



Institute of Actuaries of Australia

**The impact of scheme design on financial  
and health outcomes:  
building the evidence base**

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# **The impact of scheme design on financial and health outcomes: building the evidence base**

## **1. Introduction**

It is well accepted that the design of compensation schemes is likely to influence the outcomes for the participants of the scheme, including claimants and funders. Indeed, the belief underlies the frequent reforms that are part of the compensation arena. While the expected influence of scheme design on outcomes may seem almost obvious, empirical evidence for the relationship between specific aspects of scheme design and outcomes is less well documented. There are a number of reasons for the lack of evidence in this area. One reason has been that much of the research around outcomes of compensation schemes has been opportunistic. For instance, routinely collected data about claimants is used, rather than purpose specific outcome information. Most often routinely collected data are administrative in nature rather than outcome focused. The other, and perhaps major, reason for the lack of evidence around the impact of scheme design on outcomes is that opportunities to examine an appropriate data set before and after changes to the scheme are rare. This paper presents evidence from a study of the impact of changes to the legislation for compensation of Whiplash and Associated Disorders (WAD) following a motor vehicle accident in NSW.

The remainder of this paper is as follows:

- Legislative reforms
- The present study
- Method
- Results
- Discussion
- Conclusion

## **2. The Legislative Reforms**

Whiplash Associated Disorder (WAD) claims are a significant component of the NSW Motor Accidents Scheme (the Scheme). WAD has had the highest claim frequency of any injury type in the Scheme since its inception (July 1989), with just under 40% of all claims involving some form of whiplash injury<sup>1</sup>. The cost of such claims contributes around 25% of the total cost of claims<sup>1</sup>.

As a result of issues surrounding the high cost of compulsory third party (CTP) insurance in the State, the Scheme underwent legislative changes, effective for accidents occurring on or after 5 October 1999. The aims of the changes were ‘to more effectively and efficiently settle claims and resolve disputes and therefore reduce the legal and medico-legal costs’. The key changes made to the Scheme were<sup>2</sup>:

- ‘A new threshold for access to non-economic loss (pain and suffering) damages. To be eligible to claim non-economic loss damages CTP claimants must now have an impairment greater than 10%. There were no changes to medical and treatment costs. They continue to be met on a “reasonable and necessary” basis.
- An early notification and treatment process was designed to allow claimants to obtain early treatment without need for assessment of disability. This was particularly aimed at claimants with soft tissue injuries such as a Whiplash-Associated Disorder.
- Decision within 3 months on whether the insurer will admit liability on the CTP claim.
- The development of guidelines for the rehabilitation or treatment of injured claimants. In 2002 the MAA released guidelines on the clinical management of

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whiplash injuries. An education program accompanied the release of these guidelines.

- A new service to resolve disputes about the claimant's impairment level and what is reasonable and necessary treatment and rehabilitation. This service is independent of insurers and claimants.
- A new process for settling claims. All disputed claims must go to this new service – the Claims Assessment and Resolution Service (CARS). There is no access to court unless the matter has been through CARS. If CARS assesses the claim the decision is binding on the insurer.
- Legal costs for motor accident matters are fixed by regulation unless the claimant and the solicitor contract out of these fees'.

These legislative amendments were designed to impact the Scheme both in terms of the cost of CTP insurance and the health outcome of the injured claimant. The present paper examines the cost outcomes of the changes in respect of WAD claimants, and is part of a broader study that also includes an examination of the health outcomes of claimants (see Cameron et al, 2005 and Rebbeck et al, 2005).

### **3. The Present Study**

The study to be reported here collected comprehensive information around health status and outcomes, sociodemographic characteristics and compensation. A cross-sectional design for collection of pre-legislative change health outcome data and a prospective cohort design for collection of cost and post-legislative change health outcome data were used. The primary hypotheses were that:

- 1) the pattern of costs would change to reflect earlier access to treatment and that better recovery would be reflected in reduced total costs to the Scheme;
- 2) people sustaining WAD after the change in legislation would have reduced long term disability and improved quality of life when compared to a group who sustained injuries prior to the changes;

To date, claimant follow-up data (for the assessment of health outcomes) were collected at:

- 2 years post injury for a cohort injured in 1999, before the legislative and associated changes in NSW;
- 3 months, 6 months and 2 years post injury for a cohort injured in 2001, after the legislative changes; and
- 3 months and 6 months post injury for a cohort injured in 2003, also after the legislative changes. (Further follow-up of the 2003 cohort at 2 years will occur).

The focus of the present paper is examination of the cost outcomes for claimants in the three cohorts to date on the basis of unit claims data.

### **4. Method**

#### **Source data**

The analysis used the following data provided by the MAA as at 31 December 2004:

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- claims unit record extract (which contains reporting and status characteristics for each claim, together with total payments made on the claim to date and current outstanding estimate); and
- payments unit record extract (which contains payments made for each claim on the claims unit record by payment quarter and payment type).

These data were provided without independent audit for reliability and veracity. The data are provided to the MAA by private insurers managing the claims. It is recognised that the latest quarter's data may be incomplete at the time of the extract due to some processing delays.

### **Procedure**

WAD cases were identified for the study based on the following criteria:

- Claimant suffered a Whiplash Associated Disorder (MAA injury code "G01" or provisional injury code "G1");
- 1999 cohort: claimant injured in the months July – September 1999 (immediately prior to the introduction of the 1999 legislative amendments);
- 2001 cohort: claimant injured in the months July – December 2001 (a longer cohort period was required here to provide enough claimants to form a cohort of similar size to that of 1999 allowing for some attrition from the cohort over time);
- 2003 cohort: claimant injured in the months July 2003 – March 2004 (a longer cohort period was required here to provide enough claimants to form a cohort of similar size to that of 1999 allowing for some attrition from the cohort over time);
- Specific exclusions from the cohorts included persons under 18 years of age at the time of injury, people unable to communicate in English and persons with particular serious injuries (such as long bone fractures).

Data were extracted for the cohorts on:

- Numbers of claims reported by quarter since accident;
- Payments made on claims by quarter since accident (both in total and by payment type); and
- Numbers of claims open at the end of each quarter since accident.

These data were examined initially at 3 months, 6 months and 2 years to correspond to the study designed for health outcome measures. Delays at 1 year and 3 years have also been included as reference points.

Information has also been extracted on all claimants irrespective of injury type whose injury arose in the same months as either the 1999, 2001 or 2003 cohorts.

A summary of the data used at the time of this analysis is shown below:

<b>Cohort</b>	<b>3 months</b>	<b>6 months</b>	<b>12 months</b>	<b>24 months</b>	<b>36 months</b>
<b>1999</b>	✓	✓	✓	✓	✓
<b>2001 Wave 1</b>	✓	✓	✓	✓	✓
<b>2001 Wave 2</b>	✓	✓	✓	✓	✓
<b>2003 Wave 1</b>	✓	✓	✓	✗	✗
<b>2003 Wave 2</b>	✓	✓	✓	✗	✗
<b>2003 Wave 3</b>	✓	✓	✗	✗	✗

The above table can be interpreted as follows:

- The 1999 cohort represents claimants from July, August and September 1999;
- The 2001 Wave 1 cohort represents the claimants from July, August and September 2001;

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- The 2001 Wave 2 cohort represents the claimants from October, November and December 2001;
- The 2003 Wave 1 cohort represents the claimants from July, August and September 2003;
- The 2003 Wave 2 cohort represents the claimants from October, November and December 2003; and
- The 2003 Wave 3 cohort represents the claimants from January, February and March 2004.

### **Analysis**

For the purpose of the analysis we have combined the results for waves within each of the 2001 and 2003 cohorts as there is no significant difference in results between these individual waves. The various waves were required to ensure enough data was collected in order to analyse the change in health outcomes of the claimants' post the reforms.

As mentioned in Section 2, one of the changes made to the Scheme in 1999 was the introduction of an early notification and treatment process. Incidents notified under this procedure do so with an Accident Notification Form (ANF) as distinct from a Personal Injury Claim Form (Claim Form). The claim form requires additional detailed information. The minimum reporting requirement for any incident eligible for compensation is completion of the ANF. If this is the only reporting completed we refer to it as an "ANF only" claim. Additionally, an incident which originated with an ANF and then for which a claim form was completed is referred to as a "converted" claim (note that presently non-finalised ANF onlys may convert subsequently to a claim). Finally, if a claim form is completed without ever completing the ANF then this is referred to as a "direct" claim. Therefore, within each of the 2001 and 2003 cohorts there are three sub-cohorts of claimants, namely ANF only, conversions and direct claims. It is standard practice to model direct claims and converted claims together and exclude ANF only claims. This analysis used this approach. It is unclear the extent to which ANF only claims would have been small claims in the Scheme pre the reforms. For this reason the same analysis was also completed including the ANF only claims.

The development of total payments for each of the cohorts was examined. Comparing cohorts using this statistic would only be valid if the number of claims in each cohort was the same. This is not the case, and as such a cumulative payment per claim incurred (PPCI) model was used to normalise for the differing numbers of claims in each cohort. This enables a comparison of average payments by delay.

It is common to model the CTP insurance class using operational time. The following tables present the proportion of claims finalised at each delay for all claim types and the WAD only cohorts. ANF only claims are excluded.

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**Table 1 – Cumulative finalisation rates – all claim types**

Cohort	Cumulative finalisation rates				
	3 month	6 month	12 month	24 month	36 month
1999	0.27%	2.78%	15.26%	41.11%	59.52%
2001	0.39%	2.61%	15.08%	42.09%	59.91%
2003	0.33%	3.58%	17.99%		

**Table 2 - Cumulative finalisation rates – WAD claims only**

Cohort	Cumulative finalisation rates				
	3 month	6 month	12 month	24 month	36 month
1999	0.44%	2.74%	17.51%	50.05%	68.79%
2001	0.80%	6.38%	22.79%	54.67%	70.77%
2003	1.52%	7.58%	27.41%		

The cumulative finalisation rates for all claim types are not significantly different between the 1999 and 2001 cohorts. Claims were finalising slightly faster for the 2003 cohort in the 6 month and 12 month delays. WAD claims were finalising slightly faster in the 2001 and 2003 cohorts.

The analysis was completed using both operational time and development time and no significant differences were evident. This is consistent with the finalisation rates remaining constant over the time period. It should be noted that the finalisation pattern pre and post reforms as at 31 December 2004 are not significantly different. This result may not remain true as the claims for these cohorts develop further.

This paper presents the results for the analysis in development time.

### Number of claims incurred

CTP is a “long-tail” insurance class, meaning that it can take some time for the claim to be reported and then to settle. This means that at the time when the WAD cohorts were established, not all of the claims satisfying the aforementioned criteria may have been reported, however the effect of this is small. The same IBNR loadings applied to all claim types were applied to the WAD cohorts.

### Payments

The PPCI analysis was completed on all claims incurred in the accident months consistent with the months in WAD only cohorts, as well as for the WAD cohorts. Total payments were analysed as well as the following payment types individually:

- Medical Payments (including hospital, rehabilitation, treatment, ANF costs – most of which are medical);
- Legal and investigation;
- Economic loss;
- Non economic loss; and
- Other (including aids and appliances, home and vehicle modifications, past and future care, other eligible payments and recoveries).

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The proportion of total payments that each payment type comprises for each cohort was also examined.

### **5. Results**

Of the claims originally selected for the WAD cohorts, eight are not represented in the latest versions of the unit records. Investigation reveals that all of these claims have been “nulled” (a process for removing claims from the database if, for example, a claim is set up against an incorrect accident, or an accident is set up by an insurer who subsequently is not the managing insurer<sup>5</sup>). This does not materially affect the results.

#### **Claim numbers**

The following tables summarise the number of claims reported to date for each of the cohorts. The purpose of this is to examine average payments to date per claim incurred in the section below on claim payments. The conclusions can be distorted by simply using the reported to date figures. Our estimated incurred figures were obtained from analysis performed by PricewaterhouseCoopers on the basis of MAA data as at December 2004<sup>6</sup>. The same IBNR loadings applied to all claim types were applied to the WAD cohorts.

**Table 3 - Number of claims (excluding ANF only claims) – all claim types**

Cohort	Cumulative number of claims reported						
	3 months	6 months	12 months	24 months	36 months	To date	Incurred
1999	1,051	2,587	3,739	3,966	4,048	4,117	4,135
2001	1,222	3,318	5,010	5,362	5,530	5,587	5,662
2003	1,617	4,453	5,811			6,753	7,364

**Table 4 - Number of claims (excluding ANF only claims) – WAD cohorts**

Cohort	Cumulative number of claims reported						
	3 months	6 months	12 months	24 months	36 months	To date	Incurred
1999	384	817	1,090	1,125	1,126	1,126	1,131
2001	352	554	610	615	616	619	627
2003	526	654	696			726	792

This analysis indicates that WAD claims are reported slightly faster than other claim types. Furthermore, the early notification mechanism introduced as part of the reforms allows for only one injury type to be recorded initially. This potentially means that some claims involving WAD may not have been captured in the construction of the cohorts. We do not believe that this materially affects the analysis.

#### **Claim payments**

The following sections examine cumulative payments made to claimants, firstly for all claims in the Scheme, and then separately for the WAD cohorts.

#### **Total claim payments**



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**Table 5 - All claim type payments (excluding ANF only claims)**

Cohort	Payments (\$'000s)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	115	1,772	10,267	46,790	110,009	254,529
2001	389	3,162	14,232	42,622	93,682	130,505
2003	628	5,427	13,589			32,871

**Table 6 - WAD cohort payments (excluding ANF only claims)**

Cohort	Payments (\$'000s)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	41	489	2,767	12,186	23,897	46,030
2001	104	527	1,351	3,073	6,050	7,558
2003	164	854	1,198			2,382

Care should be exercised in interpreting the above tables for the following reasons:

- The “to date” columns are at a different development stage for each of the cohorts;
- Each of the cohorts also includes a different number of claims, as described in the section on claim numbers above; and
- For each cohort a different number of months of accident are included.

For these reasons it is more appropriate to examine the average claim payment by development period. This was done using the PPCI method as described previously, and the results are as follows:

**Table 7 - All claim types cumulative PPCI (excluding ANF only claims)**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	28	429	2,483	11,316	26,605	61,556
2001	69	558	2,513	7,527	16,545	23,048
2003	85	737	1,845			4,464
2001 Cohort as a % of the 1999 Cohort	247.5%	130.3%	101.2%	66.5%	62.2%	
2003 Cohort as a % of the 1999 Cohort	307.7%	172.0%	74.3%			

To interpret this table, read across each row to see the development of the cumulative PPCI. Once all claims in a particular accident period have been finalised (can be more than 15 years), the cumulative PPCI represents the average claims size for all claims in that accident period. Reading down each column enables a comparison of the cumulative PPCI between each period at equivalent development periods.

The ratios of average claim payments for each delay between the 2001 and 1999 cohort and between the 2003 and 1999 cohort are also included in the above table. This allows examination of the payment patterns both pre and post the legislative reforms. The following observations can be made:

- After 3 and 6 months the 2001 and 2003 cohorts received higher average payments per claim than the 1999 cohort;
- At later delays the 2001 and 2003 cohorts received lower average payments per claim than the 1999 cohort;
- The result is more significant for the 2003 cohort than the 2001 cohort. One possible reason for this could be the introduction of education programs on clinical guidelines

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However, one would expect the effect of this to not be as immediate as the other legislative changes; and

- A change in the payment pattern is evident at this stage (that is, at December 2004). The average claim payments in the earlier development periods have increased and the average claim payments in the later development periods have decreased post the legislative reforms. The significantly lower payments in the later delays may result in a reduced average claim size and thus reduced costs to the overall Scheme. This will be investigated further when the 2001 and 2003 cohorts are more developed.

It should be noted that for the 3 and 6 month delays three accident quarters (that is, July 2003 to March 2004) are included in the average claim payments, where as for the 12 month delay only two accident quarters are included (that is, July 2003 to December 2003). This corresponds to the data collected for analysis of the health outcomes of whiplash claimants as described in Section 4. This is the case for all subsequent PPCI tables and care should be taken in interpretation.

**Table 8 - WAD cohorts cumulative PPCI (excluding ANF only claims)**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	36	432	2,447	10,776	21,131	40,702
2001	166	839	2,153	4,898	9,644	12,048
2003	207	1,079	1,514			3,008
2001 Cohort as a % of the 1999 Cohort	460.3%	194.1%	88.0%	45.5%	45.6%	
2003 Cohort as a % of the 1999 Cohort	574.6%	249.6%	61.9%			

The above table only includes WAD claims. The same payment experience is occurring here as for total payments. That is, higher average payments are being made in the earlier development periods for the 2001 and 2003 cohorts compared to 1999. Similarly, lower average payments have been made by the later development periods for 2001 and 2003 compared to 1999. It should be noted, however, that it is happening to a greater extent for WAD claims than it is for all claims.

### Medical payments

Medical includes all Treatment, Rehabilitation, Hospital and, where appropriate, explicit ANF costs<sup>1</sup>.

<sup>1</sup> It should be noted that not all ANF payments are Medical related.

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**Table 9 - Medical payments cumulative PPCI (excluding ANF only claims)**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	14	239	1,092	2,699	4,481	7,334
2001	44	381	1,548	3,056	4,567	5,355
2003	56	494	1,033			2,228
2001 Cohort as a % of the 1999 Cohort	316.2%	159.8%	141.8%	113.2%	101.9%	
2003 Cohort as a % of the 1999 Cohort	399.3%	206.8%	94.6%			

**Table 10 - Medical payments cumulative PPCI – WAD cohorts (excluding ANF only claims)**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	18	228	1,066	2,566	3,707	5,649
2001	113	584	1,437	2,449	3,429	3,856
2003	146	740	965			1,850
2001 Cohort as a % of the 1999 Cohort	616.8%	255.9%	134.7%	95.4%	92.5%	
2003 Cohort as a % of the 1999 Cohort	795.2%	324.3%	90.5%			

Comparing the 1999 cohort to the 2001 cohort for all claim types indicated that the medical payments are higher at each stage of development. A higher average payment was made in the earlier development periods for both the 2001 and 2003 cohort when compared to the 1999 cohort. This is more extreme for the WAD cohorts. Medical payments being made earlier are consistent with the expected outcomes of the legislation changes (particularly the introduction of the early notification and treatment process).

**Table 11 - Medical payments as a proportion of all payments – All claim types**

Cohort	All medical % all payments					
	3 months	6 months	12 months	24 months	36 months	To date
1999	51%	56%	44%	24%	17%	12%
2001	65%	68%	62%	41%	28%	23%
2003	66%	67%	56%			50%

**Table 12 - WAD medical payments as a proportion of all WAD payments – WAD claims**

Cohort	WAD medical % all WAD payments					
	3 months	6 months	12 months	24 months	36 months	To date
1999	51%	53%	44%	24%	18%	14%
2001	68%	70%	67%	50%	36%	32%
2003	70%	69%	64%			61%

Medical payments are a greater proportion of total payments for the 2001 and 2003 cohorts than for the 1999 cohort for both all claims and WAD claims, at each development time.

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**Legal and investigation payments**

**Table 13 - Legal and investigation cumulative PPCI (excluding ANF only claims) – All claim types**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	11	126	629	2,337	5,364	12,911
2001	12	98	445	1,111	2,383	3,332
2003	15	126	310			712
2001 Cohort as a % of the 1999 Cohort	112.7%	77.6%	70.7%	47.5%	44.4%	
2003 Cohort as a % of the 1999 Cohort	137.0%	99.7%	49.3%			

**Table 14 - Legal and investigation cumulative PPCI (excluding ANF only claims) – WAD cohorts**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	13	128	620	2,429	4,992	10,153
2001	25	138	407	799	1,481	1,995
2003	46	193	283			598
2001 Cohort as a % of the 1999 Cohort	196.2%	108.4%	65.6%	32.9%	29.7%	
2003 Cohort as a % of the 1999 Cohort	363.0%	151.3%	45.6%			

Lower legal costs are an expected outcome of the Scheme reforms. The above analysis indicates that this outcome will potentially be achieved. A comparison of the later development periods between the 1999 and 2001 cohorts shows a significant reduction in legal payments. Delays in the onset of legal activity must also be considered. This experience is most obvious for the WAD cohort.

**Table 15 - Legal and investigation payments as a proportion of all payments – All claims**

Cohort	All legal and investigation % all payments					
	3 months	6 months	12 months	24 months	36 months	To date
1999	40%	29%	25%	21%	20%	21%
2001	18%	18%	18%	15%	14%	14%
2003	18%	17%	17%			16%

**Table 16 - WAD legal and investigation payments as a proportion of all WAD payments – WAD claims**

Cohort	WAD legal and investigation % all WAD payments					
	3 months	6 months	12 months	24 months	36 months	To date
1999	35%	29%	25%	23%	24%	25%
2001	15%	16%	19%	16%	15%	17%
2003	22%	18%	19%			20%

The proportion of claim payments which are legal and investigation has also fallen for the 2001 and 2003 cohorts relative to the 1999 cohort.

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**Economic loss payments**

**Table 17 - Economic loss cumulative PPCI (excluding ANF only claims) – All claim types**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	2	33	218	2,032	6,517	16,073
2001	4	36	234	1,530	4,329	6,411
2003	11	50	217			669
2001 Cohort as a % of the 1999 Cohort	219.6%	108.2%	107.0%	75.3%	66.4%	
2003 Cohort as a % of the 1999 Cohort	652.0%	151.6%	99.4%			

**Table 18 - Economic loss cumulative PPCI (excluding ANF only claims) – Wad Claims only**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	5	47	257	1,858	4,615	10,721
2001	26	103	255	1,141	3,156	4,109
2003	11	114	232			449
2001 Cohort as a % of the 1999 Cohort	537.5%	221.0%	99.3%	61.4%	68.4%	
2003 Cohort as a % of the 1999 Cohort	218.8%	244.1%	90.4%			

The average economic loss payment in the early development periods is small; however, the same payment pattern experience can be observed as for the previous payment types. The average payment at the 24 month and 36 month delays are significantly lower for the 2001 cohort than for the 1999 cohort.

**Table 19 - Economic loss payments as a proportion of all payments – All claims types**

Cohort	All economic loss % all payments					
	3 months	6 months	12 months	24 months	36 months	To date
1999	6%	8%	9%	18%	24%	26%
2001	5%	6%	9%	20%	26%	28%
2003	12%	7%	12%			15%

**Table 20 - WAD economic loss payments as a proportion of all WAD payments – WAD claims**

Cohort	WAD economic loss % all WAD payments					
	3 months	6 months	12 months	24 months	36 months	To date
1999	14%	11%	10%	17%	22%	26%
2001	16%	12%	12%	23%	33%	34%
2003	5%	11%	15%			15%

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Economic loss payments as a proportion of total payments are similar for the 1999 and 2001 cohorts for the first 12 months, but start to become a greater proportion for the 2001 cohort at 24 and 36 months. This is largely due to a reduction in the other payment types.

### Non-economic loss payments

**Table 21 - Non-economic loss cumulative PPCI (excluding ANF only claims) – All claim types**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999		13	415	3,445	8,596	16,968
2001		1	52	678	2,179	3,384
2003		3	28			216
2001 Cohort as a % of the 1999 Cohort		9.5%	12.5%	19.7%	25.4%	
2003 Cohort as a % of the 1999 Cohort		25.4%	6.7%			

**Table 22 - Non-economic loss cumulative PPCI (excluding ANF only claims) – WAD claims only**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999		11	369	3,469	7,086	12,104
2001		0	19	161	823	1,094
2003		0	6			16
2001 Cohort as a % of the 1999 Cohort		0.0%	5.1%	4.6%	11.6%	
2003 Cohort as a % of the 1999 Cohort		0.0%	1.7%			

PPCIs for non-economic loss (NEL) payments have fallen significantly following the legislative changes. Whilst the ultimate experience is not yet known, this is an expected outcome of the legislative changes. The PPCIs for WAD claimants are lower than for all claims, and NEL payments for WAD claims are expected to be very greatly reduced, due to the 10% whole person impairment (WPI) threshold. The numbers here are small however and can be subject to considerable variation.

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**Table 23 - NEL payments as a proportion of all payments – All claims**

Cohort	All non economic loss % all payments					
	3 months	6 months	12 months	24 months	36 months	To date
1999	0%	3%	17%	30%	32%	28%
2001	0%	0%	2%	9%	13%	15%
2003	0%	0%	2%			5%

**Table 24 - WAD NEL payments as a proportion of all WAD payments – WAD claims**

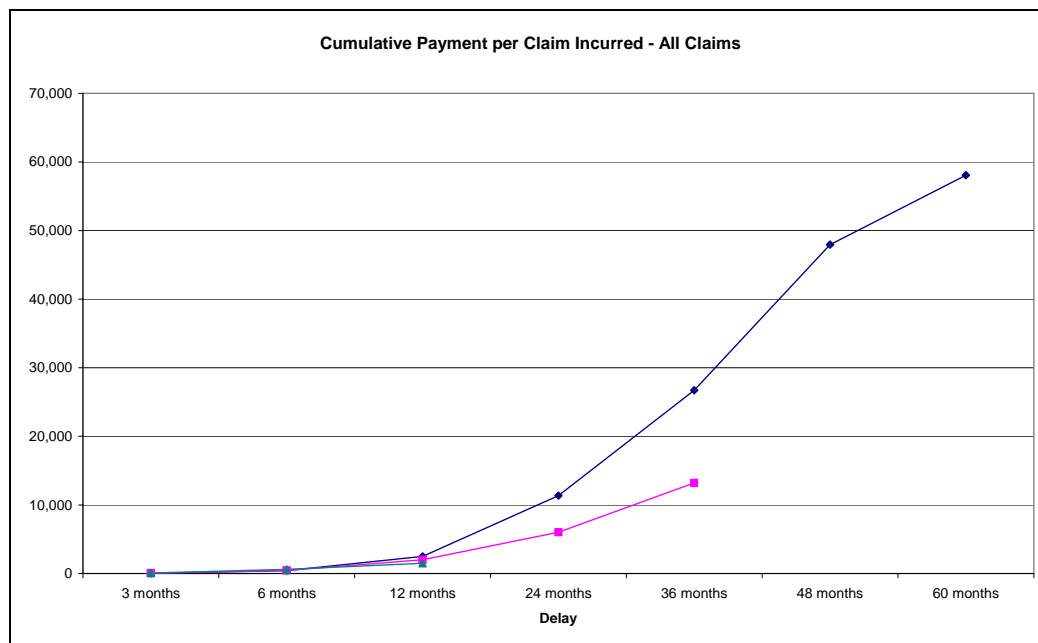
Cohort	WAD non economic loss % all WAD payments					
	3 months	6 months	12 months	24 months	36 months	To date
1999	0%	3%	15%	32%	34%	30%
2001	0%	0%	1%	3%	9%	9%
2003	0%	0%	0%			1%

Furthermore, NEL payments represent a substantially lower proportion of all payments post the legislative reforms.

### Potential reduced overall costs to the Scheme

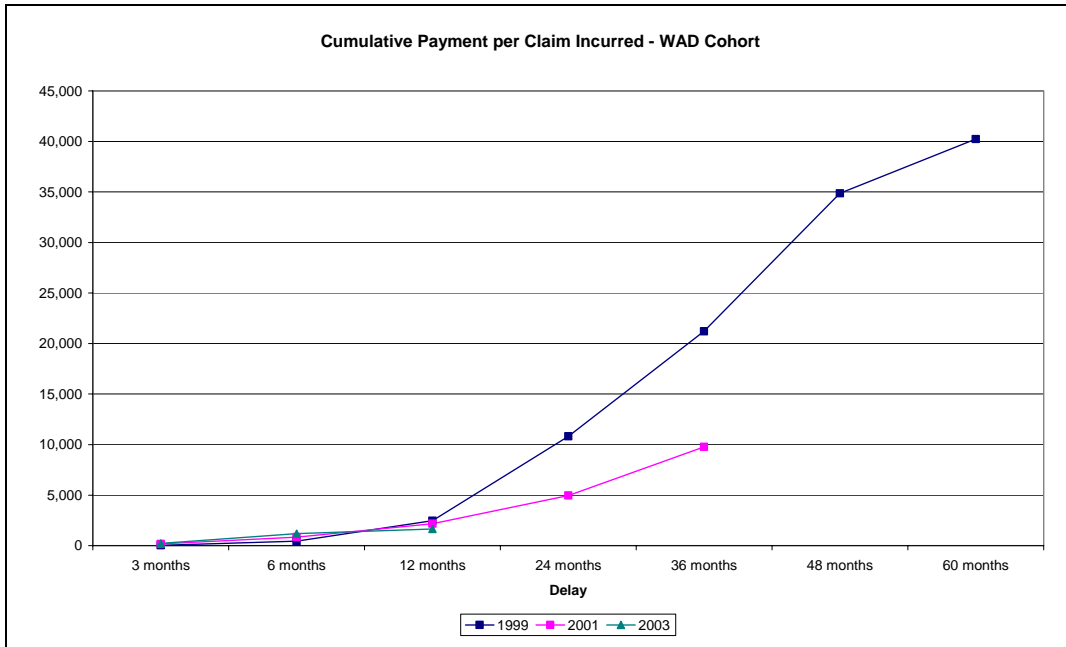
The following charts examine the average payment at each delay for the three cohorts.

**Figure 1**



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**Figure 2**



Whilst it is important to note that not all claims are finalised, it is possible that the average claim size will be reduced post the Scheme reforms (as highlighted by the significantly less average payments made in the later delays between the 1999 cohort and the 2001 cohort). The 1999 cohort exhibits a significantly different trend from that of the 2001 cohort. A very significant increase in the 2001 average claim payment in later delays would be required for the average claim size between the two cohorts to be ultimately even. It is also possible that the finalisation pattern has changed post reforms. Smaller claims may be finalising at a faster rate and larger claims may be finalising at a slower rate post the Scheme reforms. This will be analysed when a higher proportion of the 2001 and 2003 cohorts have finalised.

The proportion of claims finalised for each cohort as at 31 December 2004 are as follows:

**Table 25 – All claim types (excluding ANF only claims) – Proportion finalised as at 31 December 2004**

Cohort	Incurred		% finalised
	claims	Open claims	
1999	4,135	195	95%
2001	5,662	1,932	66%
2003	7,364	5,488	25%

**Table 26 –WAD Claims (excluding ANF only claims) – Proportion finalised as at 31 December 2004**

Cohort	Incurred		% finalised
	claims	Open claims	
1999	1,131	27	98%
2001	627	155	75%
2003	792	535	32%



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### Analysis including ANF claims

As mentioned in Section 4, it is unclear of the extent to which ANF only claims post the Scheme changes would have been small claims pre the Scheme changes. It is also impossible to measure the extent to which ANF only claims would have been small claims pre the Scheme reforms. Given it is standard practice to model without ANF only claims the expectation is that only a small proportion of ANF only claims would have been small claims pre the Scheme reforms and thus the models excluding the ANF only claims are more representative when comparing cohorts pre and post the Scheme reforms. The proportion of total incurred claims that are ANF only claims is 20% for the 2001 and 2003 cohorts for all claims types, compared to 27% and 31% for the 2001 and 2003 WAD cohorts, respectively. This implies that at least some claims would have been small claims pre the Scheme reforms (potentially more so for WAD claims) but the extent of this can still not be estimated.

The same analysis was completed on the all notifications (that is, direct claims, converted claims and ANF only claims). Including the ANF only claims increases the finalisation rates for the 2001 and 2003 cohorts as opposed to the 1999 cohorts. The cumulative finalisation rates for all claim types and WAD claims only are shown in the following tables.

**Table 27 – Cumulative finalisation rates (including ANF only claims) – All Claim types**

Cohort	Cumulative proportion of claims finalised				
	3 month	6 month	12 month	24 month	36 month
1999	0.27%	2.78%	15.26%	41.11%	59.52%
2001	1.40%	8.67%	30.67%	53.53%	67.88%
2003	1.79%	10.50%	33.11%		

**Table 28 – Cumulative finalisation rates (including ANF only claims) – WAD Claims Only**

Cohort	Cumulative proportion of claims finalised				
	3 month	6 month	12 month	24 month	36 month
1999	0.44%	2.74%	17.51%	50.05%	68.79%
2001	2.43%	14.12%	42.82%	66.77%	78.57%
2003	4.97%	18.91%	48.18%		

As the finalisation rates are not constant across the cohorts the claim payments have been modelled operational time, as well as development time. The results for the medical payments are presented below as they are most representative of this study which analyses health and cost outcomes of WAD claimants.

### Medical claim payments (including ANF only claims)

**Table 29 – All claim type payments (including ANF only claims)**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	14	239	1,092	2,699	4,481	7,334
2001	47	341	1,285	2,489	3,695	4,324
2003	59	438	865			1,842
2001 Cohort as a % of the 1999 Cohort	335.4%	142.9%	117.7%	92.2%	82.5%	
2003 Cohort as a % of the 1999 Cohort	419.4%	183.4%	79.2%			

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**Table 30 – WAD claims payments (including ANF only claims)**

Cohort	PPCI (\$)					
	3 months	6 months	12 months	24 months	36 months	To date
1999	18	228	1,066	2,566	3,707	5,649
2001	103	482	1,117	1,853	2,565	2,875
2003	131	579	722			1,362
2001 Cohort as a % of the 1999 Cohort	560.9%	211.3%	104.8%	72.2%	69.2%	
2003 Cohort as a % of the 1999 Cohort	717.5%	253.9%	67.7%			

The results are consistent with the analysis excluding ANF only claims. The ratios are slightly lower as ANF only claims are small and thus the average payment per claim is lower. This result is distorted; however, as the finalisation pattern is not constant across the cohorts. For this reason the average payments per claim are presented in operational time. The operational time bands correspond to the development delays. The selected operational times correspond to the proportions finalised for the 1999 cohorts. This sets the 1999 cohort as the benchmark for the 2001 and 2003 cohorts to be compared to.

**Medical Payments – Operational time**

**Table 31 – All claim type payments (including ANF only claims) – Operational time**

Cohort	PPCI (%)				
	0.27%	2.78%	15.26%	41.11%	59.52%
1999	14	239	1,092	2,699	4,481
2001	47	103	624	1,835	2,993
2003	9	102	528		
2001 Cohort as a % of the 1999 Cohort	335.4%	43.2%	57.1%	68.0%	66.8%
2003 Cohort as a % of the 1999 Cohort	62.4%	42.8%	48.3%		

**Table 32 – WAD claim payments (including ANF only claims) – Operational time**

Cohort	PPCI (%)				
	0.44%	2.74%	17.51%	50.05%	68.79%
1999	18	228	1,066	2,566	3,707
2001	19	113	557	1,339	1,975
2003	12	61	580		
2001 Cohort as a % of the 1999 Cohort	102.0%	49.5%	52.2%	52.2%	53.3%
2003 Cohort as a % of the 1999 Cohort	63.9%	26.7%	54.4%		

These results indicate that when a corresponding proportion of claims are finalised for each cohort, the medical payment pattern still displays the decreasing average payment trend for the 2001 cohort, compared to the 1999 cohort. This is less clear for the 2003 cohort, however, and further analysis will be required when this cohort is more developed. This is apparent for both all claim types and WAD claims. Further this pattern is evident in other payment types.

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These results, which include the ANF only claims, do not contradict any of the other results present in this paper. Further analysis is required when the 2001 and especially the 2003 cohorts are more developed.

### **6. Discussion**

This paper has analysed the cost outcomes of the October 1999 legislative reforms for NSW CTP with particular regard to WAD claims. The analysis at this stage (that is, 31 December 2004) has confirmed the first primary hypotheses:

- That the pattern of costs would change to reflect earlier access to treatment and that better recovery would be reflected in reduced total costs to the Scheme.

More specifically, with regards to the cost outcomes, the following conclusions were made:

- The payment pattern has potentially changed following the legislative reforms. There has been an increase in the average payment per claim in the earlier development periods for the 2001 and 2003 cohorts as opposed to the 1999 cohort, and a subsequent decrease in average payments per claim in the later development periods. This potentially will lead to a reduced overall average claim size. Further, analysis is required when the 2001 and 2003 cohorts are more developed.
- Claims were finalising at a faster rate within the 2001 and 2003 cohorts as opposed to the 1999 cohort when the ANF only claims are included in the analysis. This is not the case when they are excluded from the analysis. The finalisation pattern remains constant when the ANF only claims are excluded.

As noted in the introduction to this paper, this cost analysis is part of a broader study which also analysed the health outcomes of claimants pre and post the legislative reforms. The analysis confirmed the second primary hypotheses in this study, namely:

- That people sustaining WAD after the change in legislation would have reduced long term disability and improved quality of life when compared to a group sustaining injuries prior to the changes.

Cameron et al (2005) compared the health outcomes between the 1999 and 2001 cohorts. The following results were observed:

- 37% of the 1999 cohort had recovered at 2 years compared with 52% of the 2001 cohort (Recovery was defined as having a Functional Rating Index of  $\leq 25$ ); and
- the physical component score of the Medical Outcomes Study Short Form 36 (SF36) for the 2001 cohort was significantly better than for the 1999 cohort, but there was no significant difference in the Mental Component Score of the SF36.

The effect of scheme design on recovery from compensable injury has been the focus of considerable debate and research. There is for instance substantial literature documenting that health outcomes for those claiming compensation for an injury are worse than outcomes for people who suffer similar levels of injury but do not claim compensation<sup>7</sup>. However, there has been a significant gap in the evidence around specific features of compensation schemes that may be influential, and the nature of the influence that scheme features might have. Taken together, the results of the study overall confirm that the structure and design of compensation schemes influence both health outcomes and costs for the scheme. Specifically, removing some of the more adversarial features of the system and facilitation of early access to treatment, key features of the reforms in NSW have been highlighted as possible important determinants of both cost and health outcomes. This study presented an opportunity to study these factors more definitively in a prospective cohort design.

## **The impact of scheme design on financial and health outcomes: building the evidence base**

The present results reflect the findings of our previous work in the scheme-related determinants of outcome for workers compensation<sup>8</sup>. We reported that health and return to work outcomes were poorer for those claimants receiving lump sum payments, compared to those on weekly benefits, particularly when those lump sums were the result of litigation. These groups also reported less satisfaction with rehabilitation and claims experience. These results underscore the importance of features of scheme design in determining scheme and claimant outcomes.

The implication of the evidence overall is clear. Earlier and less adversarial access to treatment and compensation results in measurably better outcome for both the scheme and the claimant.

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**The impact of scheme design on financial and health outcomes: building the evidence base**