



OCCUPATIONAL REHABILITATION FINANCIAL BENEFITS REPORT

NEW SOUTH WALES

JANUARY 2019



Executive Summary

The Australian Rehabilitation Providers Association (ARPA) is the peak professional body for the workplace health, return to work and rehabilitation industry. Representing thousands of independent workplace rehabilitation providers and allied health professionals, our industry has a proven track record of delivering quality care and offer a return on investment between \$28-\$32 for every \$1 invested.

More than 500,000 Australians suffer work-related injuries or illnesses in Australia every year, costing the national economy an estimated \$62 billion. More than three-quarters of the cost is attributed to indirect costs to workers, such as lost productivity, loss of current and future earnings, and loss of quality of life.

That is because more people with an injury staying out of the workforce longer than they need to. Australasian and international evidence shows that good work is beneficial to people's health and wellbeing. Conversely, long-term work absence, work disability and unemployment generally have a negative impact on a person's health and can exacerbate underlying mental health conditions.

Workers' needs in New South Wales and across the country are changing. Increasing rates of mental health injury and our inability to create psychologically safe workplaces are possible threats to a worker's successful return to work. However, we can reduce the burden of lost productivity. The following report, commissioned by ARPA and conducted by Actuarial Edge, analyses the financial benefits of using occupational rehabilitation services.

It concludes:

"If occupational rehabilitation referrals occur one month faster than is currently the case, resulting in improved return to work outcomes, Insurance & Care NSW's (icare) breakeven premium (BEP) could decrease by approximately \$38 million per annum (0.023 per cent of remuneration) and the scheme's claims liability would decrease by approximately \$17 million (0.15 per cent of the liability)."

New South Wales could save \$38 million per annum through earlier referral to occupational rehabilitation.

ARPA members consider greater collaboration between icare and independent rehabilitation providers would mean more efficient and earlier referrals with the ultimate goal of returning people to work. icare can partner with ARPA members to reduce scheme liabilities and bring about greater benefits for the workers of NSW, their employers and the economy.

Getting people back to work is a priority and building a better workplace rehabilitation industry is a key part of the solution.

Nathan Clarke

CEO

ARPA National

Actuarial Edge Report

Methodology

ARPA has commissioned this report to determine the financial benefits of utilising occupational rehabilitation (OR) services within workers' compensation schemes across various jurisdictions in Australia. The initial focus is on New South Wales, which is managed by Insurance & Care NSW (icare).

Several research materials were used in preparing this report:

- A 2013 research paper by Casey, Guy and Cameron¹ (the 2013 research paper), examines RTW outcomes for individuals receiving OR services in the NSW workers' compensation scheme;
- High level data to 2010 from WorkCover NSW (WorkCover data) summarising OR referrals, outcomes and total spend;
- High level data to 2016 from the State Insurance Regulatory Authority (SIRA data) summarising OR referrals, outcomes and total spend.

Actuarial Edge was engaged to:

- Identify key findings from the 2013 research paper and the WorkCover and SIRA data;
- Use the findings from the WorkCover and SIRA data as a reference check against the findings from the 2013 research paper;
- Translate the findings from the 2013 research paper into financial benefits for icare, including:
 - reductions in break-even premium;
 - reductions in scheme liabilities; and
 - improvements in return to work rates.

Actuarial Edge initially conducted this analysis in July 2017 and it was updated in 2018 to reflect more recent icare financial and claims statistics, available in icare's 2016-17 Annual Report and Financial Statements and Safework's Comparative Performance Monitoring Report, 19th edition.

¹ P. Casey, L. Guy and I. Cameron 2013 "Determining return to work in a compensation setting: A review of New South Wales workplace rehabilitation service provider referrals over 5 years"

Summary of Findings

A key finding of the 2013 research paper was that “for every 3 month increase in the duration of disability the odds of achieving a RTW upgrade decreased by 3%.”

We used various sources of data available to us, including data underlying the 2013 research paper, Safework Australia’s Comparative Performance Monitoring report and icare annual reports and financial statements to translate this finding into the following:

“If all OR referrals occur 1 month faster than is currently the case, resulting in improved RTW outcomes, we estimate that icare’s breakeven premium (BEP) would decrease by approximately \$38m p.a (0.023% of remuneration) and the scheme’s claims liability would decrease by approximately \$17m (0.15% of the liability).”

This finding relied on a number of key assumptions, including:

- RTW outcomes observed at different delays to referral are due to the different delay times, rather than due to any other factors impacting RTW outcomes (such as injured worker cohort characteristics);
- It is possible to speed up OR referrals by 1 month;
- Approximately 1,135 injured workers receive income replacement for at least 2 years (based on the assumption that 50% of those receiving income replacement for at least 1 year will continue to receive income replacement for at least 2 years);
- Approximately 115 injured workers receive income replacement for at least 5 years (based on the assumption that 10% of those receiving income replacement for at least 2 years will continue to receive income replacement for at least 5 years).
- 11% of all injured workers are referred to OR providers for RTW services.

It was not possible to test the validity of these key assumptions based on the data available. We therefore ran scenarios to test the sensitivity of the results to these assumptions. Output from scenario testing suggests that the financial impact to icare of speeding up OR referrals by 1 month is in the range of a 0.003% to 0.077% decrease in BEP (expressed as a % of remuneration).

Further Detail

Key Findings from 2013 Research Paper

A key finding of the 2013 research paper was that “duration of disability² is a significant determinant in achieving a positive RTW outcome”. The paper concluded that “for every 3 month increase in the duration of disability the odds of achieving a RTW upgrade decreased by 3%.”

We were provided with the data underlying the 2013 research paper and used this to further analyse the relationship between delay to OR referral and RTW outcome, as summarised in Table 1.

Table 1 - RTW outcomes at various delays to OR referral

Delay to OR Referral (Months)	Average RTW	Weighted Ave Change in RTW (1 mth faster)
0	45%	
3	57%	-3.6%
6	52%	2.1%
12	43%	1.2%
24	40%	0.2%
60	35%	0.1%

Table 1 suggests that:

- RTW outcomes are highest at lower delays to OR³.
- The impact on RTW outcomes of speeding up OR referrals by 1 month is strongest at earlier durations. For example,
 - referrals made between 3 and 6 months post injury achieve an average 2.1% improvement in RTW outcome for a 1 month faster referral; whereas
 - referrals made between 12 and 24 months post injury achieve an average 0.2% improvement in RTW outcome for a 1 month faster referral.

In interpreting our analysis in the above way, we made a key assumption that different RTW outcomes achieved at different delays to referral are due to the different delay times, rather than due to any other factors impacting RTW outcomes (such as injured worker cohort characteristics). As noted in the 2013 research paper, this analysis also does not assess or allow for:

- The sustainability of RTW outcomes achieved
- Any previous episodes of RTW assistance
- Variation in service intensity, duration and content amongst providers

² Measured as the time elapsed between injury date and date of referral to OR

³ We note the exception to this rule for referrals made in the same month of injury (month 0), which exhibit a lower RTW rate (45%) than referrals made up to 6 months after injury (52%-57%). We have assumed this anomaly is due to certain characteristics of claims referred immediately after injury and have therefore ignored this effect when analysing the impact on RTW outcomes of faster referral to OR.

Key findings from and comparison to WorkCover and SIRA data

WorkCover and SIRA data (provided to us by ARPA), contained information such as:

- Referral numbers
- RTW outcomes
- OR payments; and
- Delay to referral (WorkCover data only).

In many cases, this information was available separately for Same Employer and Different Employer services. The WorkCover data covered the period from 2006 to 2010, while the SIRA data covered the period 2012 to 2016.

While the WorkCover and SIRA data didn't contain any "key findings" as such, it did allow a comparison to the data underlying the 2013 research paper, as summarised in Table 2⁴.

Table 2 - Comparison of Research, WorkCover and SIRA data

Item	Research data (2010)	WorkCover data (2010)	SIRA data (2012)
Total Rehab Costs (\$m p.a)	62	96	95
Rehab Referrals (p.a)	16,394	47,917	20,012
RTW rate	52%	46%	58%
RTW rate Same Employer	57%	n/a	79%
RTW rate Different Employer	46%	n/a	34%
Median delay to referral (months)	12	10	n/a
Average delay to referral (months)	29	19	n/a

⁴ We note that WorkCover data was available until 2010 and SIRA data was available from 2012, hence a like with like comparison between the three sources was not possible.

We note the following from Table 2:

- The research data represents approximately 65% to 80% of total OR referrals in a year (not all OR providers chose to participate in the 2013 research⁵).
- the overall RTW rate from the research data falls in the middle of the rates reported in the WorkCover (2010) and SIRA (2012) data, although the difference in rates for Same and Different employers suggests the use of different definitions/calculation methodologies between the 2013 research data and SIRA data.
- Median delay to referral from the research data (12 months) is reasonably consistent with the WorkCover data (10 months), although the average delay to referral is significantly higher in the research data (29 months v 19 months respectively).

It would be useful to conduct further investigations into the differences between these data sources. In particular, as suggested in the 2013 research paper, it would be useful to find ways to increase the consistency, accuracy and reliability of data available from OR providers, to increase the pool of referrals available for analysis.

Translation of findings

The first step in translating the 2013 research findings into financial benefits for icare was to answer the following question: “If all OR referrals are made 1 month faster, resulting in improved RTW outcomes as set out in Table 1, what impact will that have on the number of injured workers receiving income replacement at different durations after injury”?

It is not clear from the research findings whether the extra RTW outcomes achieved were for individuals who would otherwise have remained on income replacement for more than 5 years after injury. We have therefore examined two extreme scenarios:

- Scenario 1 (Faster RTW): no additional RTW outcomes - the faster referrals result in faster RTW outcomes for those workers who would otherwise have ceased entitlement to income replacement and returned to work 5 years after injury;
- Scenario 2 (More RTW): all additional RTW outcomes - the faster referrals result in more injured workers achieving RTW outcomes. These workers would otherwise have continued on income replacement beyond 5 years.

⁵ Referrals in the WorkCover data includes all claims with an OR payment in 2010. This overestimates actual referral numbers, as it double counts claims with OR payments occurring across multiple years.

Table 3 sets out our estimate of the impact under these two scenarios:

Table 3 - Impact of faster referrals on claim numbers at different durations⁶

Summary of Financial Benefits			
Weeks	Number of claims reaching milestone (base)	Change in claims reaching milestone (faster RTW)	Change in claims reaching milestone (more RTW)
0	61,221	0	0
1	32,404	0	0
6	13,610	0	0
13	8,425	0	0
26	4,213	-19	-19
52	2,268	-25	-25
104	1,134	-26	-26
260	113	0	-26
1144	0	0	0

Under the Faster RTW scenario, 26 injured workers achieve a faster RTW outcome (and therefore have a shorter period of income replacement paid to them). However, there is no change in the total number of injured workers remaining on income replacement beyond 5 years/260 weeks (113).

Under the More RTW scenario, 26 injured workers, who would otherwise have continued to receive income replacement more than 5 years after injury, achieve a RTW outcome prior to 5 years post injury.

These scenarios could result in the following financial impacts for the icare scheme:

- Reduction in the number of weeks of income replacement paid
- Reduction in the amount of medical costs for these injured workers
- A lower propensity to claim lump sum payments from the scheme such as in the form of permanent impairment benefits or common law damages.

⁶ Source of number of claims reaching various milestones is Safework's Comparative Performance Monitoring Report, 19th edition, adjusted for the growth in overall claim numbers between 2015/16 and 2016/17, as reported by icare in their Annual Reports. Assumptions were applied to these statistics to estimate the number of claims at 52 weeks reaching 104 weeks and 260 weeks.

The estimated financial impact of each of the above changes is summarised in Table 4.

Table 4 - Estimated Financial Impact for icare⁷

	Base	Faster RTW	Central	More RTW
Weekly BEP (\$m)	552	-3	-12	-20
Medical BEP (\$m)	362	-2	-8	-13
Lump Sum BEP (\$m)	324	0	-18	-37
Other BEP (\$m)	800	0	0	0
Total BEP (\$m)	2,038	-6	-38	-70
Total BEP (%rem)	1.240%	-0.003%	-0.023%	-0.043%
Total gross liability (\$m)	11,320	-2	-17	-32
% of liability		-0.02%	-0.15%	-0.28%

The Faster RTW scenario is expected to reduce icare’s Breakeven Premium (BEP) by \$6m p.a (0.003% of remuneration), whereas the More RTW scenario is expected to have a much greater impact on BEP (\$70m reduction or 0.043% of remuneration).

As the Faster RTW and More RTW scenarios represent two extreme scenarios (ie none/all of the additional RTW outcomes were for injured workers who would have remained on income replacement beyond 5 years), we have selected the average of these two scenarios as our central estimate.

Therefore, if all OR referrals occur 1 month faster than is currently the case, resulting in improved RTW outcomes, we estimate that icare’s claims costs would decrease by approximately \$38m p.a (0.023% of remuneration). We estimate this would decrease the scheme’s claims liability by approximately \$17m (0.15% of liabilities).

The estimated change is expected to have only a small impact on overall RTW rates for the scheme (26 additional RTW outcomes out of 32,400 injured workers receiving some income replacement would increase RTW rates by approximately 0.1%).

Sensitivity testing

In estimating the impact of faster OR referrals on icare’s financial results, we had to make a number of key assumptions, due to the limited data available to us about icare’s claims experience and financial structure. These key assumptions related to:

- The percentage of all injured workers referred to OR for RTW services
- The flow-on impact of higher RTW outcomes on an individual’s propensity to claim lump sums
- The number of claims staying on income replacement between 52 and 104 weeks and between 104 weeks and 5 years after injury

⁷ We note that the “Base” BEP figures in Table 4 are estimates only, as icare’s actual BEP amounts were not available.

- The inflation and discount factors used by the scheme when calculating BEP and liabilities
- The average length of income replacement, particularly for those injured workers entitled beyond 5 years.

We ran a number of scenarios to test the sensitivity of our findings to each of these key assumptions. The outcome of these scenarios is shown in Table 5.

Table 5 - Results of Scenario Testing

Scenario	Base	Scenario	Change in Premium (% remuneration)			Key Assumption?
			Faster RTW	Central	More RTW	
Base			-0.003%	-0.023%	-0.043%	
Workers receiving OR (RTW)	11%	14%	-0.004%	-0.029%	-0.054%	Y
		20%	-0.006%	-0.041%	-0.077%	
Lump Sum impact	50%	25%	-0.004%	-0.017%	-0.031%	
		75%	-0.004%	-0.029%	-0.054%	
52 week claims reaching 104 weeks	50%	20%	-0.004%	-0.035%	-0.066%	Y
		60%	-0.004%	-0.022%	-0.040%	
104 week claims reaching 5 years	10%	5%	-0.004%	-0.033%	-0.062%	Y
		20%	-0.004%	-0.018%	-0.032%	
inflation factor	116%	107%	-0.003%	-0.020%	-0.037%	
		124%	-0.004%	-0.026%	-0.048%	
discount factor	74%	86%	-0.004%	-0.025%	-0.046%	
		64%	-0.003%	-0.021%	-0.039%	
break-even premium buffer (% rem)	0.11%	0.01%	-0.004%	-0.023%	-0.042%	
		0.50%	-0.004%	-0.023%	-0.042%	
average weeks for those > 5 years	967	790	-0.004%	-0.021%	-0.038%	
		702	-0.004%	-0.020%	-0.036%	

As shown in Table 5, this scenario testing suggests that the financial impact to icare of speeding up OR referrals by 1 month is in the range of a 0.003% to 0.077% decrease in BEP (expressed as a % of remuneration).

The results are most sensitive to the following assumptions:

- The proportion of injured workers receiving OR RTW services
- The number of injured workers remaining on income replacement for more than 2 and 5 years

Reliances and Limitations

The findings contained in this letter rely on the accuracy and completeness of the information provided by ARPA. Where possible, we have checked for consistency between the various sources, including a comparison of 2013 research data to data provided by WorkCover NSW and SIRA. However, we have not conducted a comprehensive, independent review of the information.

We note that the 2013 research paper listed a number of limitations on the research, including:

- only 40% of RTW cases collected in the data set were included, due to issues with consistency, accuracy and reliability of the underlying data
- it did not account for many possible explanatory variables of a non RTW outcome
- it did not measure sustainability of RTW outcomes over time
- it did not consider any previous episodes of RTW assistance
- it did not allow for variation in service intensity, duration and content amongst providers

In estimating the financial impact on icare, we have made various assumptions, particularly as we had limited claims experience and financial information for icare. As with any estimation involving uncertainty, it is unlikely that the actual financial impact will be exactly as expected.

We have examined the uncertainty in our modelled outcomes by conducting scenario testing to understand the impact of changing our key assumptions. In conducting our scenario testing, we chose a range of what we consider to be plausible assumptions. This highlighted a number of key assumptions which could be further explored at a later date to reduce the uncertainty contained in our estimates.

Amanda Aitken
Consulting Actuary

Niki Appleton
Director