

IS INJURY COMPENSATION EXCESSIVE?

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Abstract

There is widely perceived to be a public liability crisis in Australia. This paper analyses whether court awards for injuries are excessive. The paper has two main parts. The first part outlines a normative basis for the sizes of awards based on the principles of welfare economics and the amounts that individuals would be willing to pay to avoid injuries. It shows the kinds of compensation sums that would be involved for 28 typical injuries ranging from broken arms and legs to quadriplegia and severe brain damage. The second part of the paper analyses 397 court awards for injuries greater than \$250 000 in NSW from 1991 to mid-2002, for which award details were readily available. This includes 101 awards for traffic accidents, 64 awards for workers compensation, and 27 awards for personal injury. The paper concludes that court awards are generally not excessive.

JEL Classification:

Keywords: health states, injury, compensation

* I am most grateful to Wei Wang for research assistance for this paper.

I Introduction

There is widely perceived to be a public liability crisis in Australia. Injury claims have escalated in number and size, some public liability insurance premiums have doubled in a year, and services from obstetrics to horse riding to street parties are threatened and sometimes cut. In a speech to the Sydney Institute in 2002, the Premier of NSW (Bob Carr) observed that personal injury claim payments tripled from 0.03 per cent of GDP in 1977 to 0.1 per cent of GDP in 2000; the highest payout for a brain injury rose from \$1.16 million in 1980 (in today's dollars) to \$10.7 million in 2000; and the average claim for personal injury rose from \$5000 in 1991 to \$17,500 in 2000.¹

The Australian Competition and Consumer Commission (2002) estimated that the number of claims for product and public liability rose by 3 per cent per annum between 1995 and 2001. More dramatically, the Commission estimated that the real cost of the average settlement rose in the order of 8 per cent per annum over that period. According to the Productivity Commission (2002) bodily injury comprised 65 per cent of the total cost of settlements. NSW and the ACT have higher average bodily injury claims than other jurisdictions. The average bodily injury claim was around \$50 000 in NSW compared with \$30 000 in Queensland and about \$20 000 in other jurisdictions.

The causes and consequences of the rise in injury claims and insurance premiums are complex. An important issue, for example, is who should bear the liability for an injury. However, much of the debate has focused on the size of awards for injury, especially compensation for loss of earnings and for pain and suffering. In a report to Heads of Treasuries, Trowbridge Consulting (2002) recommended that loss of earnings should be capped with a limit of \$2000 per week after tax. The report also proposed that awards for pain and suffering (general damages) should be limited, claiming that 'reform to general damages will have the greatest impact among the range of reasonable options'. The Ipp report (2002) commissioned by the Commonwealth

Government recommended more stringent caps. It proposed that general damages should be capped nationally at \$250 000, that damages for loss of earning capacity should be capped at twice the average full-time adult ordinary time earnings, and that compensation for gratuitous services should be limited.

Most state governments have responded to the perceived crisis by limiting compensation for loss of earnings and for pain and suffering. Nearly all states have capped loss of earnings in civil liability schemes at three times average weekly earnings. The NSW Government capped loss of earnings due to motor accidents to \$2712 per week (indexed from 2002). This earnings cap equates to a capital sum of \$2.17 million for loss of 30 years earnings using the official NSW 5 per cent discount rate. South Australia (SA) has a capital cap of \$2.2 million for loss of earnings. Four states (NSW, Victoria, SA and Northern Territory) have caps on general damages running from \$240 000 in SA to \$271 380 in Victoria (indexed from 2002). Except for SA, these states have lower caps on general damages from motor vehicle accidents. Western Australia caps general damages from motor vehicle accidents at \$240 000 (indexed to 2002).

Most of these caps are well above the Ipp report's recommendations and may have little direct effect on awards because few awards are at the top of the injury scale. However the caps set a framework for all injury awards. The implication of the caps is that court awards, which are the basis for all other awards, are excessive. This paper examines whether this is the case. Of course, this is a normative as well as an efficiency issue. The following section discusses an appropriate basis for setting the levels of injury claims. Section three describes proposed benchmarks for claims for various injury states. Section four compares actual court awards with the proposed benchmarks. The paper concludes that court awards are generally not excessive.

¹ Speech to the Sydney Institute reported in the Australian Financial Review in June 2002.

II Approach to Analysis

Following the welfare principle of compensating variations, a common normative assumption in economics is that, if someone is injured through no fault of her own, she should be entitled to compensation that would restore her to her initial level of utility. If the party that causes the injury is responsible also for the compensation, this is also an efficient principle because that party will then take efficient safety precautions. If the expected damage from a risk is \$x million, the party responsible for the risk will invest up to \$x million to eliminate it. The outcome is efficient because the benefit from risk reduction exceeds the cost. Injury awards that fail to reflect the full cost of injury result in inadequate investment in safety and in excessive injuries.

The courts have usually adopted a similar normative standard. The Ipp report (2002) notes that ‘the basic principle underlying the assessment of damages for personal injury ... is the full compensation principle’. In the words of the Law Book Company (1993), damages for personal injury ‘are intended to restore the injured person to his or her pre-accident circumstances, as far as money can achieve this end’. Thus there would appear to be a happy coincidence of economic and legal principles.

However, the Ipp report (2002) challenges the full compensation principle on several grounds.

The report argues *inter alia* that:

- There are large disparities between social security benefits and compensation payments under personal injury law for disabled people which are effectively due to chance and which cannot be justified;
- high income earners can and should protect their earnings by private insurance and do not need court protection;

- there are high transaction costs in personal injury cases and lower payouts would minimise resort to the courts and hence reduce the overall cost of the system;
- it is more important to ensure that people's financial needs are met than to compensate people for intangible and non-economic harm, which is in any case impossible to value objectively.

Notwithstanding these arguments, in this paper we adopt the full compensation position. We do so because full compensation is the general normative position, is efficient, and (despite the observations of the Ipp report) can be estimated.

Economists and lawyers agreed for a long time not only on the full compensation approach but also on how to estimate the costs of damage. The standard method of assessing damages for personal injury was (and still is in the courts) to identify and value each component of loss, usually including the non-pecuniary component of pain and suffering, and to sum these component parts. The major components of injury were:

- Medical expenses.
- Loss of past and future earnings (destruction of human capital).
- Interest payments on these expenses and loss of past earnings.
- General damages (physical pain and suffering and loss of life expectancy).
- Future needs for care and treatment (both out-of-pocket expenses and allowance for gratuitous care for future needs that otherwise would not exist).
- Other expenses, including special housing and equipment needs.

The economic literature describes this method of assessing damages as the cost of illness (COI) method. In recent years, many economists have criticised this approach and proposed alternative valuation methods. There are three main criticisms of the COI method. First, it is an ex-post measure of damages rather than an ex-ante measure. For many purposes we want to know what

people are willing to pay to avoid injury rather than the ex-post cost of the injury. Second, the COI method provides no measure of the cost of pain and suffering. As the Ipp report notes, most court awards for pain and suffering have no clear or testable basis. On the other hand, in the case of an immediate fatal injury there is no pain or suffering and the implication is that a fatality has no personal cost other perhaps than loss of earnings. It does not make much sense ex-ante to say that a fatality has less cost than a broken arm or leg. Third, when adding together components of value, there is always a risk either that some component will be overlooked or that double counting may occur.

Ex-ante measures of willingness to pay (WTP) for health may be based on labour market (hedonic wage-risk) studies, consumer expenditure studies, or contingent valuation surveys. These WTP measures avoid all the above problems associated with COI measures (although they introduce other problems). Moreover, despite the assertions of the Ipp report, these WTP measures can provide estimates of what individuals are willing to pay for various health states *inclusive* of the productive and amenity value of health. Abelson (2003) describes these valuation methods and the estimated results for various health states.

In this paper I draw on the WTP results for impaired health states reported in Abelson (2003) and compare court-awarded injury damages with these economic valuations. As is well-known, when losses are substantial and the good that is lost has no ready substitute, willingness to accept (compensation) amounts may be considerably *higher* than WTP amounts (Hanemann, 1991). However, WTP figures may be regarded as lower bounds for compensation purposes. Efficient allocation of resources requires that court awards for injuries should reflect at least these WTP values. Lower amounts would place too low a value on safety and encourage excessive risks and carelessness.

III Benchmark Values for Health States

Abelson (2003) estimates the values of health states in three steps. First, the paper draws on various research studies and international practices to estimate the value of life (VoL). Second, the paper estimates the value of a healthy life year (VoLY). Third, drawing on this estimated VoLY and various quality of life (QoL) indices, as well as on WTP studies, the paper estimates the average cost for various states of impaired health.

Given the lack of Australian research on VoL, estimates of VoL in Australia must draw on overseas studies and values. Research studies indicate that most estimated VoLs are in the range of A\$3.3-6.6 million. In the United States, the Environment Protection Agency (2000) uses a VoL of about \$A6.6 million. Official European values for VoL are about A\$2.5 million, which is below the lower end of the range found in most research studies. Taking a conservative view of estimated VoLs, and given the similarity between European and Australian incomes, Abelson (2003) proposes that, for public policy purposes in Australia, a VoL of A\$2.5 million for a healthy prime-age individual would be an appropriate value.

Typically VoLY is regarded as the annual value which, when discounted over the remaining lifespan of the individual at risk, would equal the estimated VoL. Allowing 40 years of life lost and a utility discount rate of 3 per cent, a VoL of \$2.5 million implies a VoLY of \$108 000, which is the value proposed in Abelson (2003). This result is sensitive to the discount rate. A 5 per cent discount rate would *increase* the VoLY to \$146 000. Thus, our choice of a low (3 per cent) discount rate produces a conservative VoLY.

Possible average chronic health state values for Australia

To develop health state values, Abelson (2003) drew on a range of CV and QoL-based studies, Tolley et al (1994) estimate summary values for per year for a range of chronic health states in the United States, in 1991 US dollars. The estimated health values are based on a VoLY of

US\$120 000, which was derived from a VoL of US\$2.0 million, 39 years of life expectancy, and a discount rate of 6 per cent. To convert the estimated 1991 US values to 2002 Australian values, I multiplied the US values by the ratio of the proposed Australian VoLY in 2002 to the US VoLY adopted by Tolley et al. (i.e. by 108/120). This implicitly retained the same QoL values for health states. Note that because our proposed VoLY is 10 per cent less than the Tolley et al. VoLY in absolute numbers, the A\$ values for impaired health states for Australia in 2002 are *lower* than the US\$ values for impaired health states in the US in 1991.

The second major source of health state values was Mathers et al (1999), which provides estimates of disability weights for 720 disease/injury conditions for Australia. In this study, disability refers to departure from health in *any* important domain including mobility, self-care, participation in usual activities, pain and discomfort, anxiety and depression, and cognitive impairment. The estimated disability weights, which range from 0 for no disability to 1 for states equivalent to death, are the mirror images of QoL indices. Mathers et al. derived the estimated weights in three ways: from the *Global Burden of Disease* study by Murray and Lopez (1996); from a major Dutch study of weights for 53 diseases including estimates for 175 disease stages, sequelae and severity levels (Southard et al. 1997); and from their own study of health status indices. Clinical views of health status were the primary source in each case. However, Mathers et al. claim that the expert views in the Dutch and Australian studies were close to those that would be obtained from the public.

In order to estimate dollar costs for chronic impaired states, Abelson (2003) derived the QoL indices for these states implied by the Mather et al. study ($QoL = 1 - \text{the disability weight}$) and multiplied these QoL indices by a VOLY of \$108,000.

Table 1 shows the QoL indices implied by these two main sources and estimated (rounded) costs of impaired health states. Table footnotes explain the derivations. The dollar values are

estimated medium amounts that individuals are willing to pay per year to avoid chronic conditions.

The health state values derived from the US and Australian sources are similar, implying similar QoL values. The quoted Australian values sometimes have a wider range. This reflects mainly the greater detail in the Mathers et al study. To ease exposition, Abelson (2003) cited the medium values in the Tolley et al. (1994) study rather than the range of reported values.²

Table 1 Estimated medium values (costs) for chronic health states

Chronic health state	QoL index implied by		Estimated value derived from	
	Tolley et al. ^a	Mathers et al. ^b	Tolley et al. ^c	Mathers et al. ^d
			\$'000 /year	\$'000/year
Broken lower leg	0.95	0.73	5	30
Broken upper leg		0.33 – 0.73		30-40
Arm fracture		0.82		20
Head injury		0.57-0.65		38-46
General tiredness/weakness	0.87		14	
Medium angina	0.88	0.82	13	19
Severe angina	0.70	0.60	32	43
Bronchitis	0.75	0.83-0.47	27	18-60
Blindness	0.63	0.57	40	45
Renal dialysis	0.49		55	
Emphysema	0.58		45	
Lung cancer	0.30		75	
Primary therapy, operable		0.56		50
Non-operable		0.24-0.07		80-100
Breast cancer (non-invasive)		0.76		25
Breast cancer (disseminated)		0.21		85
Partial paraplegia	0.49		55	
Complete paraplegia	0.30		75	
Injured spinal cord		0.28		80
Quadriplegia	-0.11		120	
Severe brain damage	-0.16		125	
Stroke (mild permanent impairments)		0.74		30
Symptomatic HIV		0.69		65
AIDS		0.44		35
Heroin dependence		0.73		30
Manifest alcoholism		0.45		60
Moderate dementia		0.37		70

(a) Estimated from data in Tolley et al. (1994), using medium health state values.

(b) Estimated as one minus the disability weight in Mathers et al. (1999, Annex Table B).

(c) Equal to the medium value in Tolley et al. (1994, Table 15.2) times 0.90, rounded to nearest 5 if 40 or more.

(d) The estimated QALY times \$296 for acute morbidities and times \$108,000 for chronic morbidities, rounded to nearest 5 if the resulting number is 25 or more.

² I have also adopted the imprecise term 'medium' in preference to the more precise but misleading terms 'median' or 'mean'.

The estimated values for the chronic morbidities range from around \$20 000 for a year of relief from mild bronchitis or medium angina up to \$120 000 plus for a year of relief from quadriplegia or severe brain damage. However, there are many health states in the middle of this range, valued at \$60 000 to \$80 000 a year, including symptomatic HIV, manifest alcoholism, moderate dementia, severe bronchitis, several forms of cancer, and an injured spinal cord. It may be noted that a morbidity cost in excess of \$108 000 implies that a health state, such as quadriplegia, may be a state worse than death at least for some people.

IV Court Awards for Personal Injuries

In Australia, each state determines the legal environment for personal damage claims in that state. Consequently there are many differing injury claim systems. Also, in most states there are separate systems for workers compensation, traffic accidents, and other personal injury. It is not possible here to examine the outcomes of all these systems or indeed all outcomes in one system. Rather, I have examined all injury awards greater than \$250 000 in NSW from 1991 to mid-2002, for which details of the award were published, as reported in the Table of Quantum of Damages in Butterworth Publications available on the net. Of the total of 644 cases reported by Butterworths, 192 awards exceeded \$250 000 where details were reported.³ This includes 101 awards for traffic accidents, 64 awards for workers compensation, and 27 awards for personal injury. Thus this research captures nearly 30 per cent of the reported court awards.

For this analysis, I collected data on the type of injury and the total award for each case broken down by traffic accidents, workers' compensation and personal injury, and the main components of the award. These components are medical expenses (past and future at the time of the award), loss of earnings (past and future), interest payments, pain and suffering, care and

³ Awards exceeded \$250 000 in a few other cases but these are not included in this research because details of the dollar components were not given.

domestic support, house modification and equipment, and other expenses. I then converted the awards into 2002 dollar equivalents.⁴

Of the many questions that could be asked, I ask two main questions. First, are court awards for damages generally consistent with the values that would be expected from economic valuations? To answer this question, I examine the average size of the main components of the awards separately for traffic accidents, workers compensation and personal injury. Second, are the awards for particular injuries consistent with economic valuations of those impaired health states? To respond to this question, the awards are grouped by type of injury, for example paralysis, brain or head injury, back injury, and so on.

Average awards for injuries in NSW in excess of \$250 000 (in 2002 prices) are shown by type of claim in Table 2. Awards are broken down into those over \$1.0 million and those between \$250 000 and \$1.0 million. Focussing first on the \$1.0 million plus claims, the average awards for personal injury and traffic accidents are much higher than for workers' compensation. However loss of earnings and awards for pain and suffering averaged only about \$650 000 and \$250 000 respectively for these two claim categories. These are not high amounts for extreme injuries and they accounted for only 20 to 30 per cent of the total awards. The major factors accounting for the very high awards are medical expenses, care and support, house modification and special equipment, and a variety of other factors including interest payments, travel expenses, management expenses, rehabilitation and so on. For awards between \$250 000 and \$1.0 million in all three claim classes, awards for loss of earnings averaged around \$300 000 (in this case they were higher for workers' compensation claims) and \$115 000 for pain and suffering. Given that these are capital values for significant chronic injuries, they do not appear high compared with the annual WTP figures shown in Table 1.

⁴ The full data set can be provided on request.

Table 2 Average awards for injuries in NSW above \$250,000, 1991- 2002 (2002 prices)

Type of injury claim	No of awards	Medical expenses (a)	Loss of earnings (b)	Interest payments	Pain and suffering	Care and support (c)	House & equipment (d)	Other expenses (e)	Total award
Workers compensation		Dollar amounts in thousands							
Over \$1.0 million	12	163	619	66	142	262	41	66	1360
\$250,000 - \$1.0 million	52	45	331	25	104	24	2	-11	520
Personal injury									
Over \$1.0 million	9	697	634	118	250	1906	312	156	4073
\$250,000 - \$1.0 million	18	47	262	53	126	19	0	28	535
Traffic accidents									
Over \$1.0 million	25	266	694	54	270	1480	303	204	3271
\$250,000 - \$1.0 million ^f	70	46	287	28	126	34	1	-9	512
Workers compensation		Percentages by type of damage payment							
Over \$1.0 million	12	12.0	45.5	4.8	10.5	19.3	3.0	4.9	100.0
\$250,000 - \$1.0 million	52	8.6	63.7	4.8	20.1	4.5	0.4	-2.1	100.0
Personal injury									
Over \$1.0 million	9	17.1	15.6	2.9	6.1	46.8	7.7	3.8	100.0
\$250,000 - \$1.0 million	18	8.8	48.9	9.9	23.6	3.5	0.0	5.3	100.0
Traffic accidents									
Over \$1.0 million	25	8.1	21.2	1.7	8.2	45.2	9.3	6.2	100.0
\$250,000 - \$1.0 million ^f	70	8.9	56.0	5.5	24.5	6.6	0.2	-1.8	100.0

(a) Includes past and expected future medical expenses.

(b) Includes past and projected loss of earnings plus expected loss of superannuation.

(c) Includes past and projected care including domestic assistance.

(d) Includes house modification expenses plus special equipment.

(e) Includes travel, vacations, management expenses, rehabilitation expenses, loss of benefits etc. Workers' compensation repayments are also included here, which are subtracted from payouts.

(f) Excluding 6 deaths.

Table 3 shows average awards by major injury type in 2002 prices where the major injury was identifiable (see footnote to table). Apart from a few exceptional cases reflecting mainly the care and support, house modification and equipment required, the average cost of severe cases of paralysis and brain damage was about \$2.2 million. This is consistent with the WTP figures shown in Table 1. Discounting an annual WTP figure in the order of \$100,000 to \$120,000 over 40 years with a discount rate of 3 to 5 per cent produces present value figures ranging from \$1.7 million to \$2.7 million depending on the parameters chosen, especially the discount rate. At the other end of the size of the results in Table 3, awards ranged from about \$450 000 to \$650 000 for most conditions. The average award for the most common complaint (back injury) was \$557,000.

Table 3 Average awards by injury type in NSW above \$250,000, 1991-2002 (\$'000, 2002 prices)

By major injury (a)	No of awards	Medical expenses	Loss of earnings	Interest payments	Pain and suffering	Care and support	House & equipment	Other expenses	Total Award
Tetraplegia	1	1049	756	28	413	5433	1004	718	9402
Quadraplegia	3	927	1457	43	340	3264	782	254	7068
Hemiplegia	1	160	531	0	283	3098	445	245	4763
Paralysis	5	257	464	25	260	861	277	109	2253
Brain	20	276	508	71	188	965	147	45	2201
Paraplegia	4	299	202	18	244	411	251	100	1525
Head	18	46	454	41	175	453	65	47	1281
Kidney	1	96	830	0	145	0	8	168	1247
Spine	4	77	530	50	118	5	0	39	818
Foot	3	56	341	30	81	209	4	23	744
Hip	2	203	260	113	116	4	0	-13	683
Shoulder	3	69	342	42	137	11	0	2	603
Knee	6	126	252	63	119	98	5	-61	601
Cancer	2	79	301	17	114	0	0	67	577
Leg	10	82	296	8	159	15	9	7	576
Death	6	0	141	37	7	18	0	371	575
Back	50	58	320	38	112	35	2	-8	557
Burns	3	74	283	29	153	16	0	5	560
Arm	6	36	294	15	126	45	0	-4	514
Internal	2	26	319	0	114	6	0	9	473
Hand	1	40	262	27	134	0	0	-1	462
Neck	9	23	304	19	74	21	0	8	448
Wrist	1	8	242	86	100	0	0	6	442
Psychological	8	14	325	26	95	0	0	-21	438
Nervous shock	2	6	132	106	100	0	0	6	350

(a) In many cases, there are multiple injuries. This table shows injury by what appears to be the main injury. Where there were multiple and the main one was not clear from Butterworth's records, the case was dropped for the purpose of this table.

Again, the sizes of these capital awards are broadly consistent with WTP figures of \$20 000 to \$40 000 per annum for broken legs and arms and for less serious head injuries (see Table 1). Although this analysis is on a broad scale, the economic approach to injury valuation broadly supports the sizes of awards that the courts have made for injuries despite the public clamour that these awards have been too high.

V Conclusions

Writing nearly 10 years ago, Tolley et al (1994) observed that:

The tort system (in the United States) is often claimed to be in a state of crisis. Excessive awards for pain and suffering are a popular explanation for the problem. Setting upper limits to awards for pain and suffering, or even eliminating them entirely from tort awards, have been suggested legislative remedies.

In recent years, influential commentators and politicians have formed a similar view about the state of public liability in Australia and concluded that payouts for injuries should be capped. Although fewer than 5 per cent of claims are settled in court, court decisions provide the parameters within which negotiations over claims take place and settlements are reached.

Following a review of research into the value of life and the value of a healthy life year, Abelson (2003) proposes that, in 2002 prices, public agencies in Australia adopt:

- a value of life of \$2.5 million for avoiding an immediate death of a healthy individual in middle age (about 40);
- a value for a healthy life year of \$108,000 which is independent of age;

Abelson (2003) also reviewed values for impaired health states and indicated possible values for 26 chronic health conditions. The estimated cost of chronic conditions ranges from \$20 000- \$30 000 per annum for mild bronchitis and broken arms up to \$100 000 plus per annum for various forms of paralysis and brain damage.

In this paper I have examined court awards for major injuries made over the last 10 years in NSW and found that they are broadly consistent with the economic valuations of the health states made in Abelson (2003). This includes reasonable amounts for pain and suffering. This analysis suggests that political moves to reduce court awards by capping maximum amounts are inconsistent with individual valuations of health that are usually the basis of economic valuations.

REFERENCES

Abelson, P., 2003, 'The value of life and health for public policy', *Economic Record*, 79, S2-S13.

Australian Competition and Consumer Commission, 2002, *Second Insurance Industry Market Pricing Review*, ACCC, Canberra.

Hanemann, W.M. (1991), 'Willingness to pay and willingness to accept: how much can they differ?', *American Economic Review*, 81, 635-47.

Ipp, D. Chair, 2002, *Review of the Law of Negligence*, Final Report to the Minister for Revenue and Assistant Treasurer, Canberra.

Law Book Company, 1993, *The Laws of Australia*, 33 'Torts', The Law Book Company Ltd., Sydney.

Mathers, C., Vos, T., and C.Stevenson (1999), *The Burden of Disease and Injury in Australia*, Australian Institute of Health and Welfare, AIHW cat. No. PHE 17, Canberra.

Murray, C.J and A.D.Lopez (1996), *The Global Burden of Disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020*, Harvard School of Public Health, Harvard.

Southard, M., Essink-Bot, M., Bonsel, G., Barendregt J., Kramer, P., van de Water, H., Gunning-Schepers, L., and P. van der Maas (1997), *Disability weights for diseases in the Netherlands*, Department of Public Health, Rotterdam.

Tolley G, Kenkel, D. and Fabian, R. (1994), 'State of the Art Health Values', pp.323-344 in Tolley, G, Kenkel, D. and Fabian, R. (eds:), *Valuing Health for Public Policy, An Economic Approach*, University of Chicago Press, Chicago.

Productivity Commission, 2002, *Public Liability Claims Management*, Research Report, Canberra.

Trowbridge Consulting, 2002, *Public Liability Insurance: Practical Proposals for Reform*, report to the Insurance Issues Working Group of Heads of Treasuries 30 May.

United States Environmental Protection Agency (2000), *Guidelines for Preparing Economic Analyses*, USEPA, Washington D.C.