional independence in an ageing population.

16.2.3 The increasing importance of attendant care costs and associated reduction in the proportion of costs associated with case investigation reflect a scheme with an ageing population and declining numbers of new claims.

Figure 16.1: Expenditure on DRCA other payments by category



16.2.4 Figure 16.2 shows the raw data on the numbers of claim per unit of exposure for medical examinations and the selected assumptions, while Figure 16.3 shows the equivalent information for legal expenses. The raw data in this case is data for 2018-19 only.

Figure 16.2: Number of claimants per unit of exposure – category 1, medical examinations (DRCA)

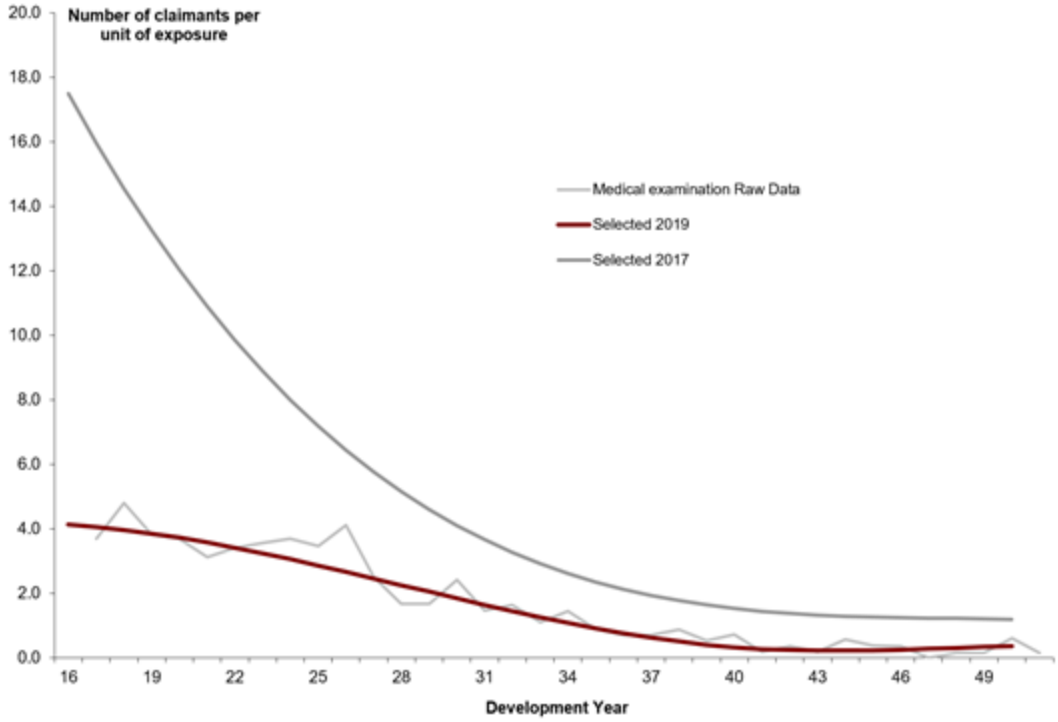
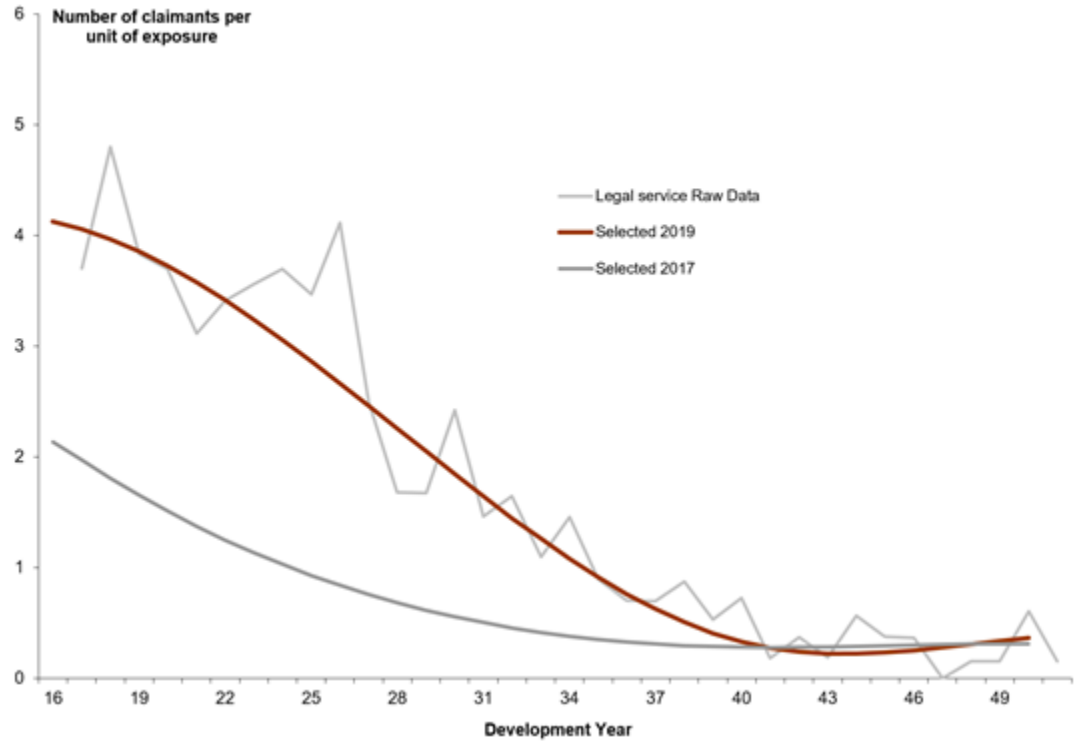


Figure 16.3: Number of claimants per unit of exposure – category 1, legal expenses (DRCA)



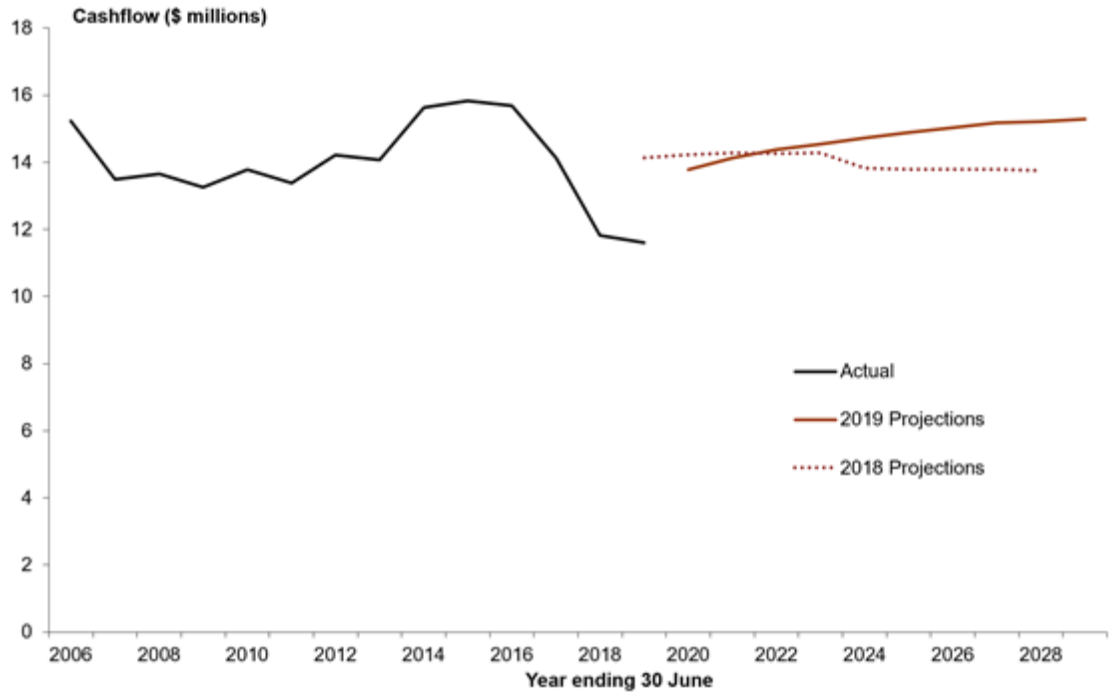
16.2.1 Both legal and medical claim rates display a significant difference with those in the 2017 valuation. Medical examinations experienced a material decrease in utilisation rates, whereas legal examinations saw the opposite, with rates increasing significantly.

16.2.2 There has been a clear decreasing trend in average sizes for Other 1 claims over recent years. The adopted average sizes are $710 per claim for medical examinations and $3,060 per claim for legal expenses. This is a significant decrease compared to the respective assumptions of $1,760 and $11,060 adopted in the 2017 assumptions. To further reflect this trend, we have lowered the inflation assumptions to 3% for both medical and legal payments.

16.2.3 As noted above, for the Other 2 category we used the same payment per active claim approach as was used for the medical head of damage, allowing for the active population to decline using the same attrition rates, including the age based mortality rates from ages 75 and above. The average cost per claim was set at $5,140, an increase from the previous year's assumed average cost of $4,500.

16.2.4 Figure 16.4 shows actual outlays over the last decade together with projected cashflows for the next ten years. The reduction in the projected cashflows in the first few years is primarily driven by decreases in average size for DRCA Other 1 payments. This is offset in later years by the increase in DRCA Other 2 payments. Aggregate expenditure to 31 March 2020 is $13.6m, suggesting the projected cashflows are not unreasonable.

Figure 16.4: Historical and projected other payments



16.3 Liability Estimate

16.3.1 Table 16.1 shows the estimate of the liability in relation to other payments broken down by year of accident. The expected liability as at 30 June 2019 from the 2018 valuation was $234.4m. The liability at this valuation is $259.6m, an increase of approximately $25m, driven by experience in DRCA Other 2.

Table 16.1: Outstanding claims liability for other payments by year of accident

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
1979 and before	20.1
1980 – 1984	18.4
1985 – 1989	48.3
1990 – 1994	53.3
1995 – 1999	69.3
2000 – 2004	50.0
Total	**259.6**
Expected at 30/06/2019	234.4
Total (30/06/2018)	**237.3**

16.3.2 Table 16.2 reconciles the liability estimate with the corresponding estimate at the previous valuation.

Table 16.2: Reconciliation of liability for other payments

	$m
Liability estimate at 30/06/18 (previous report)	**237.3**
Assumed Interest	11.5
Projected Payments	(14.4)
Notional Premium	0.0
Projected liability as at 30 June 2019 (previous valuation)	234.4
Experience effects and Assumption changes	
difference between actual and projected payments	2.8
change in experience	23.2
change in average cost	2.2
change in loading factor	(1.9)
change in inflation factor	(1.0)
Current Estimate	**259.6**

17 Valuing non-incapacity payments – MRCA Other Payments

17.1 Modelling Approach

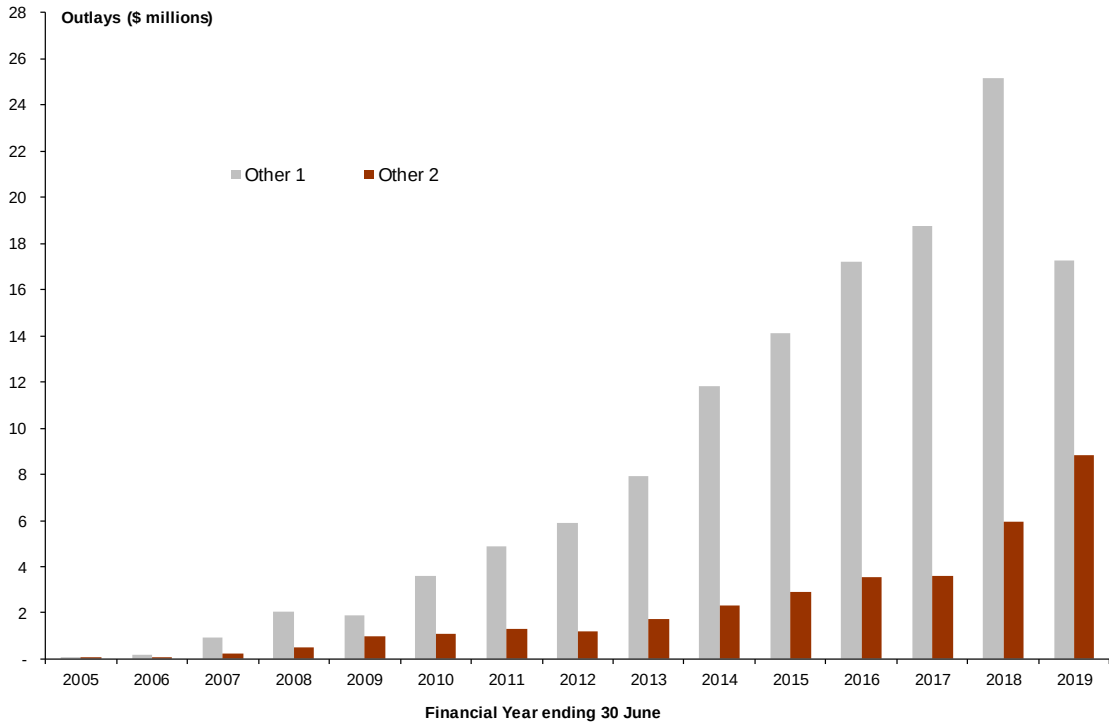
17.1.1 As with DRCA, we have separately modelled the expenditure under the Other 1 and Other 2 categories. For the Other 1 category, which relates primarily to medical exams, we modelled claimants per unit exposure based on MRCA experience for the development years for which data is available. For the later development years, we used an average of pre-closure and current DRCA experience adjusted to take account of the fact that DRCA experience is based on claims rather than claimants. A cubic spline was then fitted to the adjusted data.

17.1.2 For the Other 2 category, we applied the same payment per active claimant approach as was used for DRCA medical. With the change to the approach to modelling MRCA medical expenses, this may need to be revisited in the future. However, the liability is small and the expenditure outcomes for 2018-19 were broadly in line with expectations. The MRCA Other 2 category includes a small proportion of payments which are not related to household and attendant care services and we applied a margin to allow for this additional expenditure.

17.2 Recent Experience and Valuation Assumptions

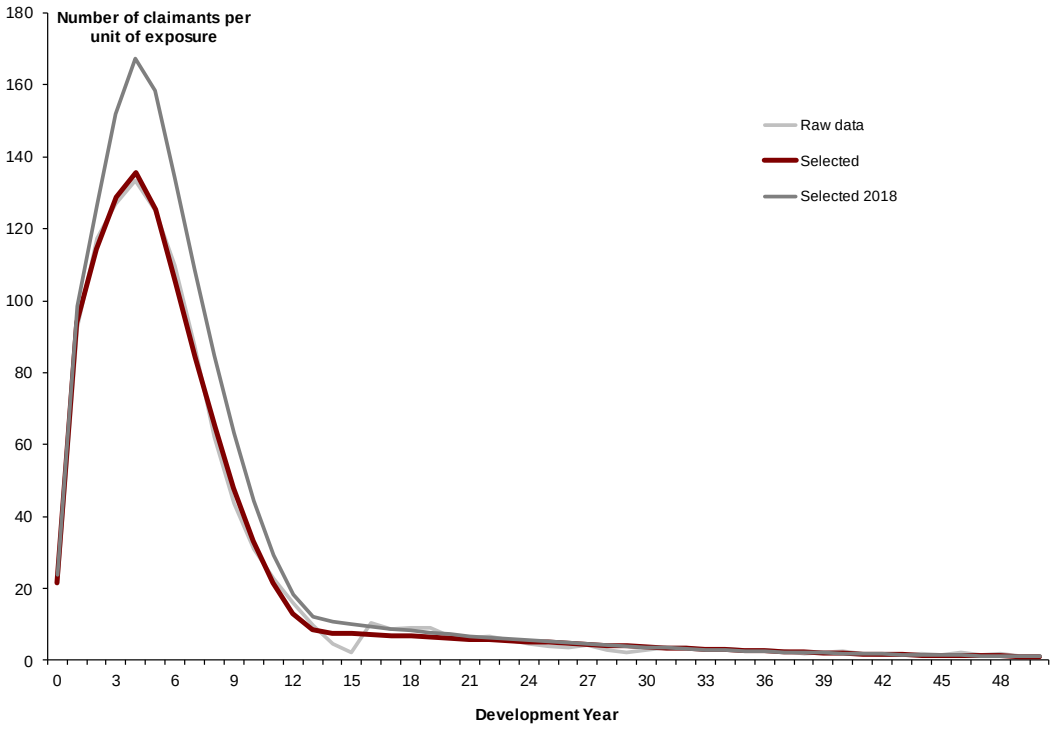
17.2.1 Figure 17.1 shows the expenditure on other payments since the introduction of MRCA. It can be seen that the Other 1 payments have grown very rapidly over recent years, reflecting the fact that much of this expenditure is associated with medical exams at the time of claims for initial liability and when assessments of permanent impairment are being made. However, there has been a significant decrease in the Other 1 category in the latest year, potentially has a result of DVA moving towards fewer specialist examinations for claims. Other 2 payments, on the other hand, have grown much more slowly but have seen more rapid growth over the last two years.

Figure 17.1: Expenditure on other payments by category (MRCA data)



17.2.2 Figure 17.2 shows ultimate assumptions adopted for MRCA Other 1 on numbers of claimants per unit of exposure against the raw data from which these assumptions were derived.

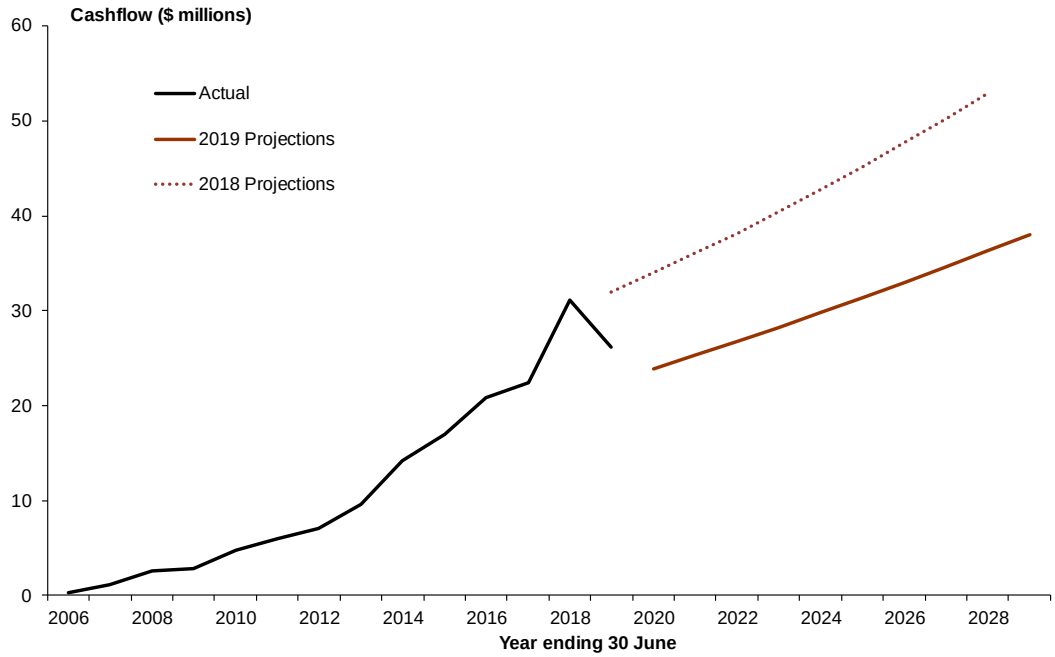
Figure 17.2: Number of claimants per unit of exposure – category 1 other payments (MRCA)



17.2.3 Based on more recent experience, we have reduced the average cost for Other 1 to $3,000 from $3,120 per claimant selected at the previous valuation. As with the previous year, we have seen zero costs for legal claims over the last two calendar years and as such, have removed the legal expense loading previously used. We have changed the assumed growth rate from 4% to 3% to reflect recent trends where we have seen little growth in the average size of claims but have retained some growth in line with reduced salary inflation as this is more consistent with long term trends. For Other 2 we have assumed growth of 4% per annum. The initial cost per claimant is $3,100, slightly up from $3,000 in 2018.

17.2.4 When these various components are combined, we can estimate the total projected payments for future years and compare them against the historical experience as shown in Figure 17.3. The cashflows are slightly higher than those estimated in 2017 due to higher numbers of claimants but increase at a slower rate due to the change in growth rate from 6% to 4% for Other 1.

Figure 17.3: Historical and projected other payments



17.3 Liability Estimate

17.3.1 Table 17.1 shows the estimate of the liability in relation to other payments broken down by year of accident. The liability as at 30 June 2019 is $279.3m. This compares to an expected projected liability of $332.4m from the 2018 valuation and is driven by a reduction in the number of expected claims in Other 1 and a reduction in the expected future inflation rate of costs.

Table 17.1: Outstanding claims liability for MRCA other payments by year of accident

Year of accident - year ending 30 June	Liability (inflated and discounted) ($'m)
2005 - 2009	63.5
2010	14.0
2011	15.3
2012	16.4
2013	17.5
2014	19.4
2015	21.8
2016	24.4
2017	27.0
2018	29.0
2019	31.2
Total	**279.3**
Expected at 30/06/2019	332.4
Total (30/06/2018)	**306.9**

17.3.2 Table 17.2 reconciles the liability estimate with the corresponding estimate at the previous valuation.

Table 17.2: Reconciliation of liability for other payments

	$m
Liability estimate at 30/06/18 (previous report)	**306.9**
Assumed Interest	15.6
Projected Payments	(32.0)
Notional Premium	41.9
Projected liability as at 30 June 2019 (previous valuation)	332.4
Experience effects and Assumption changes	
difference between actual and projected payments	5.8
change in experience	(33.4)
change in loading factor	(14.1)
change in inflation factor	(10.5)
change in average cost	(0.9)
Current Estimate	**279.3**

18 Summary of results for non-incapacity payments

18.1 Liability as at 30 June 2019

18.1.1 The following tables combine the results reported in the previous chapters to give a total liability for all non-incapacity payments across both schemes. Table 18.1 summarises the liability estimates described in the previous chapters. It can be seen that medical expenses now account for 44% of the total non-incapacity liability.

Table 18.1: Outstanding claims liability for non-incapacity payments as at 30 June 2019

Payment Type	Liability (inflated and discounted)	
	$'m	% of Total
Permanent Impairment[4]	6,290.7	47%
Medical Expenses	5,881.6	44%
Rehabilitation Costs	355.2	3%
Benefits Payable on Death[5]	314.8	2%
Other[6]	538.9	4%
Total	**13,381.2**	**100%**

18.1.2 Table 18.2 reconciles the liability estimate as at 30 June 2019 with the current estimate.

Table 18.2: Reconciliation of liability estimate for non-incapacity payments

	$m
Liability estimate at 30/06/18 (previous report)	9,592.8
Assumed Interest	479.2
Projected Payments	(1,059.6)
Notional Premium	1,040.5
Projected liability as at 30 June 2019 (previous valuation)	10,052.9
Experience effects and Assumption changes	
difference between actual and projected payments	(48.1)
MRCA PI experience	331.2
MRCA PI claim rate change	619.0
MRCA PI IP distribution change	(368.1)

[4] Includes non-economic loss payments.

[5] Includes lump sums and fortnightly payments to dependent children.

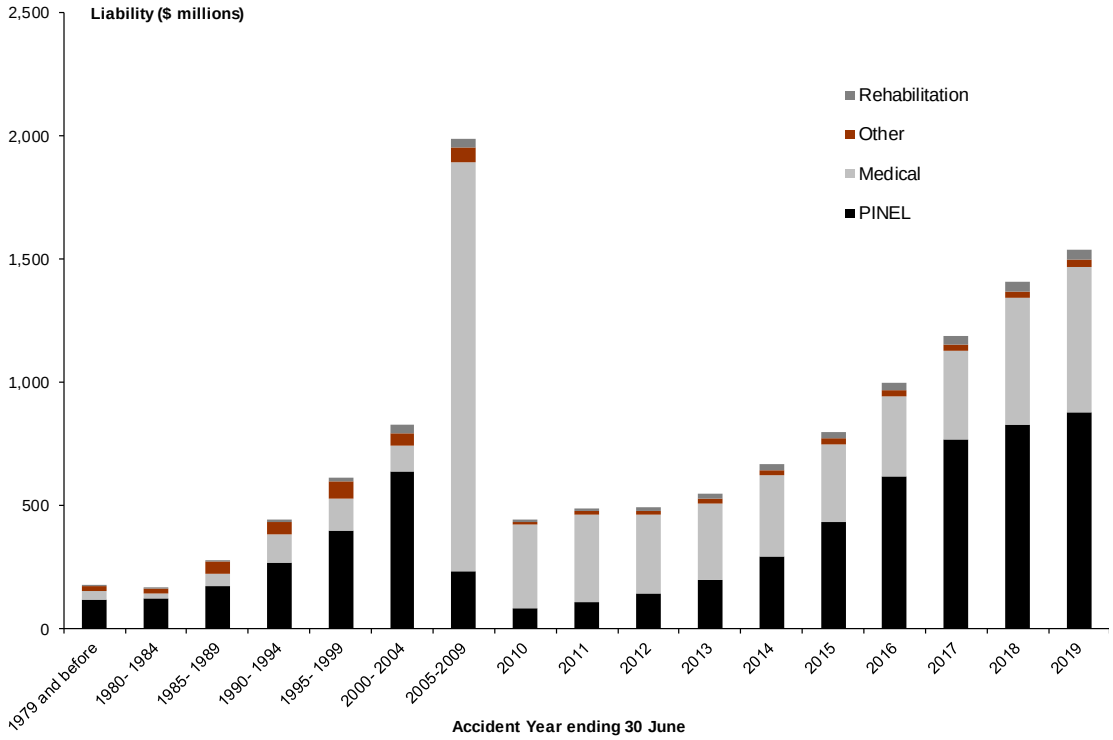
[6] Household services, attendant care, travel, legal costs, general services/medical examinations, surveillance, damage to property and funeral expenses.

DRCA PI experience	395.3
DRCA PI claims rate change	221.4
DRCA PI average size change	257.5
change in MRCA medical claimants	924.4
change in MRCA medical claims rate	(340.8)
change in MRCA medical cost and usage	390.1
change in MRCA medical transition probabilities	875.2
other adjustments	71.4
Current Estimate	**13,381.2**

18.1.3 The projected liability at the previous valuation for 30 June 2018 is $10,052.9m. The liability at this valuation is $13,381.2m. This is approximately $3.3bn higher than was projected at the previous valuation with the majority of the increase attributable to the increase in medical and PI liabilities.

18.1.4 Figure 18.1 shows the estimates of the non-incapacity liability broken down by year of accident. Note that the liability for death payments is not included as the liability is not allocated to a year of accident. It can be seen that substantial liabilities are estimated in respect of the early accident years, particularly for medical costs.

Figure 18.1: Outstanding claims liability for non-incapacity payments as at 30 June 2019 - by head of damage and year of accident



18.1.5 The liability estimates were attributed to Service Arm in proportion to payments made during the last three financial years.

Table 18.3: Outstanding claims liability for non-incapacity payments as at 30 June 2019 - by head of damage and service arm

	Liability (Inflated and Discounted) $'m			
Payment Type	**Army**	**Navy**	**RAAF**	**Total**
PI and NEL	4,609.9	990.6	690.2	6,290.7
Medical Expenses	4,346.2	830.7	704.7	5,881.6
Rehabilitation Costs	272.2	47.3	35.7	355.2
Death Benefits	98.7	150.6	65.5	314.8
Other	369.4	95.3	74.2	538.9
Total	**9,696.3**	**2,114.6**	**1,570.3**	**13,381.2**

18.1.6 Approximately 71 per cent of the liability is estimated to arise from injuries to Army personnel, while the Navy and RAAF contribute around 17 per cent and 12 per cent respectively.

18.2 Projected Cashflows

18.2.1 Cashflows have been projected for the following decade allowing for future injuries. Table 18.4 shows the projected cashflows in respect of injuries sustained before the valuation date under DRCA, while

18.2.2 Table 18.5 shows the cashflows arising from injuries sustained before the valuation date under MRCA. Table 18.6 shows the projected cashflows for injuries occurring after 30 June 2019. Note that all figures are in nominal dollars, that is, they have not been discounted to 2019 dollars.

Table 18.4: Projected non-incapacity payments for DRCA claims incurred as at 30 June 2019

	Payments (future dollars) $'m					
Year ending 30 June	**PI and NEL**	**Medical Expenses**	**Rehab**	**Death**	**Other[7]**	**All[8]**
2020	157.7	18.6	10.2	32.6	13.8	233.0
2021	176.4	18.9	9.0	31.9	14.1	250.4
2022	164.5	19.4	8.3	31.4	14.4	237.9
2023	153.6	19.8	7.5	30.1	14.5	225.5
2024	143.7	20.2	6.8	28.8	14.7	214.1
2025	134.8	20.6	6.1	27.0	14.9	203.4

[7] Household services, attendant care, travel, legal costs, general services/medical examinations, surveillance, damage to property and funeral expenses.

[8] Excludes incapacity payments.

	Payments (future dollars) $'m					
Year ending 30 June	PI and NEL	Medical Expenses	Rehab	Death	Other[7]	All[8]
2026	126.8	20.9	5.5	24.9	15.0	193.1
2027	119.4	21.2	5.0	22.6	15.2	183.3
2028	112.5	21.5	4.5	20.1	15.2	173.8
2029	106.2	21.7	4.0	17.4	15.3	164.6

Table 18.5: Projected non-incapacity payments for MRCA claims incurred before 30 June 2019

	Payments (future dollars) $'m					
Year ending 30 June	PI	Medical Expenses	Rehab	Death	Other	All
2020	755.4	135.2	38.2	7.3	23.3	959.3
2021	885.4	153.4	38.0	3.2	22.4	1102.4
2022	853.5	170.5	36.6	3.2	21.1	1084.9
2023	724.0	187.0	34.1	3.2	19.3	967.6
2024	524.2	201.8	30.5	3.1	17.3	776.9
2025	359.9	217.1	26.3	3.1	15.3	621.6
2026	247.4	231.7	21.9	3.1	13.7	517.8
2027	174.8	245.1	18.0	3.1	12.4	453.4
2028	130.9	257.6	14.9	3.1	11.4	418.0
2029	105.7	268.8	12.8	3.0	10.7	400.9

Table 18.6: Projected non-incapacity payments for MRCA claims incurred after 30 June 2019

	Payments (future dollars) $'m					
Year ending 30 June	PI	Medical Expenses	Rehab	Death	Other	All
2020	10.0	2.5	0.3	4.3	0.6	17.7
2021	72.0	10.8	2.5	9.0	2.9	97.2
2022	144.9	24.4	5.9	9.6	5.7	190.5
2023	316.4	43.3	10.6	10.2	9.0	389.5
2024	557.8	67.8	16.4	10.8	12.6	665.4
2025	762.5	98.0	22.9	11.4	16.2	911.1
2026	914.1	134.2	29.5	12.1	19.6	1,109.4
2027	1,023.5	177.0	35.7	12.7	22.6	1,271.6
2028	1,101.4	226.5	41.1	13.4	25.4	1,407.9
2029	1,158.2	283.3	45.6	14.1	27.9	1,529.1

18.2.3 Figure 18.2 shows this information graphically and Figure 18.3 puts the projection of total non-incapacity payments in the context of historical expenditure.

Figure 18.2: Projected non-incapacity payments

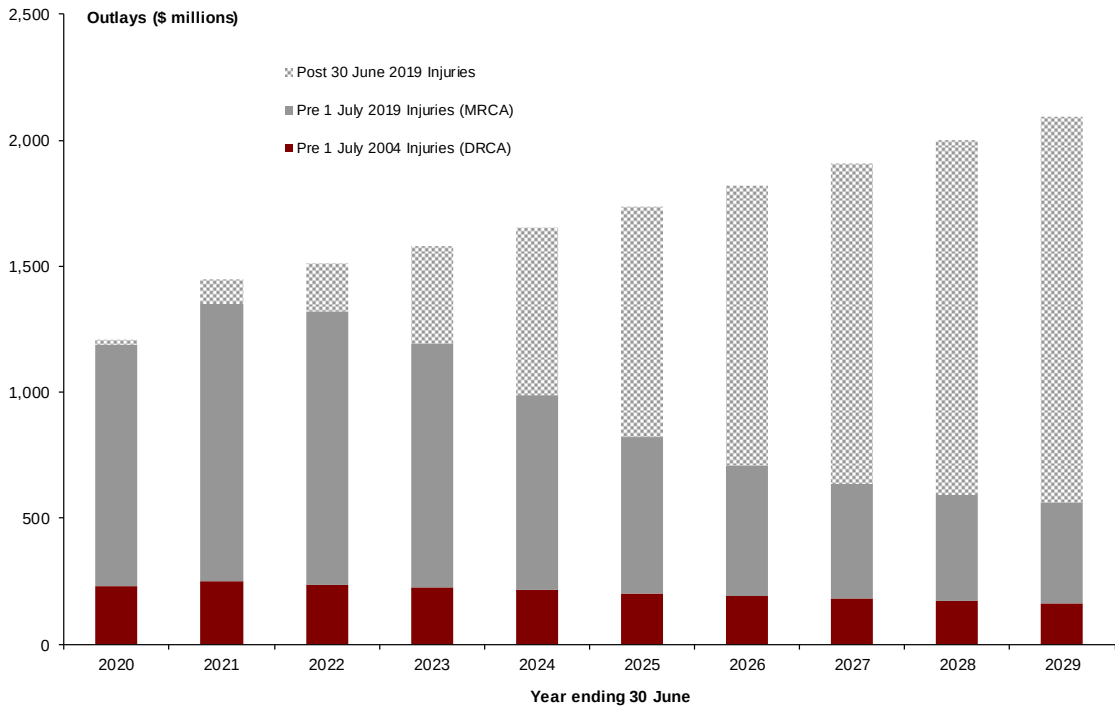
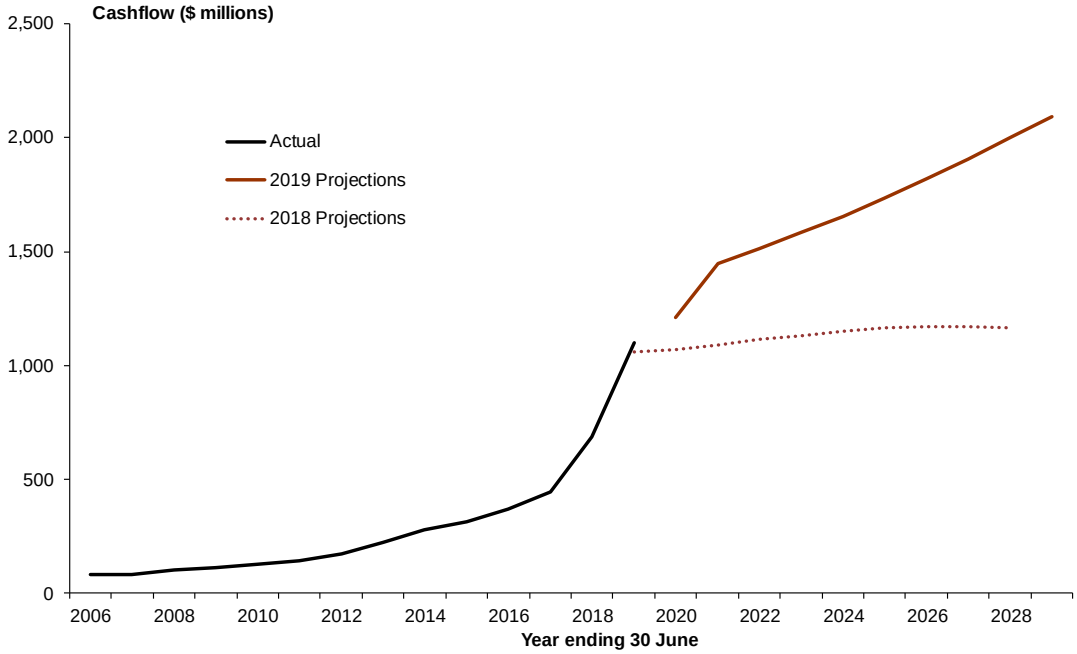


Figure 18.3: Historical and projected non-incapacity payments



18.2.4 The projected cashflows are a significant increase to those projected at the last valuation, primarily as a result of increases to cashflows relating to medical,

incapacity, and permanent impairment. The growth in projected cashflows from 2020-21 is driven by the additional growth implemented in the PI head of damage to account for increasing processing capacity in order to process the current backlog of claims present in both MRCA and DRCA and the continued heightened levels of claims experience.

19 Summary of overall outstanding liability, cashflows and notional premium estimate

19.1 Summary of Outstanding Claims Liability

19.1.1 Table 19.1 shows the overall outstanding claims liability split between incapacity and non-incapacity payments and by Service Arm.

Table 19.1: Outstanding claims liability as at 30 June 2019 by service arm

Service	Incapacity Payments ($m)	Non-Incapacity Payments ($m)	Total ($m)
Army	4,674.2	9,696.3	14,370.5
Navy	965.9	2,114.6	3,080.5
RAAF	667.8	1,570.3	2,238.1
Total	**6,307.9**	**13,381.2**	**19,689.1**
Total (30/06/2018)	**4,834.0**	**9,592.8**	**14,426.8**

19.1.2 Table 19.2 shows the outstanding claims liability for 2019, and projected for 10 years, split between DRCA and MRCA claims. The proportion of MRCA claim related liabilities are projected to increase from about 80 per cent of the total as at the valuation date to almost 95 per cent by the end of the projection period.

Table 19.2: Outstanding claims liability split between DRCA and MRCA

As at 30 June	DRCA ($m)	MRCA ($m)	Total ($m)
2020	3,890.5	15,798.7	19,689.1
2021	3,746.2	17,726.9	21,473.1
2022	3,579.7	19,662.5	23,242.2
2023	3,417.2	21,727.2	25,144.4
2024	3,258.1	23,917.8	27,175.9
2025	3,101.9	26,217.1	29,319.0
2026	2,948.7	28,630.1	31,578.8
2027	2,797.9	31,141.7	33,939.6
2028	2,646.1	33,742.8	36,388.8
2029	2,501.3	36,449.3	38,950.7

19.1.3 Table 19.3 reconciles the overall liability estimate given in our 2018 report with the current estimate of the outstanding claims liability. In total, the various adjustments made to assumptions have increased the liability by over $4.4bn compared with that projected in the 2018 valuation. The increased liability has primarily been driven by growth in the medical, incapacity, and PI heads of damage.

Table 19.3: Reconciliation of overall liability estimate

	$m
Liability estimate at 30/06/18 (previous report)	**14,426.8**
Assumed Interest	724.3
Projected Payments	(1,329.3)
Notional Premium	1,448.0
Projected liability as at 30 June 2019 (previous valuation)	15,269.8
Experience effects and assumption changes	
difference between actual and projected payments	(72.8)
MRCA PI experience	331.2
MRCA PI claim rate change	619.0
MRCA PI IP distribution change	(368.1)
DRCA PI experience	395.3
DRCA PI claims rate change	221.4
DRCA PI average size change	257.5
change in MRCA medical claimants	924.4
change in MRCA medical claims rate	(340.8)
change in MRCA medical cost and usage	390.1
change in MRCA medical transition probabilities	875.2
Increase in incapacity experience	354.4
change in incapacity claimant numbers	748.4
change in survival rates	169.1
change in exit rates	130.5
change in short term inflation	(289.2)
other adjustments	73.9
Current Estimate	**19,689.1**

19.2 Summary of Projected Cashflows

19.2.1 This section combines the projected cashflows for incapacity and non-incapacity payments for the following decade allowing for future injuries. Table 19.4 shows the projected cashflows in respect of injuries sustained before the valuation date under the DRCA, while Table 19.5 shows the cashflows arising from injuries sustained before the valuation date under the MRCA. Table 19.6 shows the projected cashflows for those injuries occurring after 30 June 2019. Note that all figures are in nominal dollars, that is, they have not been discounted to 2019 dollars.

19.2.2 Changes in the assignment of accident year have led to a greater proportion of cashflows being treated as incurred as at the valuation date.

Table 19.4: Projected payments for DRCA claims as at 30 June 2019

Year ending 30 June	Incapacity ($'m)	Non-Incapacity ($'m)	Total ($'m)
2020	97.7	233.0	330.6
2021	94.9	250.4	345.3
2022	95.3	237.9	333.2

Year ending 30 June	Incapacity ($'m)	Non-Incapacity ($'m)	Total ($'m)
2023	96.5	225.5	322.0
2024	97.3	214.1	311.4
2025	97.5	203.4	300.9
2026	98.0	193.1	291.1
2027	101.4	183.3	284.7
2028	96.6	173.8	270.4
2029	95.0	164.6	259.6

Table 19.5: Projected payments for MRCA claims incurred as at 30 June 2019

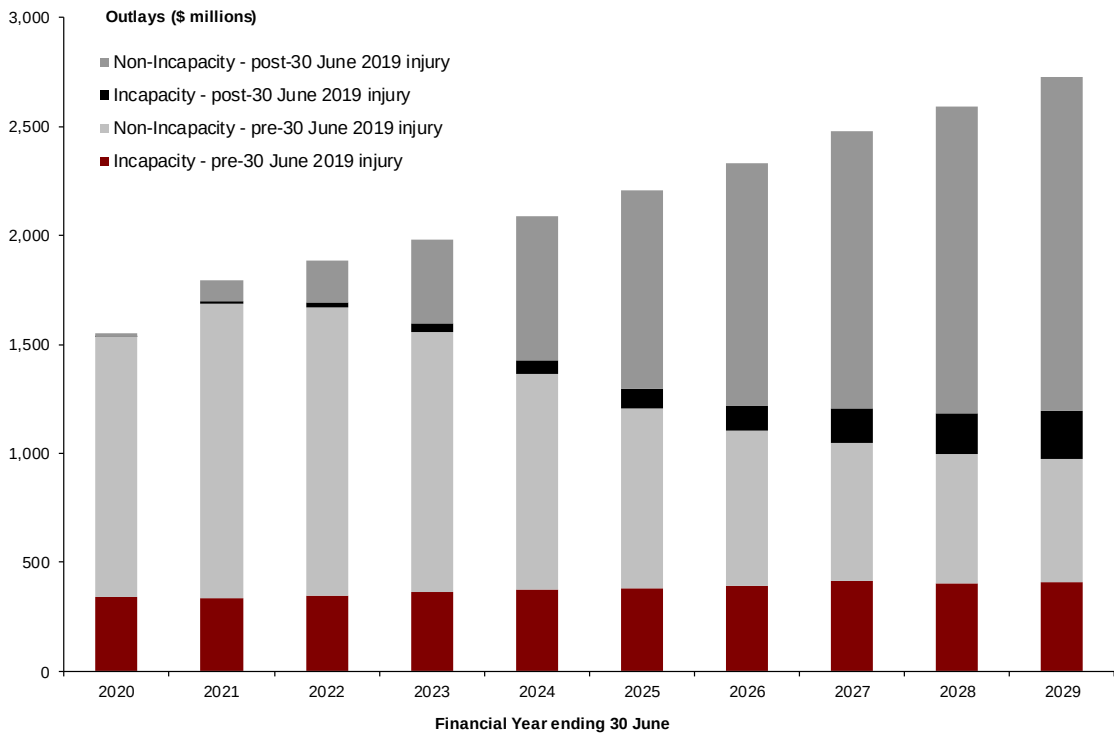
Year ending 30 June	Incapacity ($'m)	Non-Incapacity ($'m)	Total ($'m)
2020	243.9	959.3	1,203.2
2021	241.3	1,102.4	1,343.7
2022	253.4	1,084.9	1,338.2
2023	265.8	967.6	1,233.4
2024	276.8	776.9	1,053.7
2025	285.9	621.6	907.5
2026	294.0	517.8	811.8
2027	312.9	453.4	766.3
2028	308.4	418.0	726.4
2029	313.9	400.9	714.8

Table 19.6: Projected payments for MRCA claims incurred after 30 June 2019

Year ending 30 June	Incapacity ($'m)	Non-Incapacity ($'m)	Total ($'m)
2020	1.8	17.7	19.6
2021	9.1	97.2	106.3
2022	22.3	190.5	212.8
2023	39.8	389.5	429.3
2024	61.7	665.4	727.1
2025	88.0	911.1	999.1
2026	118.1	1,109.4	1,227.6
2027	155.8	1,271.6	1,427.4
2028	188.1	1,407.9	1,596.0
2029	224.0	1,529.1	1,753.1

19.2.3 Figure 19.1 shows this information graphically. It can be seen that the incapacity payments fall more slowly for the pre-2019 injuries and increase more slowly for the post-2019 injuries. This reflects the long-term nature of many income support payments.

Figure 19.1: Projected payments



19.2.4 Table 19.7 shows the projected cashflows split between payments made under the DRCA and payments made under the MRCA. Note that all figures are in nominal dollars, that is, they have not been discounted to 2019 dollars.

Table 19.7: Projected payments split between DRCA and MRCA injuries

Year ending 30 June	Incapacity		Non-Incapacity		Total	
	DRCA ($'m)	MRCA ($'m)	DRCA ($'m)	MRCA ($'m)	DRCA ($'m)	MRCA ($'m)
2020	97.7	245.7	233.0	977.1	330.6	1,222.8
2021	94.9	250.4	250.4	1,199.6	345.3	1,450.0
2022	95.3	275.7	237.9	1,275.4	333.2	1,551.1
2023	96.5	305.6	225.5	1,357.1	322.0	1,662.7
2024	97.3	338.5	214.1	1,442.3	311.4	1,780.8
2025	97.5	373.9	203.4	1,532.7	300.9	1,906.6
2026	98.0	412.1	193.1	1,627.3	291.1	2,039.4
2027	101.4	468.8	183.3	1,725.0	284.7	2,193.7
2028	96.6	496.6	173.8	1,825.8	270.4	2,322.4
2029	95.0	537.8	164.6	1,930.0	259.6	2,467.9

19.3 Estimated Notional Premium

19.3.1 The notional premium is an estimate of the lifetime compensation cost of work related injuries occurring during 2019-20. It is the amount which if paid over the course of the

year, together with assumed investment income, would be sufficient to meet the eventual claim costs arising from injuries which occur during 2019-20 if experience unfolded in line with the valuation assumptions. The notional premium for 2019-20 relates entirely to MRCA claims.

19.3.2 It is important to note the distinction between the notional premium for 2019-20 and the actual claim payments which will be made during 2019-20.

19.3.3 It is convenient to break the notional premium into the same components as the outstanding claims liability. The components of the notional premium include the cost of:

- incapacity payments;
- permanent impairment and non-economic loss lump sums;
- medical expenses;
- rehabilitation;
- death and payments to dependent children; and
- other benefits;

that is attributable to claims arising from service rendered during 2019-20.

19.3.4 The estimate of the notional premium is calculated as the present value of the cashflows arising from the 2019-20 accident year adjusted for half a year's interest to give the amount that would need to be paid over the course of 2019-20.

19.3.5 Administration costs have not been included for this review, as they are considered outside the scope of the review itself.

19.3.6 Table 19.8 sets out the estimates of the notional premium, broken down by Service Arm, and by payment type. The notional premium for 2019-20 is $2,333.6m. This compares to the estimated notional premium at the previous valuation of $1,448.0m. The increase of $886m reflects the significant changes to assumptions made in the current valuation

Table 19.8: 2019-20 notional premium by service and payment type

Payment Type	ARMY ($'m)	NAVY ($'m)	RAAF ($'m)	Total ($'m)
Long-Term Incapacity	287.5	56.4	39.5	383.4
Short-Term Incapacity	63.0	18.1	11.5	92.6
Permanent Impairment	663.4	142.6	99.3	905.3
Medical	639.3	122.2	103.7	865.2
Rehabilitation	30.8	5.3	4.0	40.2
Death	4.6	7.1	3.1	14.8
Other	22.1	5.7	4.4	32.2
Total	**1,710.7**	**357.3**	**265.6**	**2,333.6**
Total (30/06/2018)	**1,089.7**	**200.0**	**158.2**	**1,448.0**

19.3.7 Table 19.9 shows the overall notional premium estimates, expressed as percentages of the total military salary expenditure expected to be paid during 2019-20. Salary estimates for this review were provided by Defence.

Table 19.9: 2019-20 notional premium by service (percentage of salary)

	ARMY	NAVY	RAAF	Total
Notional Premium ($ m)	1,710.7	357.3	265.6	2,333.6
Forecast salaries 2019-20($m)	3,028.5	1,661.5	1,587.0	6,277.0
Notional Premium (%)	56.5%	21.5%	16.7%	37.2%

19.3.8 Defence advised overall estimated salaries of approximately $6.3bn for 2019-20. This was around $197m higher than the salary roll for 2018-19, an increase of 3.2%. The notional premium, however, has increased by around 60% in dollar terms and this has resulted in an increase in the premium expressed as a percentage of salary of approximately 13 percentage points. Most of this increase is attributable to the higher Army premium, which is now almost double that for the other two service arms. This has been a relatively recent phenomenon; prior to the 2013 report, the notional premium had generally been around 5% of salary, with the rate for Army only slightly higher than the rates for Navy and RAAF.

20 Sensitivity Analysis

20.1 Background

20.1.1 As noted in section 5.3, the choice of the interest rate used to discount future cashflows to determine the present value of liability has a major impact on the results. This is the result of the very long time period over which payments are projected combined with the relatively high rates of payment inflation.

20.1.2 We have taken the view that changes in the interest rate from year to year have the potential to confuse rather than clarify understanding of the trends in the experience. However, for financial statement purposes an estimate of the liability based on prevailing yields on Commonwealth securities is required. In providing advice for the 2019 DVA financial statements, therefore, we discounted the cashflows generated by the 2018 model using a yield curve for Commonwealth securities as at 30 June 2019. We have recalculated the liability based on the cashflows from the current valuation using that same yield curve.

20.1.3 There is considerable uncertainty in modelling MRCA permanent impairment payments as a result of significant changes in experience and uncertainty regarding potential increases to DVA's internal processing capacity. As a result of several administrative initiatives taking place over this period, the level of claims has changed year on year and it is too early in the process to ascertain what a stable environment might look like. There is also considerable uncertainty regarding annual administrative funding which influences the rate at which the existing and growing claims backlog might be cleared. We have therefore modelled a range of scenarios around the claim rate and processing rate to illustrate the sensitivity of outcomes to these assumptions.

20.1.4 For the modelling of incapacity payments, there are a range of assumptions required on transition rates from short-term to long-term incapacity and age based exit rates. DVA has identified incapacity as an area where it may be possible to influence outcomes and is implementing a range of initiatives designed to improve rates of return to the workforce. We have therefore modelled a range of scenarios around exit rates to illustrate the sensitivity of outcomes to these assumptions.

20.1.5 One key assumption in arriving at an estimate of the medical liability as at 30 June 2019 was the proportion of future expenditure that might relate to claims occurring before the valuation date. The data on health care expenditure makes it impossible to model this directly and we have instead used information on distributions of claims to approximate a split. To illustrate the impact of this assumption, we have included the liability that would have been calculated if we assumed that all of the expenditure arising from those who have had at least one claim prior to the valuation date contributed to the liability.

20.2 Results

Discount Rate Scenario

20.2.1 The following table shows the liabilities as at 30 June 2019 by head of damage and Act using the yield curve adopted for the 2018-19 financial statements.

Table 20.1: Estimated liability using 2019 yield curve

Payment Type	DRCA ($'m)	MRCA ($'m)	Total ($'m)
Long-Term Incapacity	1,507	7,130	8,638
Short-Term Incapacity	159	889	1,049
Total Incapacity	1,667	8,020	9,686
Permanent Impairment	2,361	5,540	7,901
Medical	595	10,416	11,011
Rehabilitation	92	364	456
Death	313	101	414
Other	410	479	888
Total Non-Incapacity	**3,771**	**16,899**	**20,670**
Total	**5,437**	**24,919**	**30,356**

20.2.2 The total liability increases by $10.7bn when the yield curve is used, relative to the results using the 5 percent discount rate. The items which are most sensitive to the change in discount rate are the medical and long-term incapacity (which includes the IBNR liability) categories. These payments have a thicker 'tail' than other heads of damage in terms of the pattern of cashflows. The least sensitive heads of damage are death claims under DRCA and short-term incapacity, where the cashflows are expected to be concentrated in the short to medium term.

20.2.3 Cashflows are not affected by the choice of discount rate but the notional premium is. Using the yield curve, the calculated notional premium increases by $1.5bn to $3.9bn.

MRCA Permanent Impairment Scenarios

20.2.4 MRCA permanent impairment experience increased significantly in the first half of the 2018-19 year. This heightened level of claims and payments has continued in the experience to December 2019 and does not show any signs of arresting in the near term. The year on year claim rate in recent years has been drastically different and there is considerable uncertainty around when or if the experience will stabilise. The most recent year has shown a slowing of growth in lodged claims but more experience is required to determine whether a peak in the experience has been reached. One of the key assumptions in modelling the liability is what level of future claims to adopt. We have included scenarios to look at the impact of three different levels of future lodged claims.

20.2.5 Another element of uncertainty relates to the existing backlog of claims. The processing capacity of DVA in recent years has not kept up with the growth in lodged claims. As such, there exists a significant and growing number of lodged claims which

are yet to be processed. We have included additional growth in the paid claims experience to account for the increase in lodged claims but this impact will be dependent on DVA's ability to access additional funding for an increase to the existing processing workforce. This is somewhat out of DVA's immediate control as it is influenced by Commonwealth administrative funding decisions but we have included scenarios of additional processing capacity over the most recent years in order to clear the existing backlog and maintain levels in line with lodged claims. Table 20.2 describes the four scenarios we have modelled and the resulting liabilities.

Table 20.2: Permanent impairment liabilities under modelled scenarios

Scenario	Description	MRCA PI Liability ($'m)	Change in Liability ($m)
Base		4,574.3	-
1	Lodged and paid claims remain at current levels	3,604.7	(969.6)
2	Lodged claims at current levels, additional growth in processed claims to remove backlog and then remain in line with rate of lodged claims	5,461.5	887.2
3	Lodged claims decrease, additional growth in processed claims to remove backlog and then remain in line with rate of lodged claims	3,870.3	(704.0)
4	Lodged claims increase, additional growth in processed claims to remove backlog and then remain in line with rate of lodged claims	6,700.7	2,126.4

Incapacity Scenarios

20.2.6 It seems likely that efforts to reduce unnecessary dependence upon incapacity benefits will be focussed on the younger age demographic and the scenarios we have modelled for the most part look at changes in exit or survival rates for this group. We have modelled the results separately for existing long-term recipients and those who might become long-term recipients in future (the short-term and IBNR liability). Table 20.3 describes the nine scenarios we have modelled while Table 20.4 shows the results.

Table 20.3: Description of scenarios for incapacity

Scenario	Description
1	Exit rates increased by 10% for those aged less than 35 who have been on long-term benefits for 5 years or less
2	Exit rates increased by 10% for all long-term recipients aged less than 35
3	Exit rates increased by 20% for those aged less than 35 who have been on long-term benefits for 5 years or less
4	Transition rate from short-term to long-term benefits reduced by 10% for those aged less than 35
5	Combination of scenarios 1 and 4
6	Combination of scenarios 3 and 4
7	Combination of scenarios 3 and 4, together with a 10% reduction in transition rates for those aged between 35 and 49
8	Exit rates decreased by 10% for all long-term recipients
9	Transition rate from short-term to long-term benefits increased by 10% for those aged less than 35

Table 20.4: Incapacity liability under modelled scenarios

Scenario	Current long-term recipients ($m)	Future long-term recipients ($m)	Total ($'m)	Change in Liability ($m)
Base	2,004.3	3,501.3	5,505.5	-
1	1,991.6	3,447.4	5,439.0	(66.6)
2	1,983.7	3,435.3	5,419.0	(86.5)
3	1,979.6	3,398.7	5,378.2	(127.3)
4	2,004.3	3,449.2	5,453.5	(52.1)
5	1,991.6	3,400.7	5,392.3	(113.3)
6	1,979.6	3,356.9	5,336.4	(169.1)
7	1,979.6	3,141.8	5,121.4	(384.2)
8	2,078.4	3,746.9	5,825.4	319.8
9	2,004.3	3,551.8	5,556.0	50.1

MRCA Medical Scenarios

Table 20.5: MRCA Medical liability under modelled scenarios

Scenario	Description	MRCA Medical Liability ($'m)	Change in Liability ($m)
Base	-	5,510.0	-
1	Lag ratios increased by 10%	5,900.0	390.1
2	Lag ratios decreased by 10%	5,159.8	(350.2)
3	Increase in 1% on transition probabilities	5,844.6	334.7
4	Decrease in 1% on transition probabilities	5,156.7	(353.2)
5	Increase of 10% in utilisation rates	6,055.9	546.0
6	Increase of 20% in utilisation rates	6,598.5	1,088.6

20.2.7 The estimate of the MRCA medical liability was based on assumptions around how the future cashflows can be attributed to incidents arising before and after the valuation date. If we treated all cashflows arising from those known or assumed to have at least one incident before the valuation date as contributing to the accrued liability, the MRCA medical liability would increase by almost $1.5bn to $7bn.

20.2.8 This effectively represents an upper limit on the MRCA liability based on our assumptions regarding claimant numbers and average cost per claimant.

20.3 Comments on Results

20.3.1 The change in the discount rate has a very substantial impact on both the estimated liability and the notional premium. This reflects the very low yields on Commonwealth securities as at 30 June 2019. However, in some sense, this is not a real effect since the day to day changes in the Commonwealth bond rate, from which the discount rate has been determined, do not impact on the cashflows that will ultimately be required.

20.3.2 There is considerable uncertainty on when the MRCA PI experience might stabilise and the scenario analysis shows a wide range of outcomes. Should experience remain at current levels without an increase to the rate of processed claims, the liability is likely to decrease considerably but this would result in either a growing backlog of claims or a significant decrease in the level of lodged claims over time to ensure the backlog is cleared and processed claims are kept in line with the rate of lodged claims. However, if the level of lodged claims increases above current levels, the liability could increase substantially to $6.7bn, an increase of 46% to the MRCA PI liability and 11% to the overall MCS liability.

20.3.3 The scenarios around incapacity exit rates illustrate the difficulty of achieving significant savings in this area unless behaviour of the older age groups can be modified. This is a function of the relatively small number of incapacity recipients in the under 35 age group. Only when the proportion of the middle age group progressing to long-term incapacity is modified do we see savings of more than $350m. This compares with a total liability for incapacity of $6.3bn.

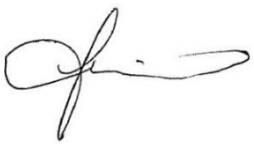
20.3.4 The medical liability is reasonably sensitive to transition assumptions and the analysis highlights the potential impact just a 1% increase across the transition probabilities can have on the total liability. The liability increases by approximately 6% which increases the overall liability by less than 2%. Finally, changing the accrual assumptions around future medical cashflows increases the MRCA medical liability by around 27% and the overall liability by 8%.

21 Compliance with Professional Actuarial Standards

21.1.1 The Actuaries Institute issues Professional Standards to provide guidance to actuaries in carrying out their professional role. Professional Standard 300 deals with actuarial reports and advice on general insurance technical liabilities. Under section 5.1 of PS300, compliance with the detailed reporting provisions of PS300 is obligatory where the actuarial report is to be provided to a regulator such as the Australian Prudential Regulation Authority. The current report is not considered to be captured under this requirement and, as such, the obligation is to comply with the relevant documentation and reporting requirements set out in the Institute's Code of Professional Conduct. We have complied with these requirements and have also used the provisions of PS300 as a guide in preparing this report.

21.1.2 Some aspects of PS300 are outside the scope of this report. These include risk margins and claim handling expenses associated with the estimates. As discussed in section 5.4, the relevant Accounting Standard for reporting the liability (AASB137) does not explicitly require a risk margin to be included. In the context of the Commonwealth's balance sheet, the requirements set out in AASB137 would argue against the inclusion of a risk margin since it would be irrational for the Commonwealth to pay more than the central estimate to settle the liability. This view is consistent with the fact that the Commonwealth chooses to self-insure many of its risks rather than pay a premium to transfer them off the balance sheet.

21.1.3 PS300 requires an analysis of actual experience with that expected under the assumptions of the last similar report. The appendix to this report shows the assumptions adopted at the last report together with the actual experience data and the assumptions chosen for the current report.



Jane Miao, FIAA
Actuary

26 June 2020

APPENDIX

The following tables contain summaries of the data used to construct the selected curves shown throughout the report. Assumptions adopted in relation to the age distribution for IBNR claimants are also included.

Where we have allowed for future growth in usage, the first column shows the actual experience data on which the assumptions were based, the second column shows the fitted value for actual experience and the last column shows the ultimate value used for current report.

Description of Tables

Table A.1 - DRCA Incapacity Model Data (Chapter 6)

	Episode Commencements per unit Exposure	
Development Year	Observed 2018-19	Selected 2018-19
16	7.0	6.6
17	5.6	6.2
18	5.5	5.8
19	5.4	5.3
20	5.1	4.8
21	4.1	4.3
22	4.1	3.9
23	3.9	3.5
24	2.9	3.1
25	2.9	2.7
26	2.5	2.4
27	1.7	2.1
28	1.6	1.8
29	1.5	1.6
30	1.6	1.4
31	0.7	1.2
32	0.9	1.0
33	0.8	0.9
34	1.4	0.7
35	0.8	0.6
36	0.4	0.5
37	0.5	0.4
38	0.2	0.4
39	0.3	0.3
40	0.2	0.3
41	0.2	0.2
42	0.5	0.2
43	0.0	0.2
44	0.2	0.2
45	0.2	0.2

Table A.2 - MRCA Incapacity Model Data (Chapter 6)

	Episode Commencements per unit Exposure	
Development Year	Observed 2018-19	Selected 2018-19
0	15.6	15.8
1	43.9	44.6
2	50.3	50.5
3	47.1	47.2
4	44.6	44.9
5	38.7	41.0
6	35.9	35.0
7	27.7	28.2
8	22.6	21.4
9	16.2	15.9
10	11.0	12.4
11	9.8	10.4
12	7.9	9.2
13	7.7	8.3
14	9.2	7.6
15	5.0	6.9
16	7.0	6.4
17	5.6	5.9
18	5.5	5.5
19	5.9	5.2
20	5.1	4.8
21	4.1	4.5
22	4.1	4.1
23	4.5	3.8
24	2.9	3.5
25	2.9	3.1
26	2.5	2.8
27	1.7	2.5
28	1.6	2.3
29	1.5	2.0
30	1.6	1.7
31	0.7	1.5
32	0.9	1.3
33	0.8	1.1
34	1.4	0.9
35	0.8	0.7
36	0.4	0.6
37	0.5	0.4
38	0.2	0.4
39	0.3	0.3
40	0.2	0.3
41	0.2	0.2
42	0.5	0.3
43	0.0	0.3
44	0.2	0.4
45	0.2	0.5

Table A.3 – Incapacity New Entrant Age Distribution – Claimaints per Thousand (Chapter 6)

Age Band	Duration from Accident Year to Commencement (years)								
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
19-23	230	10	-	-	-	-	-	-	-
24-28	250	180	20	-	-	-	-	-	-
29-33	170	260	220	20	-	-	-	-	-
34-38	120	190	250	253	30	-	-	-	-
39-43	80	140	200	293	260	60	-	-	-
44-48	60	100	130	212	310	310	70	-	-
49-53	40	60	90	121	200	240	530	40	-
54-58	30	40	50	61	120	230	290	690	80
59+	20	20	40	40	80	160	110	270	920
Grand Total	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

Table A.4 – Incapacity Recipient Transitional Probability from Short-term to Long-term (Chapter 6)

Pay Period	MRCA			SRCA		
	Young	Middle	Old	Young	Middle	Old
1	0.36855	0.51293	0.55340	0.30303	0.44155	0.44376
2	0.50476	0.63550	0.76572	0.56511	0.62056	0.63057
3	0.53062	0.66012	0.78937	0.60418	0.64596	0.65707
4	0.55229	0.68071	0.81050	0.64010	0.66928	0.68116
5	0.57026	0.69774	0.82930	0.67300	0.69068	0.70303
6	0.58506	0.71165	0.84593	0.70302	0.71033	0.72289
7	0.59719	0.72287	0.86058	0.73028	0.72839	0.74091
8	0.60718	0.73187	0.87342	0.75493	0.74502	0.75730
9	0.61552	0.73907	0.88463	0.77709	0.76040	0.77223
10	0.62274	0.74493	0.89439	0.79689	0.77468	0.78591
11	0.62935	0.74989	0.90287	0.81448	0.78803	0.79853
12	0.63586	0.75440	0.91026	0.82999	0.80061	0.81028
13	0.64277	0.75890	0.91672	0.84354	0.81259	0.82135
14	0.65062	0.76384	0.92243	0.85527	0.82413	0.83193
15	0.65989	0.76966	0.92758	0.86532	0.83540	0.84221
16	0.67112	0.77681	0.93233	0.87381	0.84656	0.85239
17	0.68481	0.78572	0.93687	0.88089	0.85777	0.86266
18	0.70147	0.79686	0.94138	0.88668	0.86920	0.87320
19	0.72161	0.81066	0.94602	0.89132	0.88101	0.88422
20	0.74576	0.82756	0.95098	0.89494	0.89337	0.89590
21	0.77441	0.84802	0.95643	0.89767	0.90644	0.90844
22	0.80809	0.87247	0.96255	0.89966	0.92039	0.92202
23	0.84730	0.90137	0.96952	0.90102	0.93538	0.93684
24	0.89256	0.93516	0.97751	0.90190	0.95157	0.95309
25	0.94438	0.96957	0.98671	0.90242	0.96913	0.97096
26	1.00000	0.98153	0.99728	0.90273	0.98822	0.99065
27	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000

Table A.5 – Long-term Incapacity recipient exit rates (Chapter 6)

	Selected 2018-19	
duration	Age less than 35	Age greater than 35
0	27.10%	11.80%
1	18.58%	9.14%
2	15.70%	7.61%
3	13.13%	6.26%
4	10.88%	5.08%
5	8.95%	4.09%
6	7.33%	3.27%
7	6.03%	2.63%
8	5.05%	2.16%
9	4.38%	1.88%
10	4.03%	1.77%
11	3.88%	1.76%
12	3.81%	1.80%
13	3.82%	1.87%
14	3.93%	1.97%
15	4.11%	2.12%
16	4.38%	2.30%
17 and over	2.30%	2.30%

Table A.6 - DRCA Permanent Impairment Model Data (Chapter 9)

Development Year	Number of Claimants per 10,000 Units of Exposure		
	2017-18 Ultimate	2018-19 Fitted	2018-19 Ultimate
16	21.8	23.6	28.3
17	19.1	20.8	25.0
18	16.7	18.4	22.1
19	14.5	16.3	19.5
20	12.6	14.4	17.3
21	10.9	12.8	15.3
22	9.4	11.3	13.6
23	8.1	10.0	12.0
24	7.0	8.9	10.7
25	6.1	7.9	9.5
26	5.2	7.0	8.4
27	4.5	6.2	7.4
28	3.9	5.5	6.5
29	3.3	4.8	5.7
30	2.9	4.1	5.0
31	2.5	3.6	4.3
32	2.2	3.1	3.7
33	2.0	2.7	3.2
34	1.9	2.3	2.8
35	1.7	2.0	2.4
36	1.7	1.8	2.1
37	1.6	1.6	1.9
38	1.6	1.4	1.7
39	1.7	1.4	1.6
40	1.7	1.3	1.6
41	1.8	1.4	1.6
42	1.8	1.4	1.7
43	1.9	1.6	1.9
44	1.9	1.7	2.1
45	1.9	1.9	2.3

Table A.7 - MRCA Permanent Impairment Model Data (Chapter 10)

Number of Claimants per 10,000 Units of Exposure						
Development Year	Observed Long Term	Observed SRCA		2018-19 Fitted	2018-19 Ultimate	2017-18 Ultimate
		2004	2019			
0	13.8			13.8	18.2	10.7
1	64.1			66.9	88.3	51.1
2	88.8			77.4	102.2	79.5
3	162.2			179.1	236.4	98.2
4	247.1			243.0	320.7	106.2
5	208.3			192.5	254.1	102.2
6	118.9			129.4	170.8	85.2
7	76.1			82.6	109.1	58.3
8	50.4			50.2	66.2	37.0
9	33.2			29.7	39.2	23.8
10	22.2			18.3	24.2	16.6
11	17.6			13.1	17.3	13.4
12	10.0			11.1	14.6	12.3
13	6.8			9.7	12.8	11.5
14	6.3			8.4	11.1	10.8
15	5.7			7.2	9.5	10.1
16		5.1	24.3	6.2	8.1	9.4
17		4.6	19.9	5.2	6.9	8.8
18		4.1	19.1	4.4	5.8	8.2
19		3.6	15.2	3.7	4.9	7.6
20		3.0	14.3	3.1	4.1	7.0
21		2.6	12.7	2.6	3.4	6.5
22		2.3	10.8	2.1	2.8	5.9
23		2.0	9.8	1.7	2.3	5.5
24		1.7	13.0	1.4	1.9	5.0
25		1.6	7.2	1.2	1.6	4.6
26		1.4	6.6	1.1	1.4	4.2
27		1.4	5.7	0.9	1.2	3.8
28		1.4	5.0	0.9	1.2	3.4
29		1.5	3.9	0.9	1.1	3.1
30		1.5	3.3	0.9	1.2	2.8
31		1.6	4.3	0.9	1.2	2.5
32		1.6	3.0	1.0	1.3	2.3
33		1.6	3.2	1.1	1.4	2.0
34		1.5	2.2	1.2	1.6	1.8
35		1.5	2.0	1.3	1.7	1.6
36		1.5	2.2	1.4	1.9	1.5
37		1.3	1.4	1.5	2.0	1.4
38		1.1	2.0	1.6	2.2	1.3
39		1.0	1.0	1.7	2.3	1.2
40		1.0	1.6	1.8	2.4	1.1
41		1.1	1.4	1.8	2.4	1.1
42		1.3	1.9	1.8	2.4	1.1
43		1.4	1.2	1.8	2.3	1.1
44		1.4	1.3	1.7	2.2	1.1
45		1.4	1.1	1.5	2.0	1.2

Table A.8 - MRCA Permanent Impairment point distribution - Warlike/Non-warlike (Chapter 10)

Impairment points	Observed distribution FY2017-FY2019	2018-19 Selected Distribution[1]
0	0.00%	0.00%
1	0.35%	0.44%
2	0.89%	0.66%
3	0.67%	0.87%
4	1.13%	1.08%
5	1.86%	1.86%
6	1.34%	1.29%
7	1.29%	1.38%
8	1.40%	1.42%
9	1.51%	1.41%
10	1.43%	1.34%
11	1.02%	1.22%
12	1.12%	1.05%
13	7.93%	7.93%
14	3.75%	3.62%
15	2.62%	3.14%
16	2.21%	1.43%
17	0.91%	1.43%
18	6.21%	6.15%
19	1.25%	1.91%
20	2.18%	1.87%
21	2.08%	1.84%
22	2.17%	1.80%
23	1.89%	1.76%
24	1.62%	1.72%
25	1.43%	1.68%
26	1.59%	1.63%
27	1.54%	1.59%
28	1.64%	1.55%
29	1.62%	1.50%
30	1.43%	1.46%
31	1.50%	1.41%
32	1.61%	1.37%
33	1.48%	1.32%
34	1.22%	1.28%
35	1.08%	1.23%
36	0.78%	1.19%
37	0.71%	1.14%
38	0.65%	1.10%
39	1.22%	1.05%
40	1.09%	1.01%
41	0.99%	0.97%
42	1.10%	0.93%

Impairment points	Observed distribution FY2017-FY2019	2018-19 Selected Distribution[1]
43	1.17%	0.89%
44	1.10%	0.85%
45	0.84%	0.81%
46	0.75%	0.78%
47	0.99%	0.74%
48	0.78%	0.71%
49	0.49%	0.68%
50	0.42%	0.65%
51	2.16%	2.16%
52	1.54%	1.53%
53	1.07%	1.28%
54	1.38%	1.09%
55	0.70%	0.93%
86	1.18%	0.81%
57	0.75%	0.72%
58	0.67%	0.66%
59	0.18%	0.62%
60	0.63%	0.60%
61	0.51%	0.58%
62	0.73%	0.58%
63	0.36%	0.57%
64	0.67%	0.57%
65	0.51%	0.57%
66	1.14%	0.56%
67	0.53%	0.56%
68	0.42%	0.55%
69	0.41%	0.54%
70	0.62%	0.53%
71	0.30%	0.51%
72	0.41%	0.49%
73	0.42%	0.45%
74	0.36%	0.42%
75	0.67%	0.37%
76	0.23%	0.32%
77	0.28%	0.26%
78	0.23%	0.18%
79	0.02%	0.10%
80	2.87%	2.87%

Table A.9 - MRCA Permanent Impairment point distribution - Peacetime (Chapter 10)

Impairment points	Observed distribution FY2017-FY2019	2018-19 Selected Distribution[1]
0	0.07%	0.07%
1	0.36%	0.59%
2	1.05%	0.64%
3	0.55%	0.69%
4	0.70%	0.75%
5	2.42%	2.42%
6	1.23%	1.31%
7	1.46%	1.41%
8	1.63%	1.46%
9	1.35%	1.44%
10	1.27%	1.36%
11	1.18%	1.22%
12	1.07%	1.01%
13	8.21%	8.21%
14	2.73%	3.55%
15	4.58%	3.41%
16	2.07%	3.28%
17	3.37%	3.15%
18	5.64%	3.02%
19	1.53%	2.89%
20	1.98%	2.77%
21	2.68%	2.64%
22	2.73%	2.52%
23	2.46%	2.40%
24	2.33%	2.28%
25	1.74%	2.17%
26	2.32%	2.05%
27	1.77%	1.95%
28	1.87%	1.84%
29	1.83%	1.74%
30	1.89%	1.64%
31	1.22%	1.55%
32	1.74%	1.47%
33	1.63%	1.38%
34	1.28%	1.31%
35	1.19%	1.23%
36	0.73%	1.17%
37	0.81%	1.11%
38	0.66%	1.05%
39	1.09%	1.01%
40	1.23%	0.97%
41	1.11%	0.93%
42	1.21%	0.91%
43	1.09%	0.89%

Impairment points	Observed distribution FY2017-FY2019	2018-19 Selected Distribution[1]
44	0.99%	0.88%
45	0.85%	0.88%
46	1.27%	0.88%
47	0.67%	0.90%
48	0.46%	0.92%
49	0.36%	0.95%
50	1.58%	0.99%
51	2.59%	2.59%
52	1.29%	1.04%
53	0.56%	0.81%
54	0.48%	0.64%
55	0.48%	0.51%
56	0.47%	0.42%
57	0.47%	0.37%
58	0.36%	0.34%
59	0.40%	0.33%
60	0.29%	0.33%
61	0.24%	0.34%
62	0.54%	0.35%
63	0.57%	0.36%
64	0.30%	0.36%
65	0.25%	0.35%
66	0.28%	0.34%
67	0.22%	0.33%
68	0.31%	0.31%
69	0.23%	0.29%
70	0.24%	0.27%
71	0.17%	0.24%
72	0.19%	0.22%
73	0.30%	0.19%
74	0.22%	0.17%
75	0.32%	0.15%
76	0.12%	0.13%
77	0.09%	0.11%
78	0.05%	0.09%
79	0.03%	0.08%
80	0.72%	0.72%

Table A.10 - MRCA Permanent Impairment Warlike/Non-warlike ratio (Chapter 10)

Accident Year	2018-19 Selected
2005	13.20%
2006	16.80%
2007	20.30%
2008	23.60%
2009	26.60%
2010	29.50%
2011	32.10%
2012	34.50%
2013	36.80%
2014	38.80%
2015	40.60%
2016	42.10%
2017	43.50%
2018	44.70%
2019	45.60%
2020	46.40%
2021	46.90%
2022	47.20%
2023	47.40%
2024	47.30%
2025	47.00%
2026	46.40%
2027	45.70%
2028	44.80%
2029	43.60%
2030	42.30%
2031	40.70%
2032	38.90%
2033	37.00%
2034	34.80%
2035	32.40%
2035	29.70%
2037	26.90%
2038	23.90%
2039	20.60%
2040	17.20%
2041	15.00%
2042	15.00%
2043	15.00%
2044	15.00%
2045	15.00%
2046	15.00%
2047	15.00%
2048	15.00%
2049	15.00%

Accident Year	2018-19 Selected
2050	15.00%
2051	15.00%
2052	15.00%
2053	15.00%
2054	15.00%
2055	15.00%
2056	15.00%
2057	15.00%
2058 onwards	15.00%

Table A.11 - MRCA Permanent Impairment Age Distribution – Claimants per Thousand (Chapter 10)

Age Band	2017-18 Ultimate	2018-19 Ultimate
30 or less	186.9	227.5
31 to 35	157.2	183.5
36 to 40	140.8	146.9
41 to 45	123.7	112.2
46 to 50	114.1	99.0
51 to 55	93.1	80.3
56 to 60	70.8	60.7
61 to 65	47.0	39.1
66 to 70	31.8	25.2
71 to 75	18.2	13.8
76 to 80	8.6	6.2
81 or more	8.0	5.4
Grand Total	1,000	1,000

Table A.12 - DRCA Medical Model Data (Chapter 11)

Development Year	Assumed Decay Rate	% of Accident Year Population
16	0.9852	0.9852
17	0.9866	0.9720
18	0.9861	0.9603
19	0.9854	0.9499
20	0.9847	0.9406
21	0.9840	0.9324
22	0.9834	0.9250
23	0.9828	0.9184
24	0.9825	0.9125
25	0.9824	0.9072
26	0.9826	0.9025
27	0.9831	0.8983
28	0.9840	0.8945
29	0.9854	0.8911
30	0.9874	0.8881
31	0.9900	0.8853
32	0.9934	0.8829
33	0.9977	0.8807
34	1	0.8807
35	1	0.8807
36	1	0.8807
37	1	0.8807
38	1	0.8807
39	1	0.8807
40	1	0.8807
41	1	0.8807
42	1	0.8807
43	1	0.8807
44	1	0.8807
45	1	0.8807
46	1	0.8807
47	1	0.8807
48	1	0.8807
49	1	0.8807
50	1	0.8807
51	1	0.8807
52	1	0.8807
53	1	0.8807
54	1	0.8807
55	1	0.8807
56	1	0.8807
57	1	0.8807
58	1	0.8807
59	1	0.8807
60	1	0.8807

Table A.13 - DRCA Medical Usage by Age (Chapter 11)

Age Band	Average Visits per Year		
	2017-18 Selected	2018-19 Observed	2018-19 Selected
30 - 34	15.0	15.6	15.0
35 - 39	17.0	16.4	15.0
40 - 44	18.0	13.8	15.0
45 - 49	18.0	18.3	17.0
50 - 54	18.0	14.7	17.0
55 - 59	18.0	17.2	17.0
60 - 64	18.0	16.7	17.0
65 - 69	16.0	13.9	15.0
70 - 79	15.0	15.1	15.0
80 or more	15.0	14.8	15.0

Table A.14 - DRCA Annual Medical Expense per Usage (Chapter 11)

Age Band	Average Cost per Transaction ($)		
	2017-18 Claimant	2018-19 Observed	2018-19 Selected
Less than 5	100		100
5 - 9	120		120
10 - 14	140		140
15 - 19	140		140
20 - 24	160		160
25 - 29	180		180
30 - 34	190	589	190
35 - 39	200	153	190
40 - 44	210	187	190
45 - 49	210	152	190
50 - 54	210	160	190
55 - 59	210	202	190
60 - 64	210	162	190
65 - 69	210	201	190
70 - 79	210	167	190
80 and over	210	187	190

Table A.15 - DRCA Annual Medical Expense per Active Claimant (Chapter 11)

Age Band	Average Cost per Claimant ($)		
	2017-18 Selected	2018-19 Observed	2018-19 Selected
30 - 34	2,850	9,181	2,850
35 - 39	3,400	2,506	2,850
40 - 44	3,780	2,579	2,850
45 - 49	3,780	2,792	3,230
50 - 54	3,780	2,352	3,230
55 - 59	3,780	3,481	3,230
60 - 64	3,780	2,697	3,230
65 - 69	3,360	2,790	2,850
70 - 79	3,150	2,524	2,850

Table A.16 - MRCA Medical Usage by Age (Chapter 12)

Age Band	Average Visits per Year		
	2017-18 Selected	2018-19 Observed	2018-19 Selected
Less than 5	5.0	2.5	5.0
5 - 9	8.0	11.5	10.0
10 - 14	8.0	8.3	10.0
15 - 19	15.0	17.9	15.0
20 - 24	19.0	24.0	20.0
25 - 29	22.0	23.6	24.0
30 - 34	24.0	24.9	24.0
35 - 39	26.0	28.6	28.0
40 - 44	28.0	31.2	31.0
45 - 49	28.0	31.4	31.0
50 - 54	27.0	33.1	31.0
55 - 59	24.0	30.7	28.0
60 - 64	23.0	26.5	25.0
65 - 69	23.0	30.7	25.0
70 - 79	20.0	38.8	20.0
80 or more	15.0		15.0

Table A.17 - MRCA Annual Medical Expense per Usage (Chapter 12)

Age Band	Average Cost per Transaction ($)		
	2017-18 Claimant	2018-19 Observed	2018-19 Selected
Less than 5	100	353	160
5 - 9	120	134	160
10 - 14	140	256	180
15 - 19	140	219	180
20 - 24	160	166	180
25 - 29	200	207	200
30 - 34	210	218	210

Age Band	Average Cost per Transaction ($)		
	2017-18 Claimant	2018-19 Observed	2018-19 Selected
35 - 39	220	237	230
40 - 44	220	237	230
45 - 49	220	233	230
50 - 54	220	232	230
55 - 59	220	225	230
60 - 64	230	224	230
65 - 69	230	231	230
70 - 79	230	223	230
80 and over	230	0	230

Table A.18 - MRCA Annual Medical Expense per Active Claimant (Chapter 12)

Age Band	Average Cost per Person ($)		
	2017-18 Claimant	2018-19 Observed	2018-19 Selected
Less than 5	500	882	800
5 - 9	960	1,548	1,600
10 - 14	1,120	2,122	1,800
15 - 19	2,100	3,930	2,700
20 - 24	3,040	3,983	3,600
25 - 29	4,400	4,895	4,800
30 - 34	5,040	5,409	5,040
35 - 39	5,720	6,784	6,440
40 - 44	6,160	7,389	7,130
45 - 49	6,160	7,318	7,130
50 - 54	5,940	7,672	7,130
55 - 59	5,280	6,904	6,440
60 - 64	5,290	5,932	5,750
65 - 69	5,290	7,089	5,750
70 - 79	4,600	8,632	4,600

Table A.19 - Medical New Entrants Age Distribution – Claimants per Thousand (Chapter 12)

Age	2018-19 Selected
16	0.7
17	10.7
18	34.6
19	51.3
20	59.1
21	62.5
22	59.8
23	55.1
24	48.9
25	44.7
26	38.2
27	36.8
28	31.2
29	28.5
30	27.0
31	24.7
32	24.6
33	20.1
34	23.0
35	22.5
36	19.5
37	19.3
38	18.1
39	16.7
40	15.0
41	16.3
42	15.2
43	15.9
44	14.6
45	13.3
46	13.3
47	11.3
48	11.2
49	11.1
50	10.7
51	8.6
52	8.1
53	8.1
54	6.5
55	7.5
56	5.7
57	5.2
58	3.4
59	4.2
60	2.9

Age	2018-19 Selected
61	2.9
62	2.3
63	1.4
64	1.8
65	1.1
66	1.4
67	1.0
68	0.7
Grand Total	1,000

Table A.20 - DRCA Rehabilitation Model Data (Chapter 13)

	Number of Claimants per 10,000 Units of Exposure		
Development Year	Average 2017-2019	2018-19 Ultimate	2017-18 Ultimate
16	34.0	33.2	25.8
17	33.2	29.7	23.5
18	26.3	26.4	21.2
19	21.0	23.4	19.1
20	19.8	20.7	17.1
21	17.0	18.1	15.2
22	16.2	15.9	13.5
23	15.2	13.8	11.9
24	12.1	12.0	10.5
25	11.4	10.4	9.1
26	7.7	8.9	7.9
27	6.8	7.7	6.8
28	7.5	6.6	5.8
29	6.4	5.7	5.0
30	4.2	4.9	4.2
31	3.3	4.2	3.5
32	4.0	3.7	2.9
33	2.2	3.2	2.4
34	3.8	2.8	1.9
35	2.7	2.5	1.6
36	3.1	2.3	1.3
37	2.2	2.1	1.0
38	2.0	1.9	0.8
39	1.7	1.8	0.7
40	2.1	1.7	0.6
41	2.5	1.5	0.5
42	0.6	1.4	0.5
43	0.9	1.3	0.5
44	0.5	1.2	0.6
45	0.8	1.0	0.6

Table A.21 - MRCA Rehabilitation Model Data (Chapter 14)

	Number of Claimants per 10,000 Units of Exposure			
Development Year	MRCA 2018-19	SRCA Average 2004, 2019	2018-19 Ultimate	2017-18 Ultimate
0	8.4		7.9	5.6
1	45.3		48.8	27.9
2	79.9		73.6	60.3
3	95.9		95.2	85.3
4	106.7		112.3	99.3
5	118.3		119.8	102.1
6	114.4		114.2	94.4
7	100.7		98.5	79.2
8	76.5		77.3	60.4
9	59.9		55.4	41.5
10	44.1		37.4	26.4
11	28.6		26.7	17.7
12	21.5		21.8	14.0
13	13.0		19.7	12.8
14	11.2		18.3	12.1
15	3.9		16.8	11.4
16		19.1	15.5	10.7
17		18.0	14.3	10.0
18		18.0	13.1	9.4
19		14.3	11.9	8.8
20		11.3	10.9	8.2
21		10.4	9.9	7.6
22		9.3	9.0	7.1
23		8.7	8.1	6.5
24		8.1	7.3	6.0
25		6.4	6.6	5.6
26		6.0	5.9	5.1
27		4.5	5.2	4.6
28		4.0	4.6	4.2
29		4.0	4.1	3.8
30		3.5	3.6	3.4
31		2.5	3.2	3.1
32		2.1	2.7	2.7
33		2.4	2.4	2.4
34		1.5	2.1	2.1
35		1.9	1.8	1.9
36		1.7	1.5	1.6
37		1.7	1.3	1.4
38		1.4	1.1	1.2
39		1.2	0.9	1.0
40		1.0	0.8	0.8
41		1.3	0.7	0.6
42		1.4	0.6	0.5
43		0.5	0.5	0.4
44		0.5	0.5	0.3
45		0.3	0.5	0.2

Table A.22 - MRCA Category 1 'Other' Model Data (Chapter 17)

Development Year	Number of Claimants per 10,000 Units of Exposure	
	2018-19 Ultimate	2017-18 Ultimate
0	23.6	23.6
1	97.0	98.6
2	118.1	126.5
3	132.9	152.0
4	139.6	167.5
5	128.4	158.3
6	107.2	134.3
7	86.1	108.6
8	67.2	84.7
9	50.8	63.0
10	37.1	44.3
11	26.3	29.2
12	18.6	18.2
13	14.3	12.2
14	12.8	10.6
15	12.1	10.0
16	11.3	9.4
17	10.7	8.8
18	10.0	8.2
19	9.4	7.7
20	8.9	7.2
21	8.4	6.8
22	7.9	6.4
23	7.5	5.9
24	7.1	5.6
25	6.7	5.2
26	6.4	4.8
27	6.1	4.5
28	5.9	4.2
29	5.6	3.9
30	5.4	3.7
31	5.3	3.4
32	5.1	3.2
33	5.0	3.0
34	4.9	2.8
35	4.8	2.6
36	4.8	2.5
37	4.7	2.3
38	4.7	2.2
39	4.7	2.0
40	4.7	1.9
41	4.7	1.8
42	4.7	1.7
43	4.7	1.6
44	4.8	1.5
45	4.8	1.4

Table A.23 - Historical and Assumed Exposure

Year ending 30 June	Exposure[1]
1960 or earlier	55,113
1961	52,090
1962	51,693
1963	53,384
1964	55,150
1965	58,773
1966	66,702
1967	77,781
1968	85,497
1969	88,568
1970	89,667
1971	89,170
1972	87,064
1973	81,735
1974	74,352
1975	71,667
1976	72,331
1977	72,859
1978	73,525
1979	73,690
1980	74,618
1981	76,394
1982	77,832
1983	78,172
1984	77,257
1985	75,848
1986	74,655
1987	74,385
1988	74,290
1989	74,241
1990	72,854
1991	73,081
1992	72,781
1993	70,463
1994	65,990
1995	62,612
1996	62,445
1997	61,016
1998	59,653
1999	56,647
2000	55,113
2001	53,152
2002	53,762
2003	55,023
2004	55,107

Year ending 30 June	Exposure[1]
2005	54,704
2006	54,071
2007	54,438
2008	56,218
2009	58,123
2010	60,884
2011	62,285
2012	61,305
2013	59,713
2014	59,849
2015	60,416
2016	60,962
2017	61,625
2018	61,478
2019	62,757
2020	63,152
2021 and later	63,692

[1] Exposure is calculated as the number of full time ADF personnel plus 15 per cent of the ADF Reserve strength.