The Cost of Domestic Violence to the Australian Economy: Part I

An Australian Government Initiative

Women 04

Consultants

Access Economics Pty Ltd

Partnerships Against Domestic Violence

ACCESS ECONOMICS

A report prepared for the Australian Government's Office of the Status of Women by Access Economics Pty Ltd, funded by the Australian Government under *Partnerships Against Domestic Violence*.

ISBN No: 1 877 042 74 9

Contents

EXECUTIVE SUMMARY		**VI**
1.	**INTRODUCTION**	**1**
1.1	Initial Report	1
1.2	Outline of the Report	1
2.	**THRESHOLD ISSUES**	**3**
2.1	Definition of Domestic Violence	3
2.2	Costs of Domestic Violence	3
2.3	Types of Costs	4
2.4	Classification by Who Pays	6
2.5	Costs Over Time	6
2.6	Measurement Problems	9
2.7	Findings of Previous Australian Studies	11
3.	**KEY PARAMETERS**	**15**
3.1	Prevalence of Domestic Violence	15
3.2	Other Insights from the Surveys	18
4.	**PAIN, SUFFERING AND PREMATURE DEATH**	**19**
4.1	Methodology	19
4.2	Results	21
5.	**HEALTH COSTS**	**31**
5.1	Health Costs for Female Victims	31
5.2	Health Costs for Perpetrators of Violence and for Children (Bystanders)	34
6.	**PRODUCTION RELATED COSTS**	**37**
6.1	Short-Run Productivity Loss	37
6.2	Administrative Costs	39
6.3	Long-Term Reduction in Productive Capacity	41
6.4	Summary of Production Related Costs	43
6.5	Sensitivity Analysis	44
7.	**CONSUMPTION COSTS**	**45**
7.1	Short-run Costs	45
7.2	Loss of Economies of Scale in Consumption	45
8.	**SECOND GENERATION COSTS**	**47**
8.1	Overview	47
8.2	Short-Term Costs	48
8.3	Longer Term Costs	49
9.	**ADMINISTRATIVE AND OTHER COSTS**	**53**
9.1	Legal System Costs	53

9.2 Temporary Accommodation Costs 54
9.3 Other and Administrative Costs 57
10. TRANSFERS 59
10.1 Income Support 59
10.2 Victim Compensation 60
10.3 Family and Friends Financial Support 60
10.4 Bad Debts 60
10.5 Lost Taxes 60
10.6 Deadweight Loss Of Taxation – Payments and Administration 60
10.7 Sensitivity Analysis 61
11. SUMMARY OF ANNUAL COSTS 63
11.1 Summary of Annual Costs 63
11.2 Sensitivity Analysis 65
12. ESTIMATING LIFETIME COSTS 67
12.1 Suffering and Premature Death 67
12.2 Health Costs 67
12.3 Production Related Costs 68
12.4 Second Generation Costs 69
12.5 Consumption Costs 69
12.6 Administration and Other Costs 70
12.7 Transfer Costs 71
12.8 Summary 71
13. WHERE TO NOW? 73
13.1 Surveys are a Key Data Source 73
13.2 Administrative Data are an Important Source of Information 74
13.3 Detailed Micro-Data are also Essential 74
13.4 Attributable Fractions and Related Issues 74
13.5 Broader Research and Other Issues 74
REFERENCES 75

Figures and Tables

Figure 1:	Incidence and Prevalence Approaches to Measurement of Annual Costs	7
Figure 2:	Share of Burden Associated with Domestic Violence, 2002–03	25
Figure 3:	Domestic Violence Relative to Other Risks to Health (% of Total DALYs)	27
Figure 4:	Composition of Health Costs, Female Victims, by Condition, 2002–03	31
Figure 5:	Composition of Health Costs, Female Victims, by Type, 2002–03	33
Figure 6:	Health Costs, Female Victims, by Age (% Total), 2002–03	33
Figure 7:	Minimal Economic Loss—Covered Entirely by Sick Leave	38
Figure 8:	Minimal Economic Loss—Covered Partially by Sick Leave	38
Figure 9:	Moderate Economic Loss—Reduced Rate of Earnings	41
Figure 10:	Significant Economic Loss—Permanently Disabled	41
Figure 11:	Significant Economic Loss—Death	42
Figure 12:	Annual Cost of Domestic Violence by Category	64
Figure 13:	Annual Cost of Domestic Violence by Affected Group	64
Table 1:	Summary of Annual Costs by Cost Category	vii
Table 2:	Summary of Annual Costs by Affected Group	vii
Table 3:	Categories of Cost	5
Table 4:	Recent Australian Studies of Economic Costs	12
Table 5:	Women Experiencing Domestic Violence in 2002–03	15
Table 6:	Women Who Have Experienced Domestic Violence Since the Age of 15.	16
Table 7:	People who Experienced Domestic Violence Victims in 2002–03	17
Table 8:	People Who Have Experienced Domestic Violence Since the Age of 15	17
Table 9:	International Estimates of VSL, Various Years	21
Table 10:	Attributable Fractions for DALYs	23
Table 11:	Population Growth, June 1996 to June 2003, Females by Age	24
Table 12:	Burden of Disease Associated with Domestic Violence, 2002–03, DALYs	24
Table 13:	Death and Disability Associated with Domestic Violence, 2002–03, DALYs	26
Table 14:	Cost of Suffering Associated with Domestic Violence, ($m), 2002–03	28
Table 15:	Gross Burden of Disease: Victims, Perpetrators and Children ($m), 2002–03	28
Table 16:	Net Burden of Disease: Victims, Perpetrators and Children ($m), 2002–03	29
Table 17:	Scenario Analysis for Suffering Costs	30
Table 18:	Health Costs Associated with Domestic Violence, Female Victims, 2002–03	32
Table 19:	Health Costs: Victims, Perpetrators and Children, 2002–03	34

Table 20:	Health Costs by Who Bears the Cost, 2002–03	35
Table 21:	Summary of Costs Due to Temporary Absenteeism ($m)	39
Table 22:	Administration Cost of Time Off Work	40
Table 23:	Turnover Costs in 2002–03	40
Table 24:	Cost of Homicide and Premature Death	42
Table 25:	Summary of Production Related Costs ($m)	43
Table 26:	Cost of Damaged or Destroyed Property, 2002–03	45
Table 27:	Loss of Equivalent Household Disposable Income, 2002–03	46
Table 28:	Consumption Related Costs: Sensitivity Analysis	46
Table 29:	Summary of Second Generation Costs	47
Table 30:	Costs of Juvenile Crime in 2002–03	50
Table 31:	Summary Table—Legal System Costs	54
Table 32:	Total Homeless Persons Due to Domestic Violence, 2002–03	55
Table 33:	DV Funding for SAAP Services	55
Table 34:	Government Funding of Domestic Violence Temporary Accommodation ($m)	56
Table 35:	Summary of Total Temporary Accommodation Costs ($m), 2002–03	57
Table 36:	Summary Table—Other and Administrative	58
Table 37:	Payments Induced as a Result of Domestic Violence, 2002–03	59
Table 38:	Dead Weight Loss ($m)	61
Table 39:	Summary of Sensitivity Analysis	65
Table 40:	Summary of Sensitivity Analysis—Excluding Pain/Suffering	66
Table 41:	Summary Table of Costs by Category and Affected Group ($m)	66
Table 42:	Gross Lifetime Pain and Suffering Costs ($)	67
Table 43:	Lifetime Health Costs ($)	68
Table 44:	Lifetime Temporary Productivity Costs ($)	68
Table 45:	Lifetime Long-Term Productivity Costs ($)	69
Table 46:	Lifetime Second Generation Costs ($)	69
Table 47:	Lifetime Long-Term Consumption Costs ($)	70
Table 48:	Lifetime Short-Term Administration and Other Costs ($)	70
Table 49:	Lifetime Long-Term Administration and Other Costs ($)	71
Table 50:	Net Lifetime Pain and Suffering Costs ($)	71
Table 51:	Total Lifetime Costs per Victim ($)	72

Acknowledgements

Access Economics acknowledges with appreciation the comments, previous research and expert input provided by: Monika Henderson from M & P Henderson & Associates Pty Ltd; Jane Mulroney from the Australian Domestic and Family Violence Clearinghouse, Lesley Laing from the Social Work and Policy Studies Centre, University of Sydney; Natalie Taylor from the Australian Institute of Criminology; Julie Oberin from WESNET; Jennifer Ludlow from DIMIA, Tony Carmichael and Fiona Tulloh from FACS; Dianne Heriot from the Attorney General's Department; Alix Goodwin from the Department of the Chief Minister of the NT; Kim Chandler from the Violence Protection Unit, Department of Communities, Queensland Government; Professor Theo Vos of DHS and School of Population Health of University of Queensland and Lyn Watson of the Victorian Department of Human Services (DHS); Fred Gravestock from Kids First; and Danny Blay from No To Violence.

We also deeply appreciate the assistance we have received in provision of data and access to unpublished research findings. We have sought to make mention of this at appropriate points in the report.

We acknowledge with gratitude the source research—unit record data collected as part of the Australian Longitudinal Study on Women's Health—performed by The University of Newcastle and The University of Queensland, funded by the Commonwealth Department of Health and Ageing, and provided by the women in the survey. In particular Access Economics acknowledges the contribution of Christina Lee (study coordinator for the Australian Longitudinal Study of Women's Health), Lyn Watson, Margot Schofield, Rafat Hussain and Angela Taft, as well as the contribution of Dr Leonard Piers and Ms Anne Magnus of the Victorian Department of Human Services (DHS), and Associate Professor Theo Vos of DHS and School of Population Health of University of Queensland, for providing access to their calculations of burden of disease attributable to domestic violence.

We also acknowledge the cooperation of the Australian Longitudinal Study on Women's Health (for access to unit record files and to analysis of health impacts of domestic violence), FACS (for SAAP data), the ABS (particularly in relation to data on homelessness, and for access to unit record data from the Women's Safety Survey), and the Australian Institute of Health and Welfare (for access to data on the burden of disease and health costs). In particular we would like to thank Rod McDonald, Doug Limbrick and Rose Lai from FACS; Penny Warner-Smith, Christina Lee and Jean Ball from the Australian Longitudinal Study on Women's Health; Donna Goodman, Carol Jennings and Tracy Stewart from the ABS; and John Goss and Nick Mann from the Australian Institute of Health and Welfare.

An extended list of stakeholders consulted and their contacts is in Part II of this report.

Executive Summary

The Office for the Status of Women (OSW) has commissioned Access Economics to undertake a study of the costs of domestic violence to the Australian economy. The objective of the project is to:

> *undertake an accurate and comprehensive estimation of the costs of domestic violence to the Australian economy. The achievement of this objective will assist in raising awareness in the community of the costs of domestic violence, and will assist policy makers in determining allocation of resources across areas of governmental intervention to address this issue.*[1]

This final report of the project documents the achievement of the project objective and outcomes. The study has benefited from the input of the *Partnerships Against Domestic Violence* Taskforce and other experts. However, the conclusions are those of Access Economics alone.

Key features of the methodology include:

- A focus on economic costs, and a clear distinction of economic costs from transfer payments
- Use of a "prevalence" approach that conceptually captures all annual costs of domestic violence and its consequences
- Allocation of costs to seven categories:
  - pain, suffering and premature mortality,
  - health costs,
  - production related costs,
  - consumption related costs,
  - second generation costs,
  - administrative and other costs, and
  - transfer costs.
- Allocation of costs to eight groups who bear costs and pay or receive transfer payments:
  - the victim,
  - perpetrator,
  - children,
  - friends and family,
  - employer,
  - Federal government,
  - State/Territory and Local government, and
  - rest of the community/society (non-government).

Classifying costs by six cost categories and allocating them to eight groups enables a ready manipulation of the data to isolate the impacts on the various groups affected by domestic violence.

In applying the methodology, we encountered severe problems in obtaining accurate estimates of many of the detailed components of costs. There are also difficulties in determining the proportion of some health and other impacts that is due to domestic violence, as opposed to associated dysfunctional behaviours—such as child abuse and substance abuse. Hence the overall findings must be considered indicative (and in some cases speculative). However, we have also sought to be conservative in our assumptions.

We also provide suggestions for future research and data gathering.

Main Findings of the Study

It is estimated that in 2002–03 the total number of Australian **victims of domestic violence may have been of the order of 408,100, of which 87% were women.** It is also estimated that there were a similar number of perpetrators of domestic violence, 98% of which were male, and that around **263,800 children were living with victims of domestic violence and 181,200 children witnessed domestic violence** in 2002–03. These findings support the overwhelming international research that women and children are the main victims of domestic violence.

Table 1 shows annual economic costs in each of the main categories.

[1] The full terms of reference of the study are reproduced in Part II.

Table 1: Summary Of Annual Costs By Cost Category

CATEGORY OF COST	ANNUAL COST IN 2002–03 ($M)
Pain, suffering and premature mortality	3,521
Health	388
Production	484
Consumption	2,575
Administration and Other	480
Second generational	220
Economic cost of transfers	410
Total	**8,078**
Total (excl. pain, suffering)	**4,557**

The total annual cost of domestic violence in 2002–03 is estimated to be **$8.1 billion**. The largest contributor is pain, suffering and premature mortality, at $3.5 billion. The remaining costs total $4.6 billion. The largest part is consumption costs, of which the largest component is lost household economies of scale. The next largest categories are production and administration and other, at $484 million and $480 million respectively.

Table 2 shows which groups bear these costs. Reflecting the large contribution of pain, suffering and premature mortality to total costs, the largest cost burden ($4.0 billion) is estimated to be borne by victims of domestic violence. The next largest burden is on the general community ($1.2 billion), with smaller amounts borne by the remaining groups.

Table 2: Summary of Annual Costs by Affected Group

AFFECTED GROUP	ANNUAL COST IN 2002-03 ($M)
Victim	4,048
Perpetrator	555
Children	769
Employers	175
Friends and Family	7
Federal government	848
State/Territory government	487
Community	1,190
Total	**8,078**

In comparison, the total lifetime cost of domestic violence is estimated to be **$224,470 per victim** experiencing domestic violence in 2002–03. Total lifetime costs are once again dominated by pain and suffering costs incurred by the victim. In comparison the annual cost in 2002–03 per victim who has ever suffered DV is $4,570.

We stress that the estimates are conditional on the numerous assumptions made during the course of the analysis. A considerable margin of uncertainty surrounds our estimates. Many of the detailed estimates are based on limited data and on parameters that reflect a large element of judgement.

Access Economics

1. Introduction

The Office for the Status of Women (OSW) has commissioned Access Economics to undertake a study of the costs of domestic violence (DV) to the Australian economy. The objective of the project is to:

> *undertake an accurate and comprehensive estimation of the costs of domestic violence to the Australian economy. The achievement of this objective will assist in raising awareness in the community of the costs of domestic violence, and will assist policy makers in determining allocation of resources across areas of governmental intervention to address this issue.*[2]

The study, completed in July 2004, has two main deliverables:

- An initial report (submitted to OSW in mid May 2004) setting out details of the proposed methodology and a consultation strategy—for approval by OSW, and production and use by Access Economics in consultations as appropriate; and
- This final report, which documents the achievement of the project objective and outcomes.

1.1 Initial Report

The initial report briefly reviewed the methodologies and findings of previous Australian studies of the economic costs of DV. An important source is the literature review undertaken by Laing and Bobic (2002) on behalf of the Australian Domestic and Family Violence Clearinghouse.

The methodology and data sources proposed for this study were also outlined. At the centre of the methodology is a matrix whose rows represent the various components of economic costs, and whose columns represent the economic agents who bear the costs (see Part II, Section 3). The methodology clearly distinguishes resource costs and other losses of wellbeing that are the true economic costs, from the transfer payments that shift the burden of the economic costs between the various affected groups.

The methodology draws on previous Australian studies, where these had already established robust concepts and measurements. It also draws on comparable analysis of other sources of economic costs (for example, occupational injury and disease), and on recent methodological advances, notably in assessing the economic cost of pain and suffering.

Following scrutiny by OSW, the initial report was circulated to all members of the Partnerships Against Domestic Violence Taskforce, and to other leading researchers and interest groups.[3] The comments received were supportive of the study. Issues raised included:

- The desirability of broadening the definition of DV to include
  - extended family violence and associated costs - particularly amongst indigenous families; and
  - impact of child abuse.
- The importance of identifying and quantifying the substantial unique costs associated with DV in indigenous families and non-English speaking families.
- The importance of including costs associated with volunteers and non-government funds of support organisations.

There were also comments about possible inadequacies in the data, and about other relevant literature and data sources.

Access Economics appreciates the time and trouble of stakeholders in commenting on our proposed methodology. To the extent possible, any comments received have been taken into account in developing the analysis reported in this paper.

1.2 Outline of the Report

This report is in two parts. The main volume (Part I) provides an extended summary of the analysis and its findings. Part 2 provides more detailed descriptions of the methodology and its application.

In Part I,

- Section 2 explains the scope of the study. It explores some threshold issues; briefly summarises the approach of key previous studies; and sets out the approach followed in this study. Issues considered include the definition and classification of costs of DV; types of costs; classification by who pays; and treatment of costs over time. We explain how data inadequacies and the limitations of previous analysis have constrained the scope of the study.
- Section 3 discusses the derivation of key parameters. These include the prevalence of DV and estimates of long-run impacts of DV on victims' socio-economic outcomes. The main data source is the ABS Women's Safety Survey 1996. We tentatively extend the estimates to cover domestic violence against men, and between same-sex partners; details of this are in Part II.

[2] The full terms of reference of the study are reproduced in Part II

[3] Those consulted are listed in Part II

- Sections 4 to 10 provide estimates of each of the categories of annual costs:
  - pain, suffering and premature mortality;
  - health costs;
  - production related costs;
  - consumption related costs;
  - second generation costs;
  - administrative and other costs; and
  - transfer costs.
- Section 11 brings the various estimates of annual costs together and examines how they impact on the various groups in society. A sensitivity analysis examines how the findings vary as a result of changes in key parameters. The analysis is an "impact analysis" in that there is no modelling of subsequent changes in behaviour (for example if taxes are raised to increase expenditure on services to households experiencing DV). In Section 12, the analysis is extended (with additional assumptions) to yield estimates of lifetime costs of DV.

The final section of the study considers issues arising from the analysis, and from our experience in undertaking the study.

2. Threshold Issues

2.1 Definition Of Domestic Violence

The brief for this study defines domestic violence (DV) as follows.

> *Domestic violence occurs when one partner attempts by physical or psychological means to dominate and control the other. Domestic violence takes a number of forms. The most commonly acknowledged forms of domestic violence are: physical and sexual violence; threats and intimidation; emotional and social abuse; and financial deprivation. Domestic violence can involve a continuum of controlling behaviour and violence, which can occur over a number of years, before and after separation.*

The definition in the OSW project brief accords with the most common definition identified in the studies reviewed by Laing and Bobic (2002).

DV comprises a range of behaviours of differing degrees of severity, duration and outcome.

> *"The definitions throughout Australian literature reflect a contemporary recognition that violence, whether defined as domestic or family includes a range of violent behaviours: physical violence, sexual, verbal, psychological and emotional abuse, as well as social isolation and economic or financial abuse"* (Laing and Bobic, p. 14).

Although the range of behaviours is broad, DV in this study is limited to that between adult intimate partners. Violence between family members other than partners is outside the scope of the study brief, as is violence directed against children of a relationship. However, the effects on children of witnessing violence between adult intimate partners is within the scope of the study.

In theory, the study encompasses violence inflicted by women on men, and between same-sex partners, as well as that inflicted on women by men. However, lack of data means that impacts on men (other than as perpetrators of violence) are less accurately estimated than those on women.

2.2 Costs of Domestic Violence

The aim of this study is to measure the economic costs of DV.

2.2.1 CLASSIFICATIONS OF COSTS

The brief for this study divides the economic costs of DV into two categories:

- **Direct costs** *which are 'costs associated with the provision of a range of facilities, resources and services to a woman as a result of her being subject to domestic violence' (Laing and Bobic 2002, p.15). Examples include the cost of crisis services, accommodation services, legal services, income support and health/medical services; and*
- **Indirect costs** *which flow on from the violence. These can include replacing lost or damaged household items, costs associated with changing houses or schools, settlement of a former partner's debts, and the impact of violence on workforce participation. (OSW Project Consultancy Brief)*

However, in their review of Australian and selected international studies Laing and Bobic (2002 p.4) distinguish three categories of cost: **direct** (tangible); **indirect** (intangible); and **opportunity** costs.

Direct costs comprise *'costs associated with the provision of a range of facilities, resources and services to a woman as a result of her being subject to domestic violence'*. Examples are the costs of crisis services, accommodation services, legal services, income support and health/medical services.

Indirect costs refer to the pain, fear and suffering incurred by women and children who live with DV. They are sometimes termed the *'indirect social and psychological costs'* of DV.

In several Australian studies, indirect costs also include *'the flow-on costs that are incurred when a woman leaves a violent relationship.'* Examples are replacing damaged or lost household items, replacing school uniforms and equipment when children change schools and settlement of a partner's outstanding debts. Income lost or forgone because of the impact of violence on women's workforce participation is another type of indirect cost included in Australian studies.

Opportunity costs are *'the costs of opportunities which the participant has lost as a result of being in or leaving the violent relationship. An opportunity cost is the cost of the opportunity forgone when the woman's options are limited by the circumstances in which she finds herself.'* Examples would be loss of employment promotion opportunities and quality of life. Opportunity costs are often included as part of indirect costs.

Although the literature (and the study brief) highlights the distinction between direct and indirect costs, we are not convinced of its usefulness. Typically, specific costs are identified as direct costs, and all others are indirect. However, the cost lists vary between different studies, making comparisons of results somewhat difficult.

We conclude that the distinction between **direct** and **indirect** costs is not necessarily a useful distinction, given the problems of definition and comparison.

Other important distinctions that have been drawn include those between:

- **Real and transfer costs** *'Real costs use up real resources,*

such as capital or labour, or reduce the economy's overall capacity to produce (or consume) goods and services. Transfer payments involve payments from one economic agent to another, that do not use up real resources. For example, if a person loses their job, as well as the real production lost there is also less income taxation, where the latter is a transfer from an individual to the government. This important economic distinction is crucial in avoiding double-counting. It has attracted some attention in the literature.' (Laing and Bobic 2002, p.16, Laurence and Spalter-Roth 1996, p.14)

The present study distinguishes **real** and **transfer** costs. It includes amongst the real costs, the administrative and efficiency costs of funding and making transfer payments.

- **Economic and non economic costs.** Economic costs encompass loss of goods and services that have a price in the market or that could be assigned an approximate price by an informed observer. 'Non-economic' costs include the emotional cost to the victim and family, the long term impacts on children and damage to social values. This classification is ill-defined, since 'non-economic' costs are often ascribed values and the available methodologies are becoming more sophisticated and widely accepted. We acknowledge that controversy still surrounds the valuation of 'non-economic' costs and that the results should be presented and interpreted cautiously.

Where possible, monetary values to **'non-economic' costs** are ascribed. However, we acknowledge the need for caution in presenting the results.

- **Prevention and case costs.** We distinguish between: the costs following from, and associated with, the occurrence of DV; and costs directed towards preventing violence from occurring, or minimising its extent. Prevention activities include creating public awareness and education about DV; research into 'cause', 'care' and 'cure'; workplace security measures, poverty reduction programmes and so on. The focus in this study is on measuring the total costs resulting from the occurrence of incidents of DV,[4] not on costs associated with preventing its occurrence.

In similar vein, costs of insuring against impacts of DV (for example, damage to property) are excluded, but include the gross costs of the impacts themselves.[5]

Costs of preventing domestic violence and *ex ante* costs such as insurance premiums are excluded from this analysis.

- **Short-run and long-run costs.** A key practical distinction is between: short-run costs—costs linked to particular episodes of DV and mostly occurring in the same year; and long-run costs—costs that occur over a longer period as a result of a history of DV. Short-run costs are essentially those of dealing with the short-run disruptions to health, work, social order and family life. Long-run costs reflect the cumulative longer run impacts on health and wellbeing, and productive capacity. However, some short-run costs continue for more than twelve months (for example, some personal injuries and some imprisonment).

2.3 Types of Costs

The Project Brief specifies that the study:

should include costs affecting:

- *all levels of government (i.e. through transfers), business, and community services;*
- *individuals affected by violence, either as users of violence, persons subjected to violence, or witnesses of violence, and the family unit as a whole;*
- *areas of intervention (eg. criminal justice and family law, health, education, family and community services, and accommodation); and*
- *the economies of States and Territories.*

Consistent with this, costs are allocated to seven categories and eight affected groups.

Concepts and methodology for measuring costs in each of these categories are described in more detail later in this report. For the present, Table 3 provides a summary list of the types of cost included in each category.

[4] The cost of prevention is an important issue in itself and policy makers should aim to intervene such that marginal costs of prevention equate to marginal costs of incidents avoided.

[5] We should also include the marginal costs of administering the relevant insurance payments.

Table 3: Categories Of Cost

COST CATEGORY	TYPES OF COSTS INCLUDED
Pain, Suffering and Premature Mortality	Costs of pain, suffering attributable to DV, measured by assigning a value to the Quality Adjusted Life Years lost as a result of injury and illness.
	Costs of premature mortality measured by attributing a statistical value to years of life lost.
Health Costs	Includes private and public health costs associated with treating the effects of DV on the victim, perpetrator and children.
Production Related Costs	**Short-term costs of:** Lost production (wages plus profit) from absenteeism. Search and hiring costs. Lost productivity of victim, perpetrator, management, co-worker, friends and family. Lost unpaid work. Retraining costs.
	Long-term costs of: Permanent loss of labour capacity.
Consumption Related Costs	**Short-term costs of:** Property replacement. Bad debts.
	Long-term costs of: Lost economies of scale in household operation.
Second Generation Costs	**Includes private and public sector costs of:** Childcare. Changing schools. Counselling. Child protection services. Remedial/special education. Increased future use of government services. Increased juvenile and adult crime.
Administrative and Other costs	**Includes private and public sector costs of:** Legal/forensic services Temporary accommodation Paid care (i.e. housekeeper) Counselling Perpetrator programs Interpreter services Funerals
Transfer costs	**Transfer payments include:** Victim compensation Income support Accommodation subsidies Lost taxes Financial help to victim from friends and family Child support
	Associated economic costs comprise: Deadweight losses in funding government payments and services

2.4 Classification by Who Pays

Different costs of DV are borne by different individuals or sectors of society. Clearly the victim bears costs, but so do the perpetrator, children, employers, government, friends and family, co-workers, charities, community groups, and others. It is important to understand how the costs are shared in order to make informed decisions regarding interventions.

While the victim will usually be the most severely affected party, other family members and society more broadly also face costs as a result of DV. From the victim's employer's perspective, depending on the degree of the violence, work loss or absenteeism will lead to costs such as higher wages (i.e. accessing skilled replacement short-term labour) or alternatively lost production, idle assets and other non-wage costs. In severe cases, employers might also face costs such as rehiring, retraining and worker's compensation.

While it may be convenient to think of these costs as being purely borne by the employer, in reality this cost will eventually be passed on to end consumers in the form of higher prices for goods and services. Similarly, for the costs associated with crisis health, accommodation and trauma services provided to the victim (and potentially other dependants), although the Government meets this cost, taxpayers (society) are the ultimate source of funds.

Society bears both the resource cost of providing services to DV victims, and also the 'deadweight' losses (or reduced economic efficiency) associated with the need to raise additional taxation to fund the provision of services and income support.

In this study eight groups who bear costs and pay or receive transfer payments are identified, namely the:

- victim,
- perpetrator,
- children,
- friends and family,
- employers,
- Federal government,
- State and local government, and the
- rest of society (non-government).

Classifying costs by seven cost categories and allocating them to eight groups enables a ready manipulation of the data to isolate the impacts on the various groups affected by DV. This includes different levels of government, the business sector, and community groups.

There are essentially two ways of estimating each element of cost for each group:

- **Top-down:** The data may provide the total costs of a program element (eg, spending under the Crisis Accommodation Program on people affected by DV); or
- **Bottom-up:** The data may provide estimates of the number of cases in the category ('n') and the average cost for that category. The product is the total cost (eg, the wage rate for lost earnings multiplied by the average number of days off, and the number of women to whom this applies).

The top-down approach is applicable to some types of short-run cost, and is also part of the approach to health costs, pain and suffering. The bottom-up approach applies in other cases. To obtain the many parameters required to implement the bottom-up approach, we analysed the unit record file of the ABS Women's Safety Survey (1996) and drew on a wide range of detailed studies (Australian, supplemented by some international material).

2.5 Costs Over Time

The Project Brief for this study indicates that:

The work will achieve the following outcomes (so far as the available data permit):

- *An estimation of the costs of domestic violence per year. This would include an analysis of annual costs arising from violent behaviour in the lives of:*
  - *people subjected to domestic violence;*
  - *people using domestic violence; and*
  - *children who live with domestic violence.*
- *Building on the work of the first estimation, an estimation of the whole of life cycle costs of domestic violence. This will be apportioned in three ways:*
  - *for each affected person's life;*
  - *broken down to an average rate per year per woman, child, man and family unit affected; and*
  - *a total whole of life cycle figure for all affected persons and the economy as a whole.*

The distinction between annual and lifetime costs raises conceptual and methodological issues.

2.5.1 Incidence and Prevalence Approaches

Measuring the costs of DV for Australia *in a given year* involves utilising either an **incidence** or a **prevalence** approach.

Laing and Bobic (2002, p. 4) highlight that there is some confusion in the literature over the use of the terms *incidence* and *prevalence*.

Much of the Australian and international literature reviewed used the terms 'incidence' and 'prevalence', without defining these terms. Roberts (1988) addresses these definitions, and the way in which they are applied in much of the literature on the costs of domestic violence:

> *While the epidemiological literature uses "incidence" to describe "new cases" occurring and "prevalence" to describe the number of active cases at any time, the reports of research cited in this review use incidence rates to refer to the epidemiologist's annual prevalence (often per 1000) of domestic violence e.g. the Strauss and Gelles (1987) finding in the national survey in the USA was that 3% of wives experienced severe violence in a year. The number of these that were first or "new" instances of violence was not stated. This difference between "incidence" and "prevalence" is importance for prospective cost estimation. (Roberts, 1988, p. 437)*

Laurence and Spalter-Roth (1996) also address the difference between 'incidence' and 'prevalence':

> *An incidence-based cost estimate reflects the stream of costs associated with domestic abuse valued in terms of the year in which it starts. It would not include the costs of all abuse occurring in that year, only the costs of abuse originating in that year. (p. 15).*

They point out that, while such an approach is useful for modelling the progress of a disease and its costs over time, it is less useful in the case of domestic violence which has no typical pattern, either of the nature of the abuse or in the types and frequency of services used. (Laing and Bobic 2002, pp 16–17)

Further confusion arises over the distinction between the terms: **'incidence'** and '**incidents'**.

- **'Incidence' is the number of new 'cases'** (people) who experience DV in a year (or other time period).
- **'Incidents' are the episodes of DV that occur** (ie, acts, not people).

Some literature refers to 'incidence' as the number of incidents in a 12-month period, which is correct if the focus is on the act rather than the person. Our focus, however, is on the person rather than the act.

We illustrate the difference between incidence and prevalence in the following diagram.

Consider three different cases of DV:

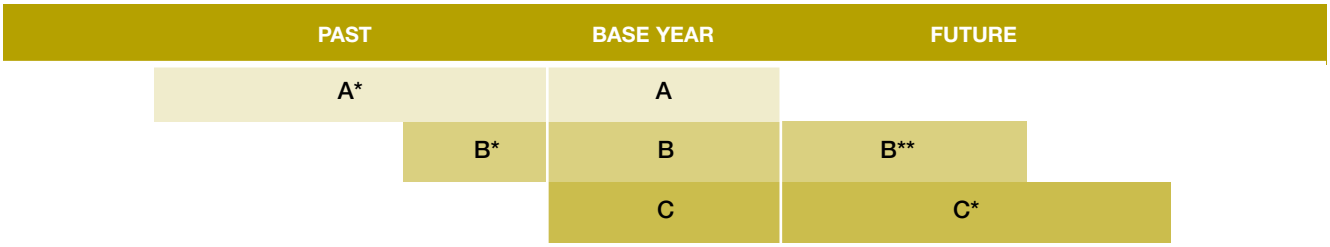
- *a*, who has experienced incidents of DV in the past and up to the year in question, with associated lifetime costs of A + A*,
- *b*, who experienced DV in the given year as well as in the past and future, with associated lifetime costs of B + B* + B**, and
- *c*, who experienced her first incident of DV in the survey year, with lifetime costs of C + C*.

All costs should be expressed as present values relative to the base year.

Using an **incidence** approach, only cases like *'c'* would be included, with the total cost estimate equivalent to the sum of all the costs in the base year ($\sum$C) plus the present value of all the future costs ($\sum$C*). Costs associated with victims whose experience of DV started in an earlier year would be excluded.

Using a prevalence approach, costs in the base year relating to *a, b* and *c* would all be included, with total costs equal to $\sum$(A + B + C). Costs in all other years are excluded.

Figure 1: Incidence and Prevalence Approaches to Measurement of Annual Costs



Annual prevalence costs in the base year = $\sum$(A + B + C);

Annual incidence costs in the base year = $\sum$(C + present value of C*)

Note that Figure 1 also defines the lifetime costs of violence each person, as follows:

Lifetime cost for person c (= Incidence cost) = C + present value of C*

Lifetime cost for person b = B + present values of B* and B**

Lifetime cost for person a = A + present value of A*

Therefore, if a clear distinction between 'annual' and 'lifetime' costs is to be maintained the prevalence approach to measuring annual costs should be used. The nature of violent relationships and the available data also point us in that direction.

2.5.2 Measuring Annual and Lifetime Costs

The data sources, in particular the ABS 4128.0 Women's Safety Survey (1996) (WSS), lend themselves better to a prevalence-based approach to measurement of costs. The survey asks questions about when the most recent incident of DV occurred:

- 'Have you experienced violence in the last twelve months?'; and
- 'Have you ever experienced violence?—by when the last incident occurred (1 to 5 years, 5 to 10 years, 10 years or more'

It also asks about some of the possible short term impacts of the last incident, and about the woman's socio-economic characteristics.

Thus it is possible to explore (albeit imperfectly) the nature of short-term impacts of recent violent incidents. It is also possible to explore some current impacts of past violence, using regression analyses to ascertain the difference past experience of violence may make, for example, to current employment and earnings. Supplementing this with estimates of total impacts in a year (for example, taken from government budget data) a prevalence-based estimate of the annual cost of DV can be obtained.

Regrettably none of the data sources (including the WSS) establish clearly the pattern and size of future impacts of current DV, either for individuals, or for the population as a whole. Also lifetime patterns of DV may be complex, with recurring episodes and evolution of violence in more than one partner-relationship. None of the data sources provide sufficient information to construct detailed past profiles of violence, nor its short-term impacts, for a large sample of women.

Hence there is no basis for calculating an accurate estimate of the annual cost for victims experiencing their first incident of violence in a particular year. Nor can an accurate estimate of individual or economy-wide lifetime costs of violence, based on the detailed life-cycle experience of individual victims and their households, be obtained.

Despite the lack of data, it is still possible to obtain some estimates of lifetime costs from the prevalence-based estimates of annual costs (within the time and resources available for this project), given some strong simplifying assumptions.

First, costs (other than pain, suffering and health costs) are separated into short-term and long-term categories. Next, those costs considered to be short-term are assumed to occur in the first year only. Finally, those costs considered to be long-term are recalculated using an incidence-based methodology.

Pain, suffering and health costs form a large component of annual costs. The attributable fractions method used in deriving health-related costs measures the proportion of current ill health of women in each age cohort that is attributable to their entire lifetime experience of DV up to that point. Hence, using the data to project the future health, pain and suffering costs of the women who experience costs associated with DV in the base year implicitly builds in an assumption that the women continue to experience the costs of DV in future according to the average experience of their age group to which they will belong in each future year.

Future lifetime costs derived in this way are likely to be larger than would be generated by a strict application of the incidence approach, since they include some projected costs of future violence. To compensate, the estimate excludes any costs in past years of previous DV experienced by women who also experienced costs in the base year. That is, the net present values of the costs associated with rectangles A* and B* in Figure 1 are excluded. This has the advantages that:

A. The estimate of lifetime costs is strictly '**forward looking**'. This is likely to be more relevant for policy purposes than a backward looking measure, and also more closely resembles the incidence based measures available for some other types of social cost (for example, workplace injury and disease); and
B. It is easier to compute, given the time and data available for this study.

To obtain numerical estimates based on these concepts, we need to make assumptions about the rate at which the current prevalence-based estimate of annual costs will decay in the future.

We describe the derivation of such estimates in Section 12.

2.6 Measurement Problems

2.6.1 Extent of Violence

The data on DV and its costs are subject to considerable uncertainties. NCIPC (2003 p. 5) lists reasons why it has been difficult to measure its extent in the US:

- **Lack of consensus about definition.**
- **Variations in survey methodology.**
- **Gaps in data collection:** Estimates are often drawn from data gathered for other purposes and provide only incomplete information about DV.
- **Different time frames:** For example, use of annual vs. lifetime victimisation.
- **Reluctance to report victimisation.**
- **Repetitive nature of domestic violence:** Reports about DV do not always indicate clearly whether they refer to number of incidents or number of victims.
- **Limited populations:** Most studies examine only heterosexual relationships.
- **Survey limitations:** The wording of questions may affect the answers given. Surveys are subject to sampling variation.

These concerns apply equally in Australian studies.

As official surveys show, the broader the definition, the higher is the reported prevalence of DV. For example, the ABS 4509.0 Crime and Safety Survey (2002) calculated the prevalence rate of recorded physical assault for women aged over 15 to be 0.87% while the WSS found a prevalence rate of 2.62% for (self-reported) physical assault[6] by a current or previous partner in the last 12 months. Likewise, including other forms of DV (other than physical violence by their current partner during the relationship) increases the estimated rate of DV (ever experienced), from 7.6% to 11.7% according to the WSS.

As severer cases of DV are more likely to be consistently reported, using a broader definition of DV that covers less severe cases may lead to lower estimates of average annual costs per victim, and also to less significant differences between socio-economic outcomes of victims and non-victims.[7] Consequently the costs of DV are highly dependent on whether one effect outweighs the other—the broader the definition the more people involved, however the broader the definition the lower estimates of annual costs per victim.

A problem with some data sources is that they do not clearly distinguish violence between intimate partners from other family or interpersonal violence. Thus the ABS 4509.0 Crime and Safety Survey does not distinguish the various sources of recorded physical assault; nor does the National Data System for workplace-related injury and disease.[7]

Another concern is that some data sources do not clearly indicate the pattern of victims' experience of violence over time. Thus the WSS provides detailed information about the last incident of violence experienced, but not of the overall pattern and extent of violence. On the other hand, the Australian Longitudinal Study on Women's Health (ALSWH) does not ask directly about the individuals' recent experience of DV. Instead it asks whether the respondent has experienced physical or sexual abuse in the last twelve months, or previously, and whether the respondent has ever been involved in a violent relationship. It is necessary to infer the link between the partner and the violence on the basis of these and other questions in the survey.[9]

Surveys also tend to have separate questions about the experience of different types of violence (physical, sexual, emotional). Estimates of the costs of DV should take into account co-morbidity of the different types of abuse. For example, in the WSS, 58.9% of women who have been physically abused at some stage by their current partner have also been emotionally abused. The *additional costs* from the emotional abuse incurred by a victim who is also experiencing physical abuse may be smaller than the costs incurred by victim who was emotionally abused but not physically abused.

Data on men's experience of DV and that between same-sex partners is almost completely lacking in Australia. Consequently it is necessary to extrapolate from overseas experience.

The robustness of the results for each cost category is affected by the robustness of the source data of the number of people affected. For want of a better approach, the major Australian study, Henderson (2000a, 2000b), chose a prevalence rate of 2%—between those of the 1998 4509.0 Crime and Safety Survey and the WSS.

2.6.2 Short-Run Costs of Domestic Violence

There is only patchy information on the short-run costs of DV. The main sources are: administrative data, for example from the Criminal Justice system, or Departments of Family and Community Services; and surveys of the experiences of individual victims.

The administrative data suffers from uneven coverage; some services are not separately costed. It is also common for data not to distinguish impacts of violence between intimate partners from those of other forms of family violence.

[6] Includes pushed, grabbed or shoved, slapped, threw anything that could hurt, kicked, bit or punched, beaten, hit with something else, choked, stabbed/shot, and other.

[7] If there is more error in reporting less severe cases of DV, parameter estimates may be biased towards zero, as well as subject to larger standard errors. As a result, broader definitions of DV may (somewhat paradoxically) give rise to lower estimates of the total cost of DV.

[8] National data set based on returns from Workers Compensation Authorities administered by the National Occupational Health and Safety Commission.

[9] It is understood that there may have been legal reasons why there is no direct question on experience of violence from current intimate partners in the ALSWH.

There is an almost complete lack of relevant data from non-government administrative sources, about non-government costs relating to DV.

The large-scale Australian surveys provide only sketchy information on the short-run impacts of DV. The WSS was primarily designed to estimate the extent of DV rather than the costs of DV and consequently the WSS made no *systematic* attempt to ascertain the annual costs associated with DV (although some attempt was made). Its focus was on the last incident of DV, not the total experience of DV in a year. By and large it failed to ask questions about the extent to which victims experienced outcomes that might have generated costs, or their duration or costs incurred. The ALSWH collected detailed information on health experience, but did not explicitly inquire the extent to which they resulted from violence. Nor (by its nature) did it seek detailed information on non-health outcomes or costs.

There is considerable information on short-run impacts and associated private and government costs in a series of small-scale surveys of the victims of DV carried out in various Australian states in the course of the 1990s. These studies (summarised below) provide detailed estimates of the short-run private and government costs incurred by victims. However, the samples are self-selected and may be unrepresentative; the impacts and costs relate to particular locations and are somewhat dated. They are however, the only available source for some items of cost (for example costs of replacing damaged household equipment).

When using data from surveys of self-identified victims or people in refuges and hospitals, Henderson (2000a, 2000b) adjusted the impact on victims of DV down by (an arbitrary) 50%.

2.6.3 Long-Run Costs of Violence

The two major concerns are the difficulties of identifying and measuring costs over the long term, and problems in establishing that the costs are caused by violence between partners.

Long-run costs arise through health costs, pain, suffering and premature mortality; through loss of productivity and income; changes in household composition; and through impacts on children exposed to violence between adults.

Leaving aside the methodological difficulties of ascribing costs to dimensions such as pain and suffering (see Section 4), an obvious approach is undertake statistical analysis of a population survey, to identify the impact of current and past experience of DV on outcomes such as education and employment status, personal income, housing and household type.

Unfortunately, the WSS was not designed with this in mind; it is deficient both in measuring past experience of violence between partners and in recording socio-economic attributes. The ALSWH may offer more robust insights, but these are confined to women in particular age cohorts. It is also uncertain whether there are sufficient data to exploit the capacity to link successive surveys of the same cohort of women.

A pervasive problem in estimating long-run costs is to establish that long-run differences in (say) productivity or health status are unambiguously caused by previous or ongoing violence between intimate partners. While it is clear that such violence does have substantial long-run impacts and costs, it is also clear that the violence itself may have other underlying causes and correlates.

Thus Keatsdale (2003) cites (but does not provide the detailed references for) several studies that demonstrate that their own experience of child abuse predisposes adults to engage in violent relationships and to abuse their own children. Other studies (Coid et al, 2001; Paolucci et al, 2001) establish that women are more likely to suffer DV if they have a history of abuse in childhood. Early abuse also predisposes to other conditions such as substance abuse, depression and dysfunctional personality patterns that are also associated with greater likelihood of partner violence (Zanarini et al, 1997; Wise et al, 2001; Dong et al, 2003). Other authors (Kalmuss 1984, Felliti et al 1998, Feerick and Haugaard 1999) have also explored such links, including the distinction between witnessing and actually experiencing violence, as well as associations between DV and the presence of family members with problems of substance and alcohol abuse and mental health problems.

The World Health Organization (2002) lists the health consequences of domestic violence and notes that “women who are abused by their partners suffer more depression, anxiety and phobias than non-abused women...[and] are at heightened risk for suicide and suicide attempts.” These important effects are included in this report, making allowance for comorbidities and other complicating factors, such as potential two-way correlation, when quantifying the impacts. For example, in the literature relating to the correlation between domestic violence and mental illness, Hammen (1991) reported that depressed women seemed to generate more stressful life events, particularly interpersonal ones. She has continued to explore these issues in more recent papers, (for example Daley, Hammen et al, 1997; Rudolph, Hammen et al, 1997; Rao, Hammen et al, 1999; Daley, Burge et al, 2000; Hammen et al, 2000; Hammen and Brennan, 2001; Daley and Hammen, 2002; Hammen, 2003; Hammen et al, 2003). Some degree of reverse causation, or a third factor ‘x’ that predisposes to both outcomes (mental illness and domestic violence), might possibly arise through dysfunctional

interpersonal styles, sensitisation to interpersonal events partly because of earlier life experiences (notably child abuse) and intergenerational transmission of vulnerability to both depression and assortative dysfunctional relationships.

The WSS did have questions about experience of physical and sexual abuse while a child. Hence it may be possible to explore the contribution of such abuse to adult socio-economic outcomes within the bounds imposed by the overall survey design.

By contrast, the ALSWH did not ask specific questions about experience of child abuse. Hence it is not possible directly to control for the influence of prior child abuse in investigating the impacts of violence between intimate partners. Also, the initial survey of the youngest cohort was of women aged 18 to 23 years (22 to 27 years when surveyed the second time). Only 21% of these were married, in a de facto relationship or separated and 52% were still living with parents. Hence there is a risk that the small minority who had acquired partners were atypical of the overall population of women in this age group, having engaged in assortative relationships following adolescent experience of depression or other stressors predisposing to DV and other morbidities.

2.7 Findings of Previous Australian Studies

To provide context for the estimates presented in this report, and to show how they mesh with those of similar studies, a brief review of previous Australian studies of the costs of DV, and of comparable studies of other types of economic cost is presented.

2.7.1 Previous Studies Of The Costs of Domestic Violence

The review by Laing and Bobic (2002) provides a comprehensive survey of Australian studies of the cost of DV, together with selected international studies. They also review a selection of studies in related fields, such as the costs of crime and child abuse. The Australian studies include:

- Queensland: [Roberts (1988), Blumel et al (1993)]
- New South Wales: [Distaff Associates (1991)]
- Tasmania: [KPMG Management Consulting (1994)]
- Northern Territory: [KPMG Management Consulting (1996)]
- Australia: [Henderson (2000a, 2000b)]

There is a detailed comparison of these studies in Laing and Bobic (2002), particularly at Appendix 1. The pioneering Australian studies, completed in 1996 and earlier years, all employed a "retrospective case study approach". These studies employed the "bottom-up" methodology of interviewing a sample of women affected by DV about the services used, calculating the costs involved for the sample, and extrapolating from this to arrive at an annual cost of DV to the State/Territory.

Key problems with this approach included:

- The small size and possible unrepresentative nature of the samples;
- Failure to use all available information (for example from administrative sources); and
- Difficulties in extrapolating to the population at large, particularly for "indirect" costs.

The study by Henderson (2000a, 2000b) is important in that it is the only study to attempt to estimate the cost of DV Australia-wide. Laing and Bobic (2002) comment

> *The most recent Australian study…….. (Henderson, 2000a) reviews and synthesises the qualitative and quantitative costs associated with employment identified in earlier Australian studies and attempts to comprehensively estimate the annual cost of domestic violence to Australian employers. Henderson identified and costed (where possible) the impacts of domestic violence in four areas: direct costs to employers from absenteeism, staff turnover and lost productivity; indirect costs, defined as employer tax share of public sector costs in the provision of services to victims and perpetrators of domestic violence; direct and opportunity costs to victims, perpetrators, family and friends; and the shared impact of domestic violence on the wider community, including inter-generational costs.*
>
> *Henderson points out that the direct costs to employers are not only end costs in themselves, but affect other aspects of an organisation, such as distribution and production, which can result in late deliveries, bringing about customer dissatisfaction and lost business. Similarly, costs to women, such as the inability to work caused by domestic violence, have a 'domino-effect' on other sectors of the society: income forgone by victims results in diminished profits for business and decreased tax revenue to government. (Laing and Bobic 2002 p. 6)*

Henderson adopts a partial approach, omitting pain and suffering and second generation costs. Although partly constrained by data and other limitations, the partial approach is also justified in that Henderson's main focus is on potential costs to employers. However, in estimating these, Henderson (2000b) does derive estimates of the total cost to all sections of the economy, with which the results from this study can (with appropriate caveats) be compared. She also has also done considerable work amassing parameters usable in a bottom-up approach.

Table 4: Recent Australian Studies of Economic Costs

	HENDERSON (2000)	KEATSDALE (2003)	MAYHEW (2003)	COLLINS AND LAPSLEY (2002)
Field of study	**Domestic violence**	**Child abuse**	**Crime**	**Drug abuse**
Methodological approach	Annual costs: prevalence approach	Annual costs: mixture of prevalence and incidence approaches	Annual costs: incidence approach	Annual costs: prevalence approach, including current impact of previous drug abuse
Cost Categories	**$m**	**$m**	**$m**	**$m**
Pain, Suffering and Premature Mortality	Not measured	143: Based on willingness to pay. Covers only mortality and permanent disability	Not measured	15,844: Premature mortality (BTE estimates of VSL year) 255: Pain and suffering from road accidents only (BTE)
Health Costs	136	1,241	250	1,354
Production Costs	691	Not measured	4,070: Property loss 2,180: Lost output 3,320: Intangible losses 1,350: Arson 1,960: Drugs 5,880: Fraud	5461: Reduction in workforce and absenteeism 7,695: Lost household labour from premature death and severe sickness, net of consumption
Consumption costs	364	Not measured		3,870: Costs of abusive consumption
Second Generation Costs	Not measured	344	Not measured	Not measured
Administrative and Other costs	432	2,998 1,265.5 Crime, 811.4 (Justice and legal, 796.6 Child protection)	6,140: Criminal justice 500: Insurance admin	1,486: Road accidents (n.e.i.) 3,909: Crime (partial)
Transfer Costs (efficiency loss)	Not measured	Not measured	Not measured	Not measured
Other types of cost (A)	Full costs of income support	Prevention costs, victim compensation	Prevention costs, private security	None
Total Costs (Excl. A)	1,623	4,726	26,810	18,341

Table 4 contains a brief description of several recent Australian studies of the economic costs associated with DV and other societal ills. While the approach naturally differs somewhat, depending on the subject matter, the table highlights the differing approaches and patchy coverage of some studies.

Delving a little deeper, there is evidence of:

- Double counting—for example, in the study of drug abuse, where a large part of the lost production costs is implicitly included also in the costs attributed to pain, suffering and premature mortality;
- Inclusion of the full cost of income support and compensation payments as though they were true economic costs; and
- Inclusion of items that are not strictly costs of the actions under scrutiny (notably prevention costs).

The comparison indicates the possible pitfalls in any simple comparison of the findings of different studies. In comparison with these studies, the current study of the economic cost of DV features:

- Strict application of the prevalence approach to annual costs, including costs attributable to past victims of DV;
- Full measurement of economic costs of pain, suffering and premature mortality, and associated health costs; and
- Consideration of the efficiency costs associated with transfer payments.

3. Key Parameters

In order to assess several elements of short-run and long-run cost, values for key parameters reflecting the impact of DV on socio-economic outcomes are required. These parameters have been explored using the unit record files of the WSS and (in a more preliminary fashion) the Australian Longitudinal Study on Women's Health (ALSWH). We appreciate the willingness of the ABS and the coordinators of the ALSWH in giving us access to these data sources.

3.1 Prevalence of Domestic Violence

The WSS is the prime source of the estimates of prevalence of DV against women from male partners. We extrapolate this to yield estimates of prevalence of violence against male partners and same-sex partners, using statistics from US studies. In the absence of Australian data, these extrapolations must be considered somewhat speculative.

3.1.1 Violence by Men Against Women

According to the WSS, in 1996, during the previous 12 months:

- 170,500 women over the age of 18 were physically assaulted (or there was a threat or attempt to physically assault) by a male current or previous partner;
- 25,100 were sexually assaulted by a male current or pervious partner;
- 4,800 women were threatened with sexual assault by a male current or previous partner;
- 36,100 women were stalked by a male previous partner; and
- 179,100 experienced emotional abuse by their current partner.

Allowing for the fact that some women experienced more than one form of abuse,

a total of 327,500 women experienced some form of DV in the previous 12 months. This represented 4.6% of women aged 18 or over.

DV represented 47% of all male violence against women in the previous 12 months.

These estimates are subject to all the qualifications attaching to a self-reported survey (See Section 2.6.1). However, they are also underestimates, in that:

- The survey only collected information about the relationship to the perpetrator in the last incident of physical and sexual assault. For example, if the woman was assaulted by a current or previous partner in the 12 month period, but were then subject to a similar assault by another male, then the DV would be underestimated.
- No information was sought about stalking by current partners. Nor could it be determined, if stalking began more than 2 years ago and lasted for 2 years or more, whether any stalking occurred during the previous 12 months. For example, the stalking started 5 years ago and lasted 3 years, or the stalking started 5 years ago and it lasted 4 years.
- No information was sought about emotional abuse by previous partners in the last 12 months.

If the prevalence rate of DV for each age group was the same in 2002–03 as in 1996, then 353,600 women experienced some form of DV in the year 2002–03.

Table 5: Women Experiencing Domestic Violence in 2002–03

	18 TO 24	25 TO 29	30 TO 34	35 TO 44	45 TO 54	55 TO 59	60 & OVER	TOTAL
Physical Assault	45,600	29,400	27,400	39,200	22,700	1,000	14,300	179,600
Sexual Assault	3,600	2,500	4,200	11,800	2,300	3,400	–	27,700
Sexual Threat	1,500	4,000	6,700	14,800	10,700	–	1,600	39,300
Stalking	800	800	–	1,900	1,700	–	–	5,200
Emotional Abuse	16,800	25,400	27,200	61,900	36,700	11,100	17,000	196,200
Total	***53,300***	***48,600***	***49,600***	***107,100***	***57,200***	***14,500***	***23,400***	***353,600***
% of Population	***6%***	***7%***	***6%***	***7%***	***4%***	***3%***	***1%***	***5%***
% of All Male Violence	***27%***	***48%***	***51%***	***62%***	***54%***	***65%***	***47%***	***47%***

Note: Sum of types of abuse may not add up to total due to some women experiencing more than one type of abuse

All numbers are rounded to the nearest hundred.

Source: ABS 4128.0 Women's Safety Survey Confidentialised Unit Record File

Viewed over adult life spans, in June 2003 1,642,100 women would have reported experienced some form of DV since the age of 15,[10] with DV from intimate partners representing half of all male violence against women.

Table 6: Women Who Have Experienced Domestic Violence Since the Age of 15.

	18 TO 24	25 TO 29	30 TO 34	35 TO 44	45 TO 54	55 TO 59	60 & OVER	TOTAL
Physical Assault	121,500	135,400	162,500	343,900	301,900	111,300	191,500	1,367,900
Sexual Assault	16,800	22,100	34,700	73,600	69,500	32,900	32,200	282,000
Sexual Threat	6,500	24,500	27,700	51,800	32,800	22,600	3,300	169,200
Stalking	1,600	8,600	3,500	18,800	25,500	7,000	17,700	82,700
Emotional Abuse	21,000	39,100	48,800	124,900	108,900	28,100	52,800	423,800
Total	***132,000***	***161,700***	***198,100***	***422,300***	***380,700***	***133,000***	***214,300***	***1,642,100***
% of Population	***14%***	***24%***	***26%***	***28%***	***28%***	***23%***	***12%***	***21%***
% of All Male Violence	***27%***	***46%***	***49%***	***57%***	***60%***	***59%***	***53%***	***50%***

Note: Sum of types of abuse may not add up to total due to some women experiencing more than one type of abuse

All numbers are rounded to the nearest hundred.

Source: ABS 4128.0 Women's Safety Survey Confidentialised Unit Record File

3.1.2 Other Intimate Partner Violence

The WSS provides little reliable information about violence by women against women, and no information about DV against men by female or male current or previous partners. There are no other reliable Australian sources.

Analysis of the US National Violence Against Women Survey (US NVAWS, 1995–96)[11] suggests that:

- domestic violence against women by female partners has a prevalence roughly 0.6% of that by male partners against female partners; and
- domestic violence against men by partners in the previous 12 months has a prevalence rate of about 1.1%.[12]

Based on these US NVAWS findings, it is estimated that in 2002–03 the total number of Australian victims of DV may have been of the order of 408,100.

While the estimates of male victims of domestic violence have been made as conservatively as possible, they are subject to considerable uncertainty. Consequently in Part II, where possible, costs have been separated into those incurred due to violence against male and female victims.

[10] There is a marked decline in the proportion of older women reporting ever having experienced domestic violence. This suggests that memory fades, or that some older women may reinterpret experiences from earlier in life. As a result the total of women reporting having experienced domestic violence at some stage in their lives would appear to understate the true picture.

[11] This particular survey was chosen to supplement results from the WSS due to the large number of people surveyed, the survey interviewed both female and males in both heterosexual and homosexual relationships, and the similar prevalence rate of DV perpetrated against females (by type) to that found in the WSS.

[12] However violence against women often results in more injury than violence against men and nearly 75% of women's violence against men is self-defence (Straus and Gelles 1990) which means that it may not have the same psychological impact as men's violence against women. Furthermore violence against women is more likely to result in severe injury than violence against men ((WHO 2002, p 94) and (Chung and Bagshaw 2000)). Consequently the prevalence rate of violence against men by intimate partners is further discounted by 75% to ensure a conservative estimate. A more detailed explanation is contained in Part II.

Table 7: People Who Experienced Domestic Violence Victims In 2002–03

	18 TO 24	25 TO 29	30 TO 34	35 TO 44	45 TO 54	55 TO 59	60 & OVER	TOTAL
Physical Assault	56,600	36,600	34,100	48,700	28,200	1,300	17,800	223,200
Sexual Assault	3,600	2,600	4,200	12,000	2,300	3,400	–	28,200
Sexual Threat	1,600	4,100	6,900	15,300	11,000	–	1,600	40,500
Stalking	900	900	-	2,200	2,000	–	–	5,900
Emotional Abuse	19,700	29,700	31,800	72,300	42,900	13,000	19,900	229,200
Total	***61,500***	***56,100***	***57,200***	***123,600***	***66,000***	***16,700***	***27,000***	***408,100***
Women	53,600	48,900	49,800	107,700	57,500	14,500	23,500	355,600
Men	7,900	7,200	7,400	15,900	8,500	2,100	3,500	52,500
% of Population	***3%***	***4%***	***4%***	***4%***	***2%***	***1%***	***1%***	***3%***

Note: Sum of types of abuse may not add up to total due to some women experiencing more than one type of abuse

All numbers are rounded to the nearest hundred.

Table 8: People Who Have Experienced Domestic Violence Since the Age of 15

	18 TO 24	25 TO 29	30 TO 34	35 TO 44	45 TO 54	55 TO 59	60 & OVER	TOTAL
Physical Assault	132,100	147,200	176,700	373,900	328,300	121,000	208,200	1,487,400
Sexual Assault	16,800	22,100	34,700	73,500	69,500	32,900	32,200	281,700
Sexual Threat	6,500	24,600	27,700	52,000	32,900	22,600	3,300	169,700
Stalking	1,600	8,800	3,600	19,100	25,900	7,100	17,900	83,900
Emotional Abuse	22,600	42,100	52,500	134,400	117,200	30,300	56,900	455,900
Total	***142,200***	***174,200***	***213,400***	***454,900***	***410,000***	***143,300***	***230,900***	***1,768,800***
Women	248,800	227,200	231,500	500,100	267,100	67,600	109,300	1,651,500
Men	17,700	16,100	16,400	35,500	19,000	4,800	7,800	117,300
% of Population	***7%***	***13%***	***14%***	***15%***	***15%***	***12%***	***7%***	***12%***

Note: Sum of types of abuse may not add up to total due to some women experiencing more than one type of abuse

All numbers are rounded to the nearest hundred.

To a first approximation, this implies that there were about 408,000 perpetrators of DV in the previous 12 months (see Part II, Section 4), 98% of which were male.

We also estimate that there were approximately 263,800 children were living with victims of DV and that around 181,200 children witnessed DV in 2002–03 (see Part II, Section 4).

3.2 Other Insights From The Surveys

3.2.1 ABS Women's Safety Survey

Preliminary statistical analysis of the unit record files of the WSS indicates the following (For fuller details, see Part II, Section 6):

- A woman had less chance of becoming a victim of recent physical DV; the older she was; the more education she had; and if she was employed;
- Victims of physical DV within the last three years had a 14% lower chance of being employed. However, after 3 years the effect on employment was negligible.
- Broadening the definition to include all forms of DV, older women had lower probabilities of being subject to DV in the last 12 months, and women with children under 15 a higher chance. However, experience of DV within the last 3 years had no impact on the probability of being in employment
- DV had no apparent impact on average hours of work (full or part time), nor on total income from all sources. However, the income variable is poorly specified in the WSS.
- Experience of physical DV within the last 20 years was associated with a 20% lower probability of the woman currently being married or living in a de facto relationship. For experience of any form of DV, the corresponding reduction in probability was 15%. If experience of child abuse is included amongst the explanatory variables, it reduces the estimates probabilities to 19% and 14% respectively.
- Experience of physical violence within the past 3 years was associated with a 35.5% increase in the probability of receiving some form of government benefits (including family payments). However, for the broader definition of DV, there was no significant increase in the probability of receiving such support.

The findings of only weak impacts on labour supply are relevant to the analysis of the long-run impact of DV on loss of productive capacity. The lower probability of being in a relationship is relevant to the assessment of loss of economies of scale in household consumption. The increased probability of being in receipt of government benefits is input to the estimates of transfer payments and the associated deadweight losses.

3.2.2 Australian Longitudinal Study On Women's Health

Preliminary analysis of selected panels of the ALSWH revealed the following.

For the second survey of the young cohort (aged 22–27):

- Once controls for factors such as education level, whether the respondent was living with a partner or had children, there was no evidence of a significant relationship between DV and economic outcomes.

For the first two survey of the mid-aged cohort (survey 1: aged 45–50, survey 2: aged 47–52):

- Once other factors were controlled for, the employment rate for women subject to recent DV is estimated to be approximately 8.5% lower in the first survey, but this proportion declined to 1.4% by the time of the second survey; and
- the proportion living with partners is approximately 17% lower (other variables held constant) in the first survey, and this persisted in the second survey.

Although this analysis is limited to particular age groups and preliminary in nature, it appears broadly to reinforce the findings obtained using the WSS.

4. Pain, Suffering and Premature Death

4.1 Methodology

To those experiencing DV, less tangible costs such as fear, mental anguish, loss of leisure and physical pain and disability are often as or more important than productivity losses.

4.1.1 Valuing Life and Health

Since Schelling's (1968) discussion of the economics of life saving, the economic literature has properly focused on **willingness to pay** (willingness to accept) measures of mortality and morbidity risk. Using evidence of market trade-offs between risk and money, including numerous labour market and other studies (such as installing smoke detectors, wearing seatbelts or bike helmets etc), economists have developed estimates of the **value of a 'statistical' life** (VSL).

> The willingness to pay approach estimates the value of life in terms of the amounts that individuals are prepared to pay to reduce risks to their lives. It uses stated or revealed preferences to ascertain the value people place on reducing risk to life and reflects the value of intangible elements such as quality of life, health and leisure. While it overcomes the theoretical difficulties of the human capital approach, it involves more empirical difficulties in measurement (BTE, 2000, pp20–21).

Viscusi and Aldy (2002) summarise the extensive literature in this field, most of which has used econometric analysis to value mortality risk and the 'hedonic wage' by estimating compensating differentials for on-the-job risk exposure in labour markets, in other words, determining what dollar amount would be accepted by an individual to induce them to increase the possibility of death or morbidity by x%. They find the VSL ranges between US$4 million and US$9 million with a median of US$7 million (in year 2000 US dollars), similar but marginally higher than the VSL derived from US product and housing markets, and also marginally higher than non-US studies, although all in the same order of magnitude. They also review a parallel literature on the implicit value of the risk of non-fatal injuries.

> A particular life may be regarded as priceless, yet relatively low implicit values may be assigned to life because of the distinction between identified and anonymous (or 'statistical') lives. When a 'value of life' estimate is derived, it is not any particular person's life that is valued, but that of an unknown or statistical individual (Bureau of Transport and Regional Economics, 2002, p19).

Weaknesses in this approach, as with human capital, are that there can be substantial variation between individuals. Extraneous influences in labour markets such as imperfect information, income/wealth or power asymmetries can cause difficulty in correctly perceiving the risk or in negotiating an acceptably higher wage.

Viscusi and Aldy (2002) include some Australian studies in their meta-analysis, notably Kniesner and Leeth (1991) of the Australian Bureau of Statistics (ABS) with VSL of US2000 $4.2 million and Miller et al (1997) of the National Occupational Health and Safety Commission (NOHSC) with quite a high VSL of US2000$11.3m–19.1 million (Viscusi and Aldy, 2002, Table 4, pp92-93). Since there are relatively few Australian studies, there is also the issue of converting foreign (US) data to Australian dollars using either exchange rates or purchasing power parity and choosing a period.

Access Economics (2003) presents outcomes of studies from Yale University (Nordhaus, 1999)—where VSL is estimated as $US2.66m; University of Chicago (Murphy and Topel, 1999)—US$5m; Cutler and Richardson (1998)—who model a common range from US$3 million to US$7m, noting a literature range of $US0.6 million to $US13.5 million per fatality prevented (1998 US dollars). These eminent researchers apply discount rates of 0% and 3% (favouring 3%) to the common range to derive an equivalent of $US 75,000 to $US 150,000 for a year of life gained.

4.1.2 DALYS and QALYS

In an attempt to overcome some of the issues in relation to placing a dollar value on a human life, in the last decade an alternative approach to valuing human life has been derived. The approach is non-financial, where pain, suffering and premature mortality are measured in terms of Disability Adjusted Life Years (DALYs), with 0 representing a year of perfect health and 1 representing death (the converse of a QALY or 'Quality-Adjusted Life Year' where 1 represents perfect health). This approach was developed by the World Health Organization (WHO), the World Bank and Harvard University and provides a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990, projected to 2020 (Murray and Lopez, 1996). Methods and data sources are detailed further in Murray et al (2001).

The DALY approach has been adopted and applied in Australia by the Australian Institute for Health and Welfare (AIHW) with a separate comprehensive application in Victoria. Mathers et al (1999) from the AIHW estimate the burden of disease and injury in 1996, including separate identification of premature mortality (Years of Life Lost or (YLL)) and morbidity (Years of Life Lost Due to Disability (YLD)) components. In any year, the disability weight of a disease (for example, 0.18 for a broken wrist) reflects a relative health state. In this example, 0.18 would represent losing 18% of a year of healthy life because of the inflicted injury.

The DALY approach has been successful in avoiding the subjectivity of individual valuation and is capable of overcoming the problem of comparability between individuals and between nations, although nations have subsequently adopted variations in weighting systems. For example, in some countries DALYs are age-weighted for older people although in Australia the minority approach is adopted—valuing a DALY equally for people of all ages.

The main problem with the DALY approach is that it is not financial and is thus not directly comparable with most other cost measures. In public policy making, therefore, there is always the temptation to re-apply a financial measure conversion to ascertain the cost of an injury or fatality or the value of a preventive health intervention. Such financial conversions tend to utilise 'willingness to pay' or risk-based labour market studies described above.

The Department of Health and Ageing (based on work by Applied Economics) adopted a very conservative approach to this issue, placing the value of a human life year at around A$60,000 per annum, which is lower than most international lower bounds on the estimate.

> *"In order to convert DALYs into economic benefits, a dollar value per DALY is required. In this study, we follow the standard approach in the economics literature and derive the value of a healthy year from the value of life. For example, if the estimated value of life is A$2 million, the average loss of healthy life is 40 years, and the discount rate is 5 per cent per annum, the value of a healthy year would be $118,000.*[13] *Tolley, Kenkel and Fabian (1994) review the literature on valuing life and life years and conclude that a range of US$70,000 to US$175,000 per life year is reasonable. In a major study of the value of health of the US population, Cutler and Richardson (1997) adopt an average value of US$100,000 in 1990 dollars for a healthy year.*
>
> *Although there is an extensive international literature on the value of life (Viscusi, 1993), there is little Australian research on this subject. As the Bureau of Transport Economics (BTE) (in BTE, 2000) notes, international research using willingness to pay values usually places the value of life at somewhere between A$1.8 and A$4.3 million. On the other hand, values of life that reflect the present value of output lost (the human capital approach) are usually under $1 million.*
>
> *The BTE (2000) adopts estimates of $1 million to $1.4 million per fatality, reflecting a 7 per cent and 4 per cent discount rate respectively. The higher figure of $1.4 million is made up of loss of workforce productivity of $540,000, loss of household productivity of $500,000 and loss of quality of life of $319,000. This is an unusual approach that combines human capital and willingness to pay concepts and adds household output to workforce output.*
>
> *For this study, a value of $1 million and an equivalent value of $60,000 for a healthy year are assumed. In other words, the cost of a DALY is $60,000. This represents a conservative valuation of the estimated willingness to pay values for human life that are used most often in similar studies.*[15]*" (DHA, 2003, pp11–12).*

As the citation concludes, the estimate of $60,000 per DALY is very low. The Viscusi (1993) meta-analysis referred to reviewed 24 studies with values of a human life ranging between $US 0.5 million and $US 16m, all in pre-1993 US dollars. Even the lowest of these converted to 2003 Australian dollars at current exchange rates, exceeds the estimate adopted ($1m) by nearly 25%. The BTE study tends to disregard the literature at the higher end and also adopts a range (A$1–$1.4m) below the lower bound of the international range that it identifies (A$1.8–$4.3m).

The rationale for adopting these very low estimates is not provided explicitly. Certainly it is in the interests of fiscal restraint to present as low an estimate as possible.

In contrast, the majority of the literature as detailed above appears to support a higher estimate for VSL, as presented in Table 9, which Access Economics believes is important to consider in disease costing applications and decisions. The US dollar values of the lower bound, midrange and upper bound are shown at left. The 'average' estimate is the average of the range excluding the high NOHSC outlier. Equal weightings are used for each study as the:

- Viscusi and Aldy meta-analysis summarises 60 recent studies;
- ABS study is Australian; and
- Yale and Harvard studies are based on the conclusions of eminent researchers in the field after conducting literature analysis.

Where there is no low or high US dollar estimate for a study, the midrange estimate is used to calculate the average. The midrange estimates are converted to Australian dollars at purchasing power parity (as this is less volatile than exchange rates) of USD=0.7281AUD for 2003 as estimated by the OECD.

Access Economics concludes the VSL range in Australia lies between $3.7 million and $9.6m,[16] with a mid-range estimate of $6.5m. These estimates have conservatively not been inflated to 2003-04 prices, given the uncertainty levels.

[13] In round numbers, $2,000,000 = $118,000/1.05 + $118,000/(1.05)^2 + … + $118,000/(1.05).[40] [AE comment: The actual value should be $116,556, not $118,000 even in round numbers.]

[14] The equivalent value of $60,000 assumes, in broad terms, 40 years of lost life and a discount rate of 5 per cent. [AE comment: More accurately the figure should be $58,278.]

[15] In addition to the cited references in the text, see for example Murphy and Topel's study (1999) on the economic value of medical research. [AE comment. Identical reference to our Murphy and Topel (1999).]

[16] Calculated from the non-indexed studies themselves. Converting the AE average estimates from USD to AUD at PPP would provide slightly higher estimates - $3.9 million and $10.2m, with the same midrange estimate.

Table 9: International Estimates of VSL, Various Years

	LOWER	US$M MIDRANGE	UPPER	A$M 0.7281
Viscusi and Aldy meta-analysis 2002	4	7	9	9.6
Australian: ABS 1991	–	4.2	–	5.8
NOHSC 1997	11.3	–	19.1	–
Yale (Nordhaus) 1999	–	2.66	–	3.7
Harvard (Cutler and Richardson) 1998	0.6	5	13.7	6.9
Average*	2.9	4.7	7.4	6.5

* Average of range excluding high NOHSC outlier, using midrange if no data; conservatively not inflated.

A$m conversions are at the OECD 2003 PPP rate.

4.1.3 Discount Rate

Choosing an appropriate discount rate for present valuations in cost analysis is a subject of some debate, and can vary depending on which future income or cost stream is being considered. There is a substantial body of literature, which often provides conflicting advice, on the appropriate mechanism by which costs should be discounted over time, properly taking into account risks, inflation, positive time preference and expected productivity gains.

The absolute minimum option that one can adopt in discounting future income and costs is to set future values in current day dollar terms on the basis of a risk free assessment about the future (that is, assume the future flows are similar to the certain flows attaching to a long term Government bond).

Wages should be assumed to grow in dollar terms according to best estimates for inflation and productivity growth. In selecting discount rates for this project, the following has been settled upon as the preferred approach.

- **Positive time preference:** We use the long term nominal bond rate of 5.8% pa (from recent history) as the parameter for this aspect of the discount rate. (If there were no positive time preference, people would be indifferent between having something now or a long way off in the future, so this applies to all flows of goods and services.)
- **Inflation:** The Reserve Bank has a clear mandate to pursue a monetary policy that delivers 2 to 3% inflation over the course of the economic cycle. This is a realistic longer run goal and we therefore endorse the assumption of 2.5% pa for this variable. (It is important to allow for inflation in order to derive a real (rather than nominal) rate.)
- **Productivity growth:** The Commonwealth Government's Intergenerational report assumed productivity growth of 1.7% in the decade to 2010 and 1.75% thereafter. We suggest 1.75% for the purposes of this analysis.

There are then two different discount rates that should be applied:

- To discount income streams of future earnings, the discount rate is:
  – 5.8 – 2.5 – 1.75 = 1.55%.
- To discount other future streams (healthy life, health services, legal costs, accommodation services and so on) the discount rate is:
  – 5.8 – 2.5 = 3.3%

While there may be sensible debate about whether health services (or other costs with a high labour component in their costs) should also deduct productivity growth from their discount rate, we argue that these costs grow in real terms over time significantly as a result of other factors such as new technologies and improved quality, and this is reasonably expected to continue in the future.

4.2 Results

4.2.1 Attributable Fractions (AFS)

VicHealth (2004) summarise the results of a collaborative effort between VicHealth and the Victorian Department of Human Services, to explore the association of Intimate Partner Violence (IPV) and health outcomes with an aim to quantify the health burden associated with IPV in DALYs for Victoria in 2001.

Access Economics acknowledges with gratitude the source research—the unit record data collected as part of the Australian Longitudinal Study on Women's Health—performed by The University of Newcastle and The University of Queensland, funded by the Commonwealth Department of Health and Ageing, and provided by the women in the survey. In particular Access Economics acknowledges the

contribution of Christina Lee (study coordinator for the Australian Longitudinal Study of Women's Health), Lyn Watson, Margot Schofield, Rafat Hussain and Angela Taft, as well as the contribution of Dr Leonard Piers and Ms Anne Magnus of the Victorian Department of Human Services (DHS), and Associate Professor Theo Vos of DHS and School of Population Health of University of Queensland, for providing access to their calculations of burden of disease attributable to DV or *'attributable fractions'* (AFs).

Their methods are summarised as follows, and the AFs so derived are used in our application.

- The WSS was the source of prevalence of IPV, although it is somewhat dated. The survey reported physical and sexual violence and distinguished between 'current exposure' (in the last 12 months) and past exposure (more than one year ago). Emotional abuse that occurred in the absence of physical or sexual violence was only quantified for 'current exposure'.
- A review of the international and Australian literature found that mental disorders, substance use disorders, femicide, suicide, non-fatal physical injuries and reproductive health outcomes (including sexually transmitted diseases and adverse pregnancy outcomes) were most consistently reported as health risks of IPV.
- The Australian Longitudinal Study on Women's Health (ALSWH) was the main source of information on the health risks associated with IPV (Brown et al, 1996). Problems with this included:
  - health status was self-reported, often by means of proxy questions;
  - IPV questions were limited to two narrow age-band cohorts bands, so most age groups were not covered; and
  - response rates were quite low, particularly in the first survey youngest cohort (18–23 years old at the time).
- However, as great consistency was found in the direction and strength of the associations between IPV and all proxy questions within the same disease domain, it was considered plausible to derive *'relative risks'* (RR) for mental disorders, substance use disorders and suicide. As the findings were also very similar (apart from tobacco) for the younger and middle aged cohort, findings were extrapolated from the younger cohort (with best measurements) to all ages. For smoking, a gradient by age was applied between the RR in the young cohort and the much lower RR in the middle aged cohort. A further justification for use of the ALSWH data was that the RRs were of similar magnitude as published in overseas studies.
- The ALSWH questions on emotional abuse were deemed of inadequate quality (mainly because the question was asked over a lifetime and not related to current exposure) to justify quantifying the risk associated with emotional abuse separately.
- Access to the unit record data of the ALSWH enabled estimation of the RRs in standard manner for each of the relevant health outcomes and separately for current and past exposure *while controlling for confounding by demographic and socio-economic variables*.[17]
  - The latter point is particularly important in deriving the best possible AF, however it does not preclude the possibility that correlation may in part be due to factors not included in the process of control.
  - For example, a person who suffers IPV and depression may have experienced child abuse as a child. The child abuse may contribute to both the likelihood of experiencing IPV as an adult and to the depression, such that the elevated risk of depression may not be entirely due to the IPV.
  - That said, the results are as robust as possible given the data and interpretation constraints and, as mentioned above, produce results in the expected range based on international evidence. However, in the terminology following we refer to the burden of disease *associated with* DV rather than *caused by* it, as a result of this issue.
- For homicidal deaths in women ('femicide'), data from an analysis of the coronial database were used to estimate the proportion perpetrated by an intimate partner (Mouzos, 1999). For physical injuries, a small scale study of women presenting at an emergency department in Brisbane (Roberts, 1996) was used.
- The prevalence and RR estimates determined population AFs by age, sex and disorder (Table 10). All prevalence data and RR estimates were entered with 95% confidence intervals into a simulation model to estimate the overall uncertainty around the results.
- While the AFs capture the main health impacts and partially capture the impacts of other key issues—eg, for unsafe sex, AFs for STDs are calculated but not the impacts of unplanned pregnancy or termination of pregnancy. For some other issues, there are insufficient data to capture any of the health impacts of an issue, eg the direct impacts of violence during pregnancy (miscarriage, congenital abnormality). Low birth weight/prematurity was considered as an adverse outcome in the ALSHW but no significant correlation was found after controlling for socioeconomic confounders and numbers of pregnancies.
  - In these cases it is recommended future research such as, potentially, new survey data from future rounds of the ALSWH, might improve the measurement of exposure and health outcomes in such areas.

[17] All results were weighted to take into account the deliberate over-sampling of women from rural and remote areas.

Table 10: Attributable Fractions for DALYs

	18–24	25–34	35–44	45–54	55–64	65–74	75+
Femicide	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Suicide	0.39	0.45	0.45	0.42	0.26	0.26	0.26
Physical injuries	0.07	0.06	0.05	0.03	0.01	0.01	0.01
Depression	0.18	0.24	0.24	0.23	0.13	0.13	0.13
Anxiety	0.15	0.21	0.22	0.21	0.12	0.12	0.12
Eating disorders	0.05	0.08	0.08	0.08	0.04	0.04	0.04
Tobacco	0.26	0.27	0.20	0.14	0.05	0.05	–
Alcohol	0.10	0.14	0.15	0.14	0.07	0.07	0.07
Drug use	0.22	0.20	0.15	0.10	0.04	0.04	0.04
STD	0.11	0.14	0.15	0.14	0.07	0.07	0.07
Cervical Cancer	0.07	0.11	0.12	0.11	0.06	0.06	0.06

Source: VicHealth (2004)

4.2.2 Derivation of YLL, YLD and DALYs

YLL, YLD, DALYs and deaths for 1996 were sourced from the Australian Institute of Health and Welfare data based on methods outlined in Mathers et al (1999) for the disease categories in Table 10 above, in order to estimate the burden for female victims.

- STDs included syphilis, chlamydia, gonorrhoea and other STDs, excluding HIV/AIDs.
- Drug use included heroin, sedative, cannabis and other drugs, as well as their attributable burden in relation to accidental poisoning, suicide and self-inflicted injuries, Hepatitis B and C, HIV/AIDs and inflammatory heart disease. Drug use is also linked to low birth-weight but the burden of disease for this falls on those aged 0–18 in the next generation.
- Alcohol refers to harmful alcohol dependence/abuse and the contribution of alcohol to: increased risk of road traffic accidents; cirrhosis of the liver; stroke; breast cancer; suicide and self-inflicted injury; cancer of mouth and pharynx; colorectal cancer; homicide and violence; accidental falls; larynx cancer; fire injuries; inflammatory heart disease; liver cancer; drowning; hypertension; poisoning; pancreatitis; occupational injury; and suffocation and inhalation.
- The burden associated with tobacco includes the attributable burden for: lung cancer; chronic obstructive pulmonary disease (COPD); ischaemic heart disease; stroke; mouth and oropharynx cancers; age-related vision disorders; oesophagus cancer; kidney cancer; pancreatic cancer; bladder cancer; peripheral vascular disease; larynx cancer; asthma; inflammatory bowel disease; stomach cancer; lower respiratory infections; fire injuries; otitis media; cervical cancer; uterine cancer; and Parkinson's disease. Links between smoking and low birth-weight and SIDS are second generation impacts.

The 1996 burden was calculated using the AFs (described in Section 4.2.1 and summarised in Table 10). Extrapolations to 2002–03 were based on ABS data for population changes for women, by age, between June 1996 and June 2003, as summarised in Table 11. The total burden of disease as measured in DALYs is provided in Table 12.

Table 11: Population Growth, June 1996 to June 2003, Females by Age

	0–17	18–34	35–54	55–74	75+	TOTAL
Jun-96	2,280	2,369	2,545	1,446	562	**9,203**
Jun-03	2,305	2,418	2,850	1,679	701	**9,954**
Change 96-03 (%)	***1.1***	***2.1***	***12.0***	***16.1***	***24.7***	***8.2***

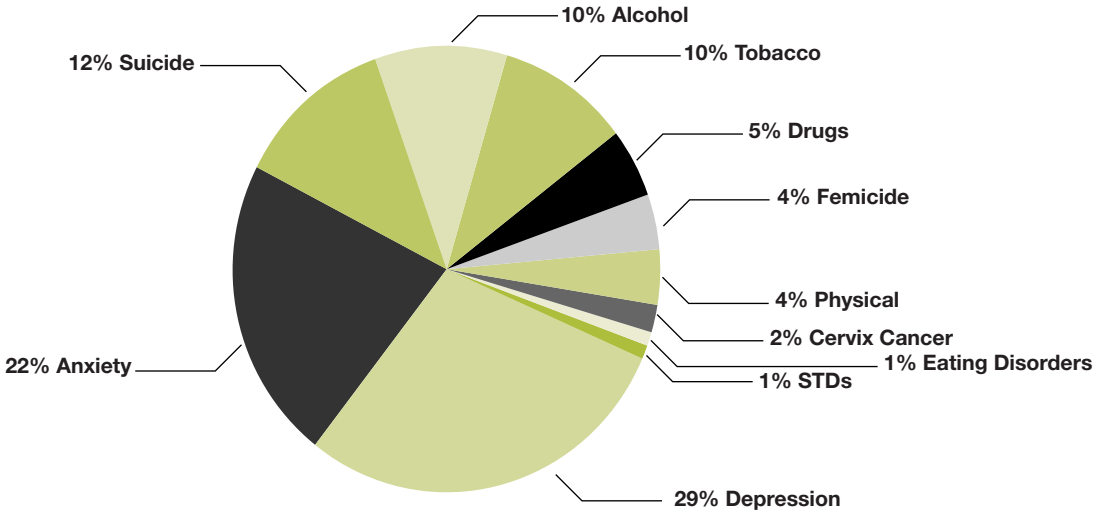
Table 12: Burden of Disease Associated With Domestic Violence, 2002–03, Dalys

	0–17	18–34	35–54	55–74	75+	TOTAL	% ROW TOTAL	% COLUMN TOTAL
Femicide	–	743	598	145	25	**1,510**	**45.2%**	**4.0%**
Suicide	–	1,720	2,429	382	71	**4,602**	**37.3%**	**12.3%**
Physical injuries	–	751	431	81	79	**1,343**	**2.8%**	**3.6%**
Depression	–	4,731	4,979	1,315	24	**11,050**	**17.9%**	**29.5%**
Anxiety	–	3,385	4,592	458	41	**8,475**	**17.0%**	**22.6%**
Eating disorders	–	488	8	1	1	**498**	**4.3%**	**1.3%**
Tobacco	–	735	1,431	1,479	–	**3,645**	**4.2%**	**9.7%**
Alcohol	–	578	1,259	915	930	**3,682**	**9.3%**	**9.8%**
Drug use	–	1,331	355	94	54	**1,834**	**11.0%**	**4.9%**
STD	–	140	71	4	1	**216**	**11.0%**	**0.6%**
Cervical cancer	–	45	332	146	60	**582**	**8.9%**	**1.6%**
Total DV	***–***	***14,646***	***16,486***	***5,019***	***1,286***	***37,437***	***11.1%***	***100%***
% all female DALYs	***0.0%***	***9.3%***	***6.8%***	***1.3%***	***0.3%***	***2.8%***		

- In all, in 2002-03 there were 37,437 years of healthy life lost associated with female victims of DV.
- This represents 2.8% of the total Australian female burden of disease in that year, as well as 9.3% of the burden for 18–34 year old and 6.8% for 35–54 year old females.
- Depression was the largest contributor to the burden (30% of the total), with nearly 18% of all female depression in Australia being associated with DV.
- Anxiety disorders (including generalised anxiety disorder, panic disorder and phobias, among others) contributed nearly 23% of the burden, with 17% of all female anxiety disorders in Australia being associated with DV.
- Suicide and self-inflicted injuries was the next single largest cause (12%).
- Substance abuse (of tobacco, alcohol and drugs) leading to secondary illness and injury also contributed significantly.
- These results are consistent with the findings in VicHealth (2004) that:
  - IPV was responsible for 3.0% (95% uncertainty interval UI 2.7%–3.4%) of the total disease burden in Victorian women in 2001;
  - it caused 8.9% (95% UI 7.8%–10.1%) of disease burden in women 15-44 years of age;
  - mental disorders were the largest cause followed by substance abuse and injuries; and
  - depression, anxiety and suicide determine three quarters of the burden associated with IPV (our results were closer to two thirds for these items).

The share of each item is shown in Figure 2.

Figure 2: Share Of Burden Associated With Domestic Violence, 2002–03



The burden is shared between YLDs and YLLs as shown in Table 13.

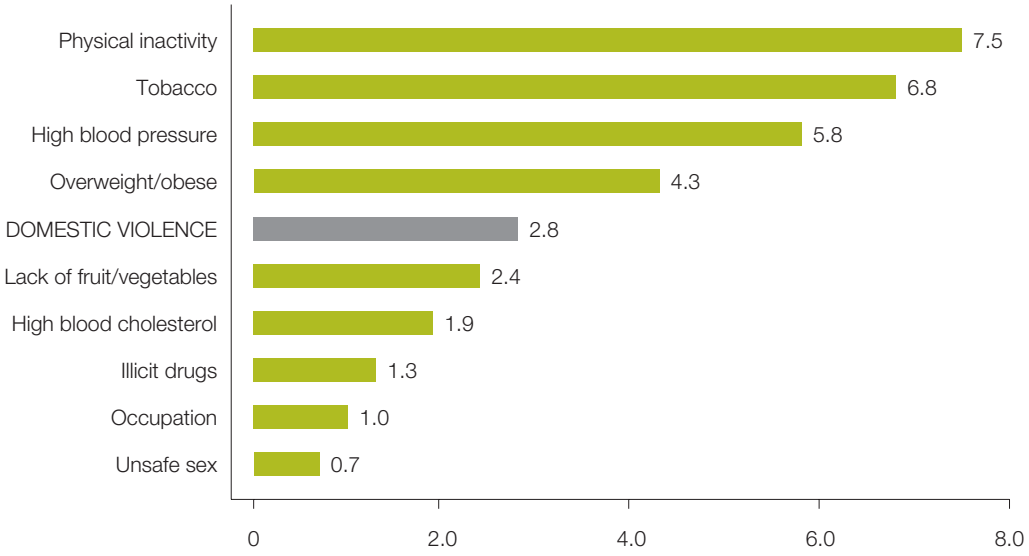
- 69% of the burden was due to disability (YLD) while 31% was due to premature death (YLL). This is because most of the burden from mental illness is due to disability.
- Suicide contributes 39% of the premature loss of life (YLL) and substance abuse (tobacco, alcohol and drugs) a similar share; femicide contributes a further 10%.
- Three quarters of the disability burden (YLD) is due to depression and anxiety.

As a proportion of total burden in all women, DV causes more ill health than well known risks to health such as high cholesterol or illicit drugs. Indeed, compared to the major risk factors identified in Mathers et al (1999), DV would rank 5th, as illustrated in Figure 3. In women between ages 15 and 44 it is by far the largest risk factor because that prevalence of DV is highest at those ages and many of the associated health risks (especially depression) are highly prevalent at those ages.

Table 13: Death and Disability Associated with Domestic Violence, 2002–03, DALYs

YLL	0–17	18–34	35–54	55–74	75+	TOTAL	% ROW TOTAL	% COLUMN TOTAL
Femicide	–	531	513	136	22	1,203	45.0%	10.4%
Suicide	–	1,663	2,402	381	70	4,516	37.3%	38.9%
Phys injuries	–	441	225	42	49	757	2.9%	6.5%
Depression	–	–	–	–	21	21	15.0%	0.2%
Anxiety	–	–	–	–	1	1	13.8%	0.0%
Eating disorders	–	6	8	1	1	16	6.3%	0.1%
Tobacco	–	129	876	1,163	–	2,169	3.4%	18.7%
Alcohol	–	166	629	487	577	1,858	9.3%	16.0%
Drug use	–	280	231	44	32	586	9.7%	5.0%
STD	–	–	–	1	0	2	7.3%	0.0%
Cancer Cervix	–	33	275	124	52	484	8.9%	4.2%
Total due to DV	***–***	***3,249***	***5,159***	***2,379***	***825***	***11,612***	***8.5%***	***100.0%***
% of all F YLL	***0.0%***	***12.7%***	***5.5%***	***1.0%***	***0.3%***	***1.7%***		
YLD	**0–17**	**18–34**	**35–54**	**55–74**	**75+**	**TOTAL**	**% ROW TOTAL**	**% COLUMN TOTAL**
Femicide	–	212	85	9	2	308	46.1%	1.2%
Suicide	–	56	27	1	1	85	35.9%	0.3%
Phys injuries	–	310	206	39	30	586	2.7%	2.3%
Depression	–	4,731	4,979	1,315	3	11,029	17.9%	42.7%
Anxiety	–	3,385	4,592	458	40	8,475	17.0%	32.8%
Eating disorders	–	482	–	–	–	482	4.3%	1.9%
Tobacco	–	605	555	316	–	1,476	6.2%	5.7%
Alcohol	–	413	631	427	353	1,824	9.3%	7.1%
Drug use	–	1,051	125	50	23	1,248	11.8%	4.8%
STD	–	140	71	3	1	214	11.1%	0.8%
Cancer Cervix	–	11	57	22	8	98	9.0%	0.4%
Total due to DV	***–***	***11,397***	***11,327***	***2,640***	***461***	***25,825***	***12.7%***	***100.0%***
% of all F YLD	***0.0%***	***8.6%***	***7.5%***	***1.7%***	***0.4%***	***4.0%***		

Figure 3: Domestic Violence Relative to Other Risks to Health (% of Total DALYs)



4.2.3 The Value of Suffering and Premature Death

As discussed in Section 4.1, by ascribing a value to a statistical life (VSL), the burden of suffering and premature death associated with DV in dollar terms can be estimated. A base case where the VSL is $3.7 million is adopted and discount rate (r) of 3.3% over a timeframe (t) of 40 years (the average in the source studies between the incident and average life expectancy) is applied to derive the value of a life year (VLY) from the formula:

(Equation 1) *VSL = SUM [VLY/(1+r)^t]*

Conversion of DALYs to dollars is thus on the basis of discounted VLY of $162,561.

In the base case, the total value of suffering and premature death associated with DV was $6.1 billion in 2002–03 (Table 14). The distribution in relation to age and cause is the same as for DALYs. Over 83% of the costs were borne by women aged 18–54 years. Over $3.1 billion was associated with depression and anxiety.

Table 14: Cost of Suffering Associated with Domestic Violence, ($M), 2002–03

	18–34	35–54	55–74	75+	TOTAL
Femicide	121	97	24	4	**246**
Suicide	280	395	62	11	**748**
Physical injuries	122	70	13	13	**218**
Depression	769	809	214	4	**1,796**
Anxiety	550	746	74	7	**1,378**
Eating disorders	79	1	0	0	**81**
Tobacco	119	233	240	–	**593**
Alcohol	94	205	149	151	**599**
Drug use	216	58	15	9	**298**
STD	23	12	1	0	**35**
Cervical Cancer	7	54	24	10	**95**
Total DV	***2,381***	***2,680***	***816***	***209***	***6,086***

Varying the key underlying assumptions provides sensitivity analysis to these assumptions.

- Lowering the discount rate to 1.55% (i.e. effectively allowing for productivity gains over time) provides a low estimate of $4.6 billion (24% lower than the base case).
- Using the 'average' VSL ($6.5m) rather than the conservative lower bound ($3.7m) provides an upper bound of $10.7 billion (76% higher than the base case).

Bearing in mind that the wage-risk studies underlying the calculation of the VSL take into account all known personal impacts—suffering and premature death, lost income, out-of-pocket personal health costs and so on—this base case estimate of $6.1 billion should be treated as a 'gross' figure. However, costs specific to DV that are unlikely to have entered into the thinking of people in the source wage/risk studies should not be netted out (eg, legal or accommodation costs). The calculations are made in Section 4.2.4 below.

4.2.4 Perpetrators and Other Domestic Violence

The above discussion and costing relates to female victims of DV. We also need to take account of health impacts on male perpetrators, on children who are bystanders and in relation to female-perpetrated violence.

For the perpetrators and children, the cost of suffering and premature death is assumed to be in the same proportion as that of the victims relative to their respective health costs, since the health costs can be calculated for all affected groups. By using the relativities from Chapter 5.2,(i.e. perpetrators' health costs are 2.5% of victims' and children's health costs are 4.7% of those of adult victims), the results, shown below in Table 15, are derived.

Table 15: Gross Burden Of Disease: Victims, Perpetrators and Children ($M), 2002–03

	FEMALE	MALE	TOTAL
Victims	6,086	938	7,024
Perpetrators	3	174	177
Children	165	165	330
Total	***6,254***	***1,277***	***7,531***

- The suffering and premature death associated with DV against male victims is estimated to have cost $938 million in 2002–03; so total victim costs were $7.0 billion.
- Perpetrator costs are estimated as a further $177m, and costs to children an additional $330 million.
- In total, the gross suffering and premature death associated with DV was $7.5 billion.

The costs are fully borne by those experiencing the suffering in each case. From these gross costs, personal financing of health costs (Chapter 5) and the costs of lost productivity (Chapter 4) are deducted in order to calculate the 'net' cost. However, the relative size of the suffering component means that netting these factors out does not reduce the gross figure substantially—to $6.9 billion for victims and $7.3 billion in total (Table 16).

Table 16: Net Burden of Disease: Victims, Perpetrators and Children ($M), 2002–03

	VICTIMS	PERPETRATORS	CHILDREN	TOTAL
Gross suffering	7,024.0	177.2	329.7	7,530.8
Health	75.8	1.8	–	77.6
Productivity	87.1	79.7	–	166.8
Total	***6,861.1***	***95.7***	***329.7***	***7,286.4***

4.2.5 Sensitivity Analysis

A final step is to make allowance for the multiple causal pathways underlying the attributable fractions that, in turn, underlie the estimates for the cost of suffering. We model six scenarios:

- 25%, 50% and 75% of the attributable fractions, with 50% for the base case; and
- VSL of $6.5m, rather than $3.7m, with the latter for the base case.

Results are presented in Table 17, ranging for net costs from:

- $1.64 billion in the lowest scenario to
- $11.21 billion in the highest scenario, with
- $3.52 billion in the base case.

Table 17: Scenario Analysis for Suffering Costs

VSL $3.7M	VICTIMS	PERPETRATORS	CHILDREN	TOTAL
Base case – 50%				
Gross	3,512.0	88.6	164.9	3,765.4
Net	3,349.1	7.8	164.9	3,521.1
Low – 25%				
Gross	1,756.0	44.3	82.4	1,882.7
Net	1,593.1	-37.2	82.4	1,638.3
High – 75%				
Gross	5,268.0	132.9	247.3	5,648.1
Net	5,105.1	51.4	247.3	5,403.8
VSL $6.5M				
Base case – 50%				
Gross	7,120.8	179.6	334.2	7,634.6
Net	6,957.9	98.1	334.2	7,390.2
Low – 25%				
Gross	3,560.4	89.8	167.1	3,817.3
Net	3,397.5	8.3	167.1	3,572.9
High – 75%				
Gross	10,681.1	269.4	501.4	11,451.9
Net	10,518.3	187.9	501.4	11,207.6

Two other scenarios examined later in the report include:

- If the victims AWE is reduced by 10% the net burden of disease in the
  - lowest scenario increases by 1.0%,
  - highest scenario increases by 0.1%, and
  - base case increases by 0.5%.
- If the proportion of DV incidents as a proportion of all police incident reports increases by 10% the net burden of disease in the
  - lowest scenario falls by 0.5%,
  - highest scenario falls by 0.1%, and
  - base case falls by 0.2%.

.

5. Health Costs

5.1 Health Costs for Female Victims

Health cost data for the conditions associated with DV for female victims as listed in the previous chapter were purchased from the Australian Institute for Health and Welfare for the year 2000–01.

The AIHW derive their costings from an extensive 'top-down' process developed in collaboration with the National Centre for Health Program Evaluation (NCHPE) for the Disease Costs and Impact Study (DCIS). The approach measures health services utilisation and expenditure for specific diseases and disease groups in Australia, in accordance with the Tenth Revision of the International Classification of Disease (ICD-10) published by the World Health Organisation (WHO). The DCIS methodology has been gradually refined over the 1990s to now estimate a range of direct health costs primarily from hospital morbidity data, case mix data and the National Health Survey (NHS), as well as other sources. DCIS methodology is detailed in Mathers et al (1998), while results are provided in Mathers and Penm (1999). Our AIHW data request related to new DCIS data released on 12 May 2004 for the year 2000-01, disaggregated by age, gender and type of cost, which uses burden of disease categories based on ICD-10 and the International Classification of Primary Care Version 2 (ICPC2).

Applying the attributable fractions for disease burden to these cost data, by condition and by age, estimates of the health costs associated with DV for female victims are derived. Since health cost data were not directly available for the secondary health impacts of risk factors (smoking, alcohol and drugs as per Section 4.2.2) estimates of these were based on relativities from DALYs—eg, all alcohol impacts relative to the 'alcohol abuse' category averaged . The data were inflated to the year 2002–03 by 3.2% on the basis of published health inflation for that period (AIHW, 2003).The results are summarised in Table 18 and in Figure 4, Figure 5 and Figure 6.

- Total health costs for female victims were $314million.
- Hospital costs were nearly half of these at $145 million (inpatients 36% and outpatients 10% of the total).
- Costs of pharmaceutical treatments were second largest—$61 million (19%).
- Depression and physical injuries together comprised over half of costs—$111 million (35% of the total) and $51 million (16%) respectively.
- Health costs for women experiencing DV associated with alcohol abuse were $36 million (11%), with increased smoking were $30 million (10%), and with drug use were $15 million (5%).
- Women 35–44 years old and 45-54 years old bear 21% and 23% respectively of the total health costs. These ages reflect lags between violence and many associated expensive health impacts, for example delays between heavy drinking and cirrhosis of the liver, or between excessive smoking and cancer or cardiovascular disease.
  - In contrast, 42% of the cost of physical injuries is borne by women aged 18–24 years, and three quarters of these costs by women under 44.
  - The cost distribution by age for femicide is similar (66% under 44 and 53% under 34 years).

Figure 4: Composition Of Health Costs, Female Victims, By Condition, 2002–03

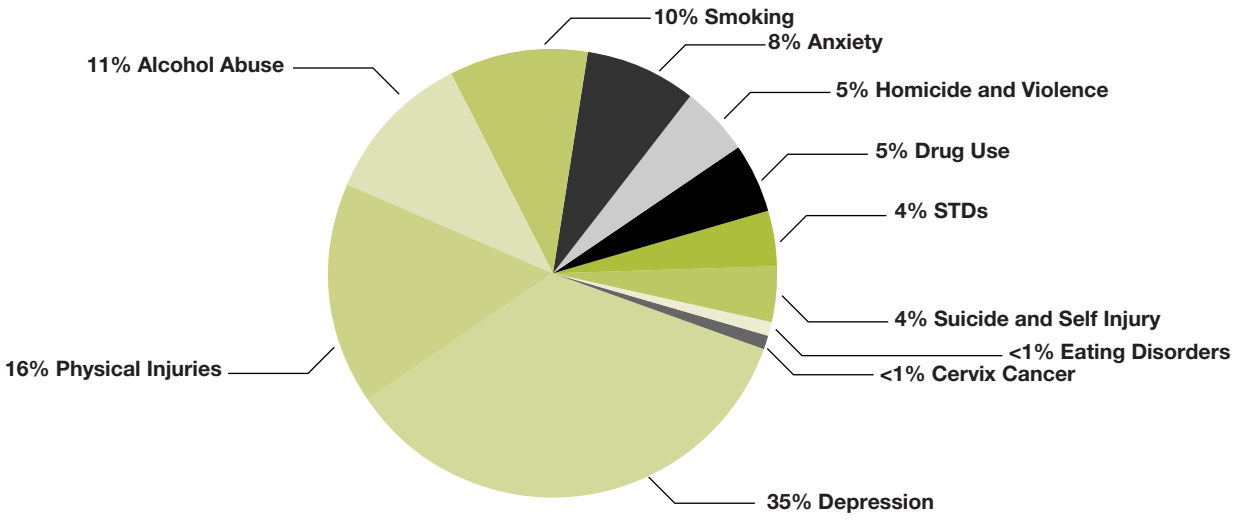


Table 18: Health Costs Associated With Domestic Violence, Female Victims, 2002–03

	HOSPITALS				AGED CARE HOMES	OUT OF HOSPITAL MEDICAL SERVICES					PHARMACEUTICALS			OTHER HEALTH PROFES-SIONALS	RESEARCH (& DENTAL)	TOTAL
	ADMITTED PATIENTS		NON-ADMITTED PATIENTS	TOTAL		UNRE-FERRED ATTEND-ANCES	IMAGING	PATHOLOGY	OTHER MEDICAL	TOTAL	PRESCRIP-TION	OVER-THE-COUNTER	TOTAL			
	HOSPITALS	PRIVATE MEDICAL SERVICES IN-HOSPITAL														
Physical injuries	13.7	1.5	18.6	33.8	0.1	3.9	4.4	0.3	1.3	10.0	1.6	1.5	3.1	4.3	0.1	51.4
Homicide	8.0	0.9	4.4	13.3	–	0.6	0.2	0.1	0.7	1.6	0.1	0.3	0.4	1.4	0.5	17.2
Suicide	10.3	1.1	0.1	11.5	–	0.0	–	–	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6
Anxiety	21.5	2.3	3.6	27.3	2.7	12.4	0.3	1.7	19.4	33.8	37.9	1.1	39.0	3.8	4.1	110.8
Depression	7.5	0.8	0.0	8.3	4.1	1.9	0.1	0.3	4.7	7.0	3.8	0.1	3.9	0.2	0.9	24.4
Eating disorders	1.7	0.2	0.0	1.9	–	0.0	–	0.0	0.1	0.2	0.0	0.0	0.1	0.2	0.1	2.4
Smoking	17.8	1.9	2.2	21.8	0.2	0.8	0.2	0.8	1.5	3.3	3.4	0.8	4.2	0.1	0.8	30.4
Alcohol abuse	15.3	1.6	0.4	17.3	5.0	2.0	0.0	1.1	1.6	4.8	2.1	0.9	2.9	4.4	1.3	35.8
Drug use	4.5	0.5	0.3	5.3	1.2	2.8	0.1	0.7	1.1	4.7	1.2	0.2	1.4	1.7	0.6	14.8
Syphilis	0.0	0.0	–	0.0	–	0.0	–	0.0	0.0	0.0	0.0	–	0.0	–	0.0	0.1
Cervix cancer	0.6	0.1	0.6	1.2	–	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	1.5
Chlamydia	1.2	0.1	0.5	1.8	–	0.4	0.1	0.4	0.1	1.0	2.9	0.1	3.0	0.0	0.7	6.6
Gonorrhoea	0.0	0.0	0.0	0.1	–	0.0	–	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.1
Other STDs	1.2	0.1	0.5	1.8	–	0.4	0.1	0.4	0.1	1.0	2.9	0.1	3.0	0.0	0.7	6.6
Total	***103.3***	***11.0***	***31.1***	***145.4***	***13.3***	***25.5***	***5.7***	***5.8***	***30.6***	***67.6***	***56.0***	***5.2***	***61.2***	***16.2***	***10.1***	***313.7***

Figure 5: Composition of Health Costs, Female Victims, by Type, 2002–03

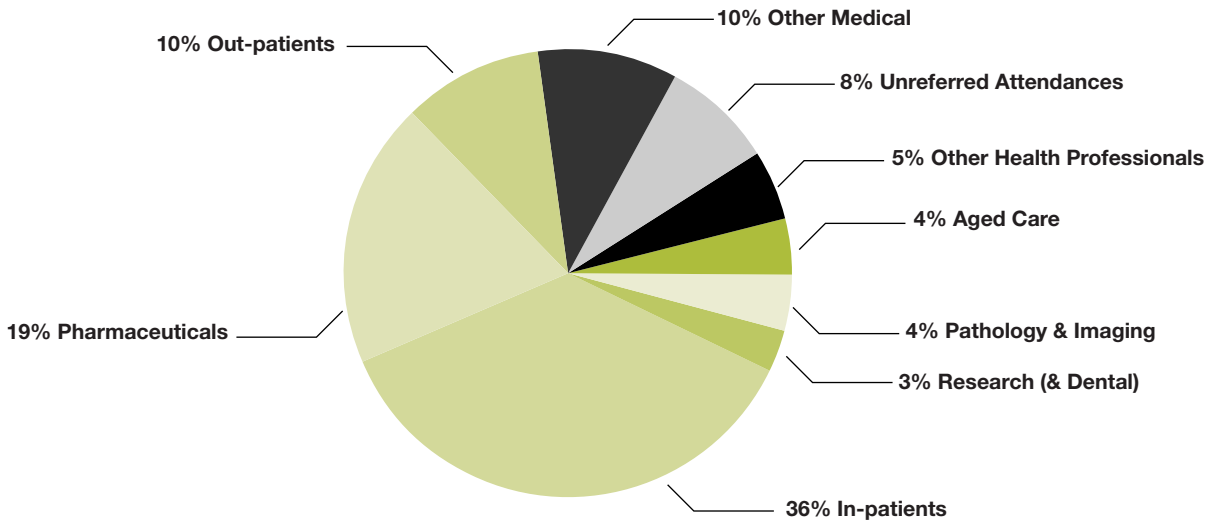
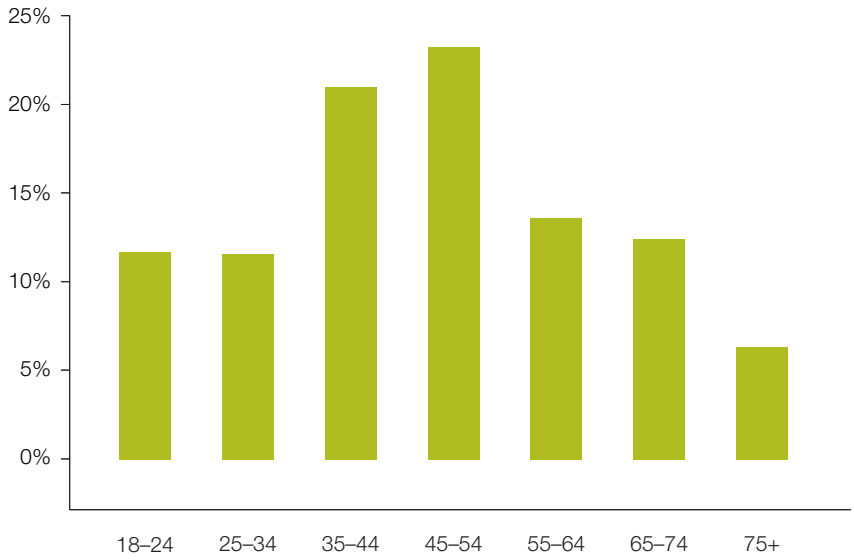


Figure 6: Health Costs, Female Victims, by Age (% Total), 2002–03



There is also a category of victims who do not seek treatment but do suffer health impacts due to DV. In these cases health costs are not incurred so should not be imputed, although suffering and premature death are incurred (as per the AF analysis). Overall, the effects of under-treatment of the health impacts of DV due to a judgement to conceal may be counterbalanced by the inability (due to lack of robust data) to include some other health costs, such as treatment of post-traumatic stress disorder following a rape.

Note that 'counselling services' are not included in the health category but, instead, in the 'other and administrative costs' category (see Section 4).

Henderson (2000b) estimated Australian health and medical costs for the year 1999 for female victims as emergency and ambulance costs ($3.1m), hospital inpatient and outpatient ($57.9m), GP ($12.1m), specialists ($6.4m), pharmaceuticals ($3.7m) and other medical services ($17.4m)—totalling $100.6 million or $660 on average for each of the 152,300 women included by Henderson. Henderson's estimates are significantly lower than US Bureau of Justice figures (Greenfield,

1998) where health costs account for 40% of all costs women face as a consequence of 'intimate violence'.

The estimates are nearly three times the size of Henderson's, which we believe is reasonable given:

- higher prevalence in our study (2.3 times i.e. 353,579 compared to 152,300);
- health cost inflation (12.3% over the period 1999 to 2002–03); and
- broader and more long term impacts have been taken into account, so even accounting for inflation and prevalence, our estimates are 20% higher
  - Henderson's cost per female victim was $660.54; accounting for health inflation would indicate unit costs of $741.96; ours is $887.18.

5.2 Health Costs For Perpetrators of Violence and for Children (Bystanders)

Our estimates of perpetrator health costs use as a start-point Henderson's estimates of $43.4 million or $285 on average for each of the 152,300 perpetrators, for 'other services to perpetrators', which include legal, health/medical and counselling.

- Separating these three components using the source data (Blumel et al, 1993) shows that the health costs are 53% of the total.
- However, in the source study, the attributable fraction was not calculated—rather the whole of the health and medical costs of perpetrators of DV was used, suggesting considerable overstatement. We have applied the attributable fraction calculated for victims' health costs, 11.1% of the relevant sequelae (see Table 12), to perpetrators' costs.
- So perpetrator health costs should have been $43.4 million * 53% * 11.1% or $2.5 million ($16.67 per perpetrator in 1999 dollars). Relative to Henderson's estimate for victims' health costs ($100.6m), the ratio of perpetrator costs to victim costs is 2.5%.
- Our estimate of health costs per perpetrator is thus 2.5% of $887.18 or $22.38 per annum.
- Applying the ratio of perpetrator to victim costs across the spectrum of male and female victims and perpetrators, total costs of $371.2 million for adults are estimated.
- Children's costs also are based on Henderson's estimate of $5.5 million in 1999, inflated to 2002–03 prices and allowing for higher prevalence and capture of health impacts in the same proportion as for female victims (3.1 times)—giving a total estimate of $17.0 million in 2002-03, assumed to be evenly divided between boys and girls.
- Results are summarised in Table 19.

Table 19: Health Costs: Victims, Perpetrators and Children, 2002-03

HEALTH COSTS	FEMALE	MALE	TOTAL	
Victims	353,579	54,504	408,083	
Perpetrators	8,016	400,067	408,083	
Children			181,230	
HEALTH COSTS	**FEMALE**	**MALE**	**TOTAL**	**COST/PERSON ($)**
Victims	313.7	48.4	362.0	887.18
Perpetrators	0.2	9.0	9.1	22.38
Children	8.5	8.5	17.0	70.89
Total costs ($m)	***322.4***	***65.8***	***388.2***	

A final step is to allocate the health costs according to 'who bears' the costs. We use health expenditure data by source of funds from AIHW (2003)—Appendix table A4—to allocate shares—20% to individuals, 48.7% to Federal government, 19.7% to State and local government and 11.5% to other community health care funders (e.g. private health insurers, workers' compensation funds, third party motor vehicle insurers).

- Victims are assumed to bear 20% of the costs for themselves and their children—$75.8 million in all in 2002–03.
- Perpetrators bear 20% of their own health costs ($1.8 million—0.5% of total health costs).
- Government (taxpayers) bear over two thirds of the costs ($265.8m).
- The broader community bears 11.5% of total health costs ($44.8m).
- Further detail is provided in Table 20.

Table 20: Health Costs by Who Bears the Cost, 2002-03

	VICTIM	PERPETRATOR	CHILDREN	FEDERAL GOV'T	STATE/LOCAL GOV'T	OTHER COMMUNITY	TOTAL
Share of costs	20.0%	20.0%	–	48.7%	19.7%	11.5%	
Total $m	75.8	1.8	–	189.2	76.6	44.8	388.2
% of total	19.5%	0.5%	–	48.7%	19.7%	11.5%	100.0%

6. Production Related Costs

There are two components to productivity losses—(A) the initial short-run disruption (friction) until production is restored to former levels (due to temporary absences), and (B) the loss of the labour resource (if there is permanent disability or fatality) over the longer term, which reduces the capacity of the economy to produce at any given level of unemployment.

6.1 Short-Run Productivity Loss

The friction method was developed by Koopmanschap et al (1995). This approach estimates production losses[18] for the time period required to restore production to its pre-incident state.

The time period persists until the employee (victim or perpetrator) returns to work, or is replaced if they become unable to work. This may be due to disability or dismissal—eg, due to excessive absenteeism (victim) or incarceration (perpetrator). This method generally assumes that there is unemployment, and that a person who was previously not earning an income replaces the person not working due to DV.

In the meantime, employers often choose to make up lost production through overtime employment of another employee that attracts a premium on the ordinary wage. The overtime premium represents lost employer profits. On the other hand, the overtime premium also indicates how much an employer is willing to pay to maintain the same level of production. Thus, if overtime employment is not used, the overtime premium also represents lost employer profits due to lost production. Thus while productivity remains at the same level, the distribution of income between wages and profits changes.[19] For this study it is assumed that the overtime rate is 40%.[20]

Short-run production costs of DV include:

- reduced productivity of the victim;
- absenteeism of the victim, perpetrator and family members;
- costs of replacing lost output through overtime by other workers;
- reduced productivity of the victim's and perpetrator's co-workers and friends and family;
- additional administrative costs of employers; and
- loss of unpaid household and voluntary work by the victim, perpetrator, and family and friends.

6.1.1 Reduced Productivity of the Victim and Co-Workers

Victims of DV may work less productively, due to injuries or inability to concentrate at work. For example, KPMG Management Consulting (1996) found that 45% of female victims in the NT experienced reduced productivity due to poor concentration.

The victim and the perpetrator may also lose productivity due to the perpetrator harassing the victim during working hours. The productivity loss may extend to co-workers, if they are caught up in the harassment or the victim's problems. The WSS found that:[21]

- 9.3% of DV victims in the past 12 months talked to work colleagues ; and
- 29% of victims who were stalked by their previous partner reported that the perpetrator loitered outside the workplace.

The productivity loss by the victim, perpetrator and co-workers is not quantified in the literature, nor in this study.

6.1.2 Temporary Absenteeism From Paid and Unpaid Work

For victims and perpetrators, DV causes temporary absence from paid or unpaid work through injury, emotional distress, attending court, incarceration, harassment, and attending perpetrator programs. Family and friends may also experience temporary absenteeism through caring for the victim (or the victim's children) or by lending support to the victim or perpetrator at court hearings. It is assumed that, as the absence is temporary, earnings quickly return to the same earnings profile after the return to paid work (see Figure 7 and Figure 8).

In this section the rate of employment and AWE of victims and perpetrators of DV is based on ABS 6310.0. However findings in the WSS and ALSWH (see Part II) suggest that employment rates and AWE may be lower than that in the general population. Consequently Section 6.5 performs a sensitivity analysis on the AWE of DV victims.

[18] Based on neoclassical theory, wages and other marginal costs are assumed to be equal to the value of the marginal revenue generated by an additional worker under conditions of full employment (Berger et al, 2001). Lost production is thus the value of the wages (measured as average earnings) plus other inputs to production (capital, plant and equipment, land, enterprise etc) multiplied by the number of workdays missed.

[19] While the opportunity cost of any overtime employment of another employee is implicitly taken into account through the overtime premium, this methodology does not allow for the choice to use salaried or part-time employees to make up the production at ordinary or no additional wage costs. However given that workers are assumed to value their leisure time at 30% of their earnings, the difference in estimated economic costs if this choice is taken into account would be small—the only difference would be that 'society' would incur these costs rather than the "employer".

[20] Based on the lower bound of workplace injuries literature—NOHSC assumed an overtime rate of 40% (Access Economics 2004) and the Industry Commission (1995, p 115) assumed an overtime rate of 50%, citing the work by Oxenburgh (1991) who suggested an overtime rate of 50% to 100%.

[21] However while the WSS surveyed whether the victim received telephone calls it did not ask the question about whether the telephone call was received at work. Furthermore the WSS did not survey experiences of similar harassment behaviour by a current partner

Figure 7: Minimal Economic Loss—Covered Entirely by Sick Leave

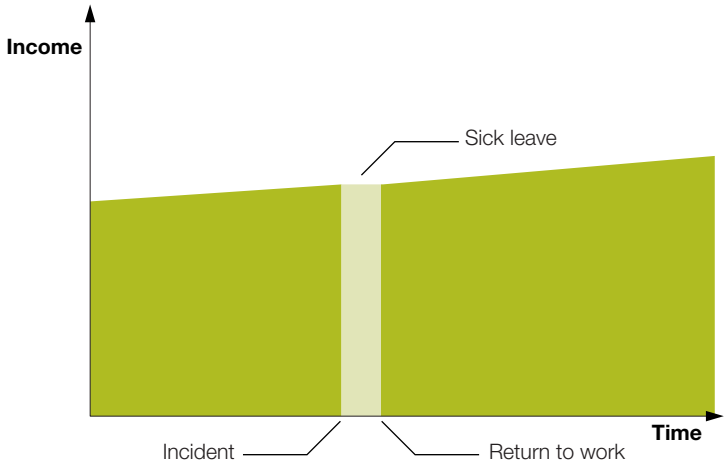


Figure 8: Minimal Economic Loss—Covered Partially by Sick Leave

The on costs of employment (applied to the paid leave incurred by the employer) are estimated to be 15.5% of employee earnings (based on ABS 6348.0.55.001 Labour Costs 2002–03). For the purposes of this study the value of leisure time is estimated at the lowest valuation of 30% of AWE.[22]

For victim absenteeism due to taking time off work due to injury, emotional distress or attending court and perpetrator absenteeism due to attending court, it is estimated that females are paid for 69.7% and males are paid for 75.9% of the days taken off paid work (ABS 6342.0 Working Arrangements, 2000).

It is assumed that the employer incurs wages, on costs and an overtime premium relating to the paid days off work and the worker incurs the lost wages relating to the remaining unpaid days off work.

[22] According to traditional microeconomic theory (in particular the work of Gary Becker in the 1960s), people will work until they are indifferent between the marginal value of the income earned relative to the personal value of the leisure sacrificed. However no-one else tends to value the individual's leisure similarly. The typical approach to overcome this problem is to value leisure time at a discounted proportion of earnings which takes into account taxes that reduce the effective income from work and restrictions on the amount of time that can be used for work (for both biological and governmental regulation reasons).

For victim absenteeism due to late to work or leaving early, and perpetrator absenteeism due to harassing the victim it is assumed that 50% of lost time would be made by the worker at a later date (Henderson (2000b) and employers incur all of the costs (no overtime is used and there is no retained wages).

Due to a lack of data about who exactly benefits from unpaid work it is assumed that all of the costs associated with lost time doing household chores is incurred by the victim (i.e. no one else benefits) and all of the costs associated with lost time doing voluntary work is incurred by society (i.e. the victim doesn't receive any utility from voluntary work).

See Part II for further detail about how the production cost due to temporary absenteeism from paid and unpaid work is calculated.[23] Overall the total cost of temporary absenteeism from paid and unpaid work is estimated to be **$283.3 million in 2002–03.**

Table 21: Summary of Costs Due to Temporary Absenteeism ($M)

	VICTIMS	PERPETRATORS	EMPLOYERS	SOCIETY	TOTAL
Victim Absenteeism From Paid Work Due To Injury, Emotional Distress Or Attending Court	25.3	–	106.6	–	131.9
Victim Absenteeism From Paid Work Due To Late To Work Or Leaving Early	–	–	5.5	–	5.5
Perpetrator Absenteeism From Harassing Victim	–	–	8.3	–	8.3
Perpetrator Absenteeism From Criminal Justice Processes	–	78.6	4.0	–	82.6
Perpetrator Absenteeism From Attending Family Court	–	0.1	0.5	–	0.5
Victim Unable To Perform Household Chores Or Voluntary Work	52.1	–	–	1.5	53.5
Perpetrator Time Off Perform Household Chores	–	1.0	–	–	1.0
Total	***77.4***	***79.7***	***124.8***	***1.5***	***283.3***

6.2 Administrative Costs

The employer incurs administrative costs:

- processing employees who take time off work
- disciplining employees for low productivity and absenteeism, and
- search, hiring and training replacement workers.

Employers may also lose profit, as a result of lost customer satisfaction and lost business. However these are not quantified.

In a small minority of cases, DV occurs at work.[24] This will result in additional administrative cost to the employer, particularly if it results in worker's compensation claims. We assume that non-administrative costs of DV in the workplace are captured elsewhere in our analysis.

Although there are no detailed Australian statistics, US analysis indicates that DV accounts for 5% of female workplace assaults and 1% of male workplace assaults (National Crime Victimization Surveys, 1987–92). Applying these percentages to the 1710 incidents of injury caused by being struck by another person, recorded in the National Data System[25] for 2000–01, an estimate of 46 compensable cases of injury caused by DV in that year is obtained. Given the small estimated number of cases, the estimates of employers' administrative costs on account of DV occurring at work are not explicitly adjusted.

[24] In general the amount of time victims and perpetrators are absent from paid and unpaid work is based on data from the WSS, the US NVAWS, and Section 9.1 on time off by the perpetrator to attend court or be incarcerated.

[25] Note that the WSS ABS did not pick up any cases of domestic violence occurring at work. This tends to confirm that physical DV at the workplace is relatively rare.

[25] Extract from the National Data System for workplace injury and disease, provided by the National Occupational Health and Safety Commission. Note that the NDS does not cover all workers, and is known to under record compensable cases resulting in less than 5 days' absence from work. Adjusting for these two sources of under recording might increase the estimate of work-related injuries caused by domestic violence by around 50%.

[26] The HSE (1999) assume that administrative costs associated with dealing with absences (such as the calculation and payments of benefits, processing of sick leave and extra management time) equates to an average of 30 minutes per day of absence.

6.2.1 Additional Management Costs

Each day a victim or a perpetrator is absent from work (see Section 6.1.2) it is estimated that 30 minutes of management time is lost processing those absent employees.[26] This includes the time of line managers in rearranging work and the time of back-office personnel.

The cost of managers' time is estimated to be $1364 for an average working week of 41.7 hours (ABS 6310.0). The on costs of employment are estimated to be 15.5% of employee earnings (ABS 6348.0.55.001). Consequently the estimated cost of lost management time is estimated to be $14.2 million in 2002–03.

Table 22: Administration Cost of Time Off Work

	DAYS LOST FROM PAID WORK		ADMINISTRATION COST
	VICTIMS	PERPETRATORS	($M)
Women	601,100	800	11.4
Men	110,200	40,000	2.8
Total	711,200	40,800	14.2

All numbers rounded to the nearest hundred.

6.2.2 Search, Hiring and Training Replacements

We assume that lost jobs result from those employed perpetrators who are now incarcerated for offences related to DV, as well as for the obvious loss due to homicide victims of DV . Employee turnover costs are estimated to be equal to the annual salary of the incumbent worker, while staff training and retraining costs are estimated to be equivalent to 2.5 weeks of salary (Access Economics 2004).

However there are some offsetting administrative savings, in that there would otherwise have been some job normal turnover of the victims of DV who died in earlier years and of previously employed perpetrators who spent 2002–03 incarcerated for DV.

Based on employment rates and AWE from ABS 6310.0 and an estimated turnover rate of 15% per annum (which implies that people change jobs, on average, approximately once every 6.7 years (Access Economics 2004), the total cost of search, hiring and training replacements is estimated to be $36.6 million in 2002–03.

Table 23: Turnover Costs in 2002–03

	PEOPLE WHO LOST JOB		ADMINISTRATION COST
	VICTIMS	PERPETRATORS	($M)
Women	–149	15	–4.7
Men	–22	862	40.9
Total	–171	876	36.2

6.3 Long-Term Reduction In Productive Capacity

Avenues through which DV can lead to the long-term reduction in the productive capacity of the labour force include homicide and premature death, long-term absence from employment or reduction in hours of work, and long-term reduction in the productivity per hour worked.

A full economic analysis of the effects of DV on the economy would also examine the long-run situation where the lost productive capacity of the labour force (incurred via the worker or the employer) is passed onto society through adjustments in wages and prices. However this is outside the scope of the report.

An injured worker can:

- re-enter the workforce, at a lower rate of pay (see Figure 9);
- become permanently disabled (see Figure 10); or
- die (see Figure 11).

Figure 9: Moderate Economic Loss—Reduced Rate of Earnings

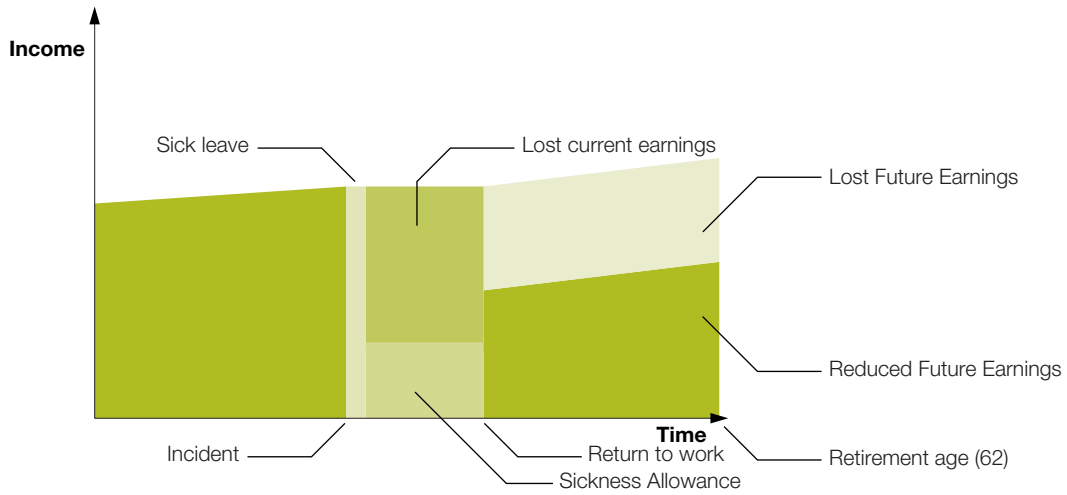


Figure 10: Significant Economic Loss—Permanently Disabled

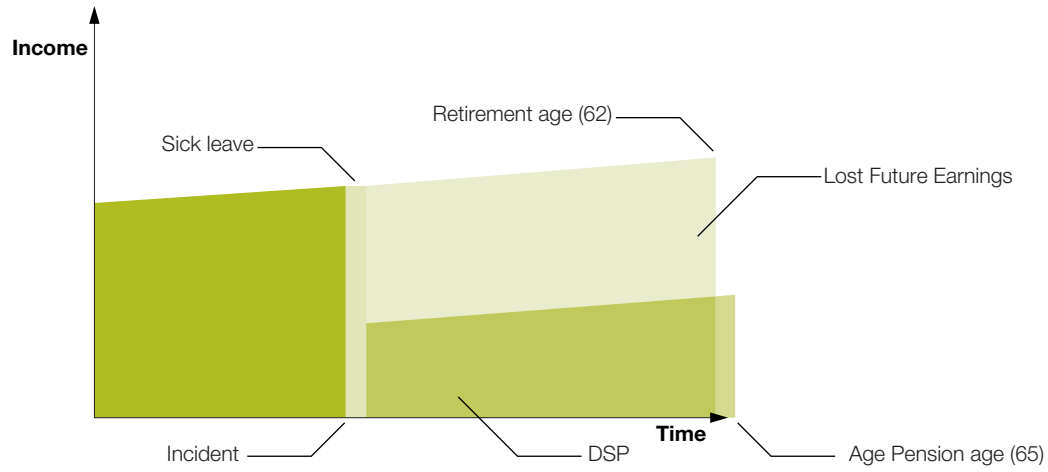
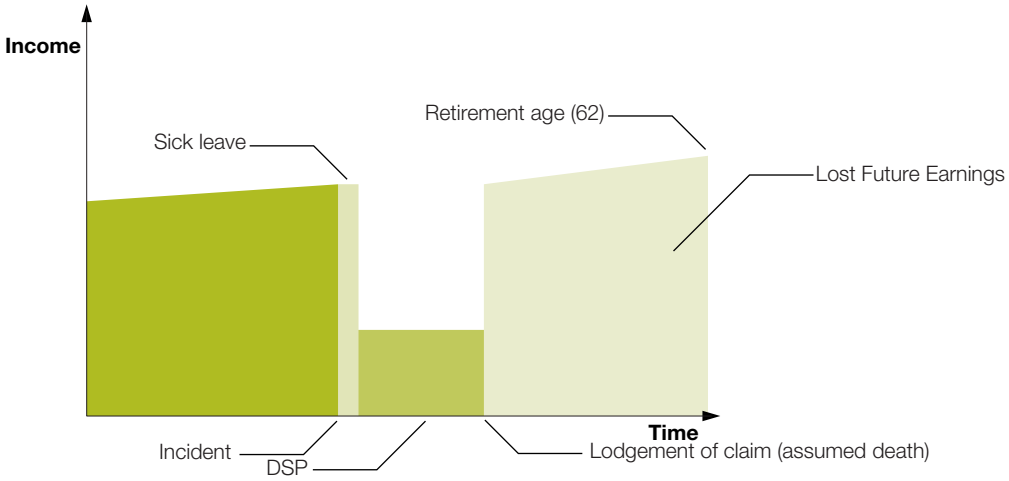


Figure 11: Significant Economic Loss—Death



6.3.1 Homicide and Premature Death Resulting From DV

We estimate the long-term reduction in the productive capacity of the labour force due to homicide and premature death as follows. We distribute deaths across age groups according to the experience of DV in each group. Assuming normal patterns of survival, and that the distribution and prevalence of deaths due to DV has not changed since 1972, the number of victims that would otherwise have been alive in 2002–03 is estimated to be 7,302 persons.

To estimate the value of their lost production, the labour force participation rate of each age group, the average annual salary of each employee (based on ABS 6310.0), and an on cost rate of 15.5% of employee earnings is applied. The estimated reduction in the productive capacity of the labour force due to past homicide and premature death as a result of DV is **$150.3 million in 2002–03.**

Table 24: Cost of Homicide and Premature Death

	TOTAL VICTIMS WHO WOULD BE ALIVE	TOTAL VICTIMS WHO WOULD BE IN LABOUR FORCE	COST TO VICTIMS ($M)	COST TO SOCIETY ($M)	TOTAL COST ($M)
Women	6832	3736	8.5	124.0	132.5
Men	470	334	1.1	16.6	17.8
Total	***7302***	***4070***	***9.7***	***140.6***	***150.3***

6.3.2 Long-Term Reduction in Productive Capacity of DV Victims

This section mainly focuses on the victim (due to the availability of information), however a perpetrator would also experience a decline in skill level while incarcerated and thus would experience a lower level of earnings for a period of time after release, however no quantitative research that could be used to measure this effect was found.

The literature provides mixed messages about the likely impact of DV on victims' long term earnings and labour market participation. Farmer and Tiefenthaler (2004) argue that victims who suffer abuse are likely to earn lower wages or participate less in the labour market. This may reflect the inability to go to work or poorer productivity at work. However, Lloyd (1997) argued that some victims may increase their labour market participation to decrease their economic dependency or avoid the perpetrator. There is also the possibility of reverse causation; victims with a lower capacity for economic self-sufficiency may tolerate abuse for longer periods.

Statistical analysis of the unit record file of the WSS failed to reveal any long term impact of DV on labour force participation, employment or personal income,[28] once account was taken of other influences such as the presence of children in the household. Preliminary analysis of the unit record file of the ALSWH indicated that experience of DV had no impact on the probability of employment or expected earnings in the younger age cohort, but possibly a small impact in the middle aged cohort. Further details of the analysis are in Part II of this report.

Given these findings, no allowance is made for any long term loss of earnings or labour force participation in the base case estimate of costs (apart from the effects of premature death already discussed). The impact of relaxing this assumption is examined in the sensitivity analyses. The issue is worthy of further study as more data becomes available.

6.4 Summary of Production Related Costs

The total cost of lost productivity is estimated to be $483.9 million in 2002–03.

Table 25: Summary of Production Related Costs ($M)

	VICTIMS	PERPET -RATORS	CHILDREN	FAMILY & FRIENDS	EMPLOYERS	SOCIETY	TOTAL
Victim Absenteeism From Paid Work Due To Injury, Emotional Distress Or Attending Court	25.3	–	–	–	106.6	–	131.9
Victim Absenteeism From Paid Work Due To Late To Work Or Leaving Early	–	–	–	–	5.5	–	5.5
Perpetrator Absenteeism From Harassing Victim	–	–	–	–	8.3	–	8.3
Perpetrator Absenteeism From Criminal Justice Processes	–	78.6	–	–	4.0	–	82.6
Perpetrator Absenteeism From Attending Family Court	–	0.1	–	–	0.5	–	0.5
Victim Unable To Perform Household Chores Or Voluntary Work	52.1	–	–	–	–	1.5	53.5
Perpetrator Time Off Perform Household Chores	–	1.0	–	–	–	–	1.0
Lost Management Productivity	–	–	–	–	14.2	–	14.2
Search And Hiring Replacement And Retraining	–	–	–	–	36.2	–	36.2
Homicide And Premature Death	9.7	–	–	–	–	140.6	150.3
Total	***87.1***	***79.7***	***–***	***–***	***175.2***	***142.0***	***483.9***

[28] The personal income variable is poorly specified in the WSS.

6.5 Sensitivity Analysis

If the AWE of victims was 10% lower than the general population, then productivity costs as computed above would be reduced by 9.7%.

Based on the findings from the analysis of the ALSWH, if the AWE of all victims who had ever experienced DV was 5% lower than the general population due to a permanent reduction in productivity of 5% then this would result in a productivity loss of $1,353.0 million ($1,629.4 million in lost wages minus $253.0 million in on-costs not incurred and $23.5 million in productivity savings)[29].

If the proportion of DV incidents as a proportion of all police incident reports increases by 10% then productivity costs increases by 2.5%.

[29] Productivity savings due to 1) a lower level of productivity lost when victim is absent from paid or unpaid work 2) lower search and hiring replacement costs, and 3) lower productivity loss when the victim dies.

7. Consumption Costs

DV reduces opportunities for personal consumption by: (A) diverting spending into meeting short term costs imposed by incidents of DV; and (B) in the longer term reducing the average size of household units, with consequent loss of efficiency in consumption patterns.

7.1 Short-Run Costs

Short-run costs of DV to the household sector include:

- replacement of damaged household items; and
- defaulting on a bad debt.

The information on these costs is quite poor in quality, especially in terms of the costs associated with defaulting on a bad debt. However, by drawing on Henderson (2000b) a rough estimate of the cost of destroyed or damaged property is derived.

According to the WSS, 39.7% of women who experienced violence by a previous partner had property which was damaged or destroyed. Henderson (2000b) estimated that the cost of property losses was $1092.05 per victim (based on KPMG 1994 and 1996 discounted by 50% to take into account that survey participants were more likely to have experienced severe DV). It is estimated that the total cost of damaged or destroyed property is **$243.7 million** and it is assumed that this cost is entirely incurred by the victim.

Table 26: Cost Of Damaged or Destroyed Property, 2002–03

	VICTIMS AFFECTED	TOTAL COST ($M)
Damaged/Destroyed Property	88,586	243.7

7.2 Loss of Economies of Scale in Consumption

Analysis of the unit record file of the WSS suggests that women who have experienced DV in the last 20 years have a 14%–19% lower probability[30] of being married or in a de facto relationship, compared with women who have not experienced DV.

7.2.1 Equivalent Household Disposable Income

The income needed to allow a household to attain a given standard of living rises less than proportionately with the number of people in a household. This reflects:

A. Joint consumption within the household. All members can benefit from a single electric light, or the availability of a piece of household equipment; and
B. Economies of scale in consumption. A large loaf of bread provides more bread per dollar than a small loaf.

The concept is embedded in the structure of social security payments. Pensions for a couple are less than twice the single pension. It is also central to assessments of income distribution and poverty. The concept is made operational through the measure **equivalent household disposable income.** According to the OECD,

> *The key concept for measuring the distribution of income and degree of poverty is equivalent household disposable income per individual. The income of all members of the household is combined and then divided by the square-root of the number of individuals in the household, to allow for differences in household size and for the existence of household "economies of scale" in consumption, i.e. that "needs" do not rise in direct proportion as the number of persons in the household increases. On the assumption that households generally pool income, equivalent household disposable income is attributed to each individual in the household. Thus, children are assumed to benefit equally from household income, even though only the parents usually receive income in their own right. (Oxley et al, 1997 p.61)*

Equivalent household disposable income has found wide application in analyses by the ABS, government departments and researchers, in Australia and in many other countries. We use the concept in this study to estimate the reduction in effective levels of consumption associated with lower propensity of women who have experienced DV to be subsequently living with a partner.

[30] The regression results are shown in Part II. The lower point in the range occurs when the explanatory variable is for experience of all type of DV, the upper point occurs when the explanatory variable is for physical DV. The preferred equation includes 'whether experienced abuse as a child' amongst the explanatory variables. Omission of this variable raises the predicted probability of being without a partner following DV by 1 percentage point.

7.2.2 Economic Cost

We compare (A) total equivalent disposable incomes of persons whose household circumstances are affected by a women's lower propensity to be in a partnered relationship following DV, and (B) the equivalent disposable incomes those people would have had if they had been in partnered relationships. The difference is the loss of economic living standards as a result of the altered household circumstances.

Estimating equivalent household disposable income involves:

- Estimating the number of women and total persons whose relationships differ reflecting the women's past experience of DV.
- Estimating household disposable income in 2002–03, on the basis that the adults involved each received the median level of per capita disposable income. Based on personal income distribution in the 2001 ABS Census, it is assumed that the median disposable income was 69% of the mean disposable income for 2002–03 indicated by the ABS National Accounts.
- Computing personal and total equivalent disposable incomes under the assumptions: the women were in partnerships; and the women were not in partnerships—in this case (reflecting Census data) it is assumed that 39% of persons to be in other types of multi-person households, rather than living as lone adults or lone parents.

As with other estimates of long-run costs of DV, there is concern that the regression based estimate of the impact of DV on a woman's probability of being subsequently in a relationship may be picking up the effects of other omitted explanatory factors, such as health status or substance abuse. The bias may not be as serious as in the case of pain and suffering, since the regression does contain a variable indicating whether the respondent reported experiencing abuse as a child. Nevertheless it seems wise to discount our estimate by 25% before inclusion in the base case.

The resultant estimates (following discounting by 25%) are shown in Table 27. For the base case, the lower of the two estimates, **$2,331 million**, is selected.

Table 27: Loss of Equivalent Household Disposable Income, 2002–03

	DECREASED CHANCE OF BEING WITH A PARTNER OVER NEXT 20 YEARS	VICTIMS AFFECTED	ANNUAL LOSS OF EQUIVALENT DISPOSABL INCOME ($M)
Ever Experienced Physical Domestic Violence	19%	212,800	2,720
Ever Experienced Domestic Violence (any type)	14%	182,300	2,331

7.2.3 Sensitivity Analysis

The estimate of cost of damaged and destroyed property is based on poor quality information. Accordingly a margin of +/– 50% is applied in the sensitivity analysis.

For loss of economies of scale in consumption, as a lower bound, a 50% discount (instead of 25%) to the lower of our regression-based estimates is applied. For the upper bound the higher of the two regression estimates, unadjusted, is used.

Table 28: Consumption Related Costs: Sensitivity Analysis

	BASE CASE	LOW ESTIMATE		HIGH ESTIMATE	
	$M	%	$M	%	$M
Damaged/destroyed property	244	-50%	122	50%	305
Economies of scale in consumption	2,331	-33%	1,554	56%	3,627

8. Second Generation Costs

8.1 Overview

Second generation costs consist of:

- Short term costs of providing protection and other services to children of relationships where there is DV; and
- Longer-run costs as children who witness DV impose costs on society as they grow older. Such costs include those associated with increased juvenile and adult crime, and increased use of government support services.

Consistent with the definition of DV used in this study, the costs relating to direct abuse of the children themselves is excluded.

Note that while there is evidence that children who witness DV grow up to be victims or perpetrators of DV themselves (Indermaur (2001), Smith el al (2000), and Kalmuss (1984)), as this is a prevalence-based methodology these costs have already been implicitly incorporated into the overall costs of DV.

The total, quantifiable, costs of DV in relation to second generation impacts is approximately **$220.3 million in 2002–03**. We stress that this estimate is subject to considerable uncertainty.

Table 29: Summary of Second Generation Costs

SECOND GENERATION COSTS	ANNUAL COST ($M)
Short term Costs	
Child protection services	16.3
Out-of-home care	24.2
Childcare	45.3
Special/Remedial education	1.1
Changing school	7.9
Sub Total	94.8
Longer term Costs	
Increased juvenile crime	41.6
Increased adult crime	83.9
Increased future use of government services	–
Sub Total	125.5
Total Second Generation Costs	***220.3***

8.2 Short-Term Costs

8.2.1 Child Protection Services

Government expenditure on child protection services relates to the cost for the functions of government that receive and assess allegations of child abuse, neglect and harm to children and young people. They refer clients to family support and other relevant services and in some cases intervene to protect children. The cost of placing children away from their parents/carers for protective or other family welfare reasons is separately itemised under out-of-home care. Research suggests that families with a history of DV were over represented in the families that come into contact with the protection and support system (Productivity Commission 2004, p16.2). However, children notified to child protection are also more likely to have been exposed to parental alcoholism and direct child abuse. Children who are exposed to multiple factors are more likely to be in danger. Thus, it is again difficult to estimate the proportion of child protection services which are directly referable to DV alone.

According to state and territory government data reported to the Productivity Commission the total real recurrent expenditure on child protection services in Australia in 2002–03 was $356.17 million. A total of 198,355 notifications of children at risk were made during the year. Direct inquiries to the relevant government agencies have not been able to establish the proportion of child protection services utilised in response to children witnessing DV. In the absence of such data a top-down approach is used, dividing the total expenditure on child protection services by the number of notifications to obtain an average expenditure figure per notification of $1,795.62 for each notification. This is very much an average figure as some notifications would be resolved relatively quickly and at low resource cost. In more serious cases the cost may be higher reflecting the need for a full investigation and application to a court for a protective order.

We assume, in the absence of more concrete data, that 5% of children who witness DV will be notified as potentially at risk to child protective services. This equates to 0.3% of the total population under the age of 18 or 9,062 children.[31] Multiplying the number of children by real recurrent expenditure per notification gives a total annual cost to government is **$16.3 million in 2002–03.** We stress that this is only an indicative estimate of cost.

8.2.2 Out of Home Care Services

A similar top-down approach is used to estimate the cost of out-of-home care services for children as a result of exposure to DV. Total Australian government expenditure on out of home care services in 2002-03 was $542.86 million and as at 30 June 2003 20,362 children were in out-of-home care (Productivity Commission 2004). The average cost per child in care is $26,660. We assume that 0.5% of children who witness DV will be placed in out-of-home care. This is consistent with the observed trend that the number of children in out-of-home care represents 10% of the number of notifications, although it should be noted that these two statistics are unlikely to represent the same cohort due to the time lag between notification and eventual placement in care, and some children may have been in care for more than one year.

Based on these assumptions the minimum annual cost of out-of-home care services due to DV is estimated to be **$24.2 million in 2002–03.**

8.2.3 Childcare

Additional childcare includes centre based long day care, family day care, after school hours care, and occasional care. These services are provided by a mixture of public and private organisations. State government agencies were unable to provide data on the additional usage and associated costs of childcare connected to DV. Henderson (2000b) estimated the cost to be $98.48 per victim[32] per year based on the discounted actual cost to victims reported in NT and Tasmania DV costing studies undertaken by KPMG. This represents a per victim cost of $111.34 in 2002–03 and a total **annual cost of $45.3 million in 2002–03.**

8.2.4 Remedial and Special Education

Henderson (2000b) estimates that remedial or special education costs of children of the victim are $2.47 per victim per year based on the discounted actual cost reported in Blumel's 1993 study of DV in Queensland. We have not been able to obtain more recent data from State government departments.

Inflating Henderson's figures for constant 2002–03 dollars gives an average cost per victim[33] of $2.79 per year. Taking the victim prevalence rates estimated above this would give a total cost of remedial or special education of **$1.1 million in 2002–03.**

8.2.5 Changing Schools

Henderson (2000b) estimates that the average cost incurred per victim[34] per year to change schools is $17.26. This was based on the reported cost in KPMG's studies of the costs of DV in Tasmania and the Northern Territory. No additional

[31] The estimate of the total number of children witnessing domestic violence is based on the WSS, which asked whether children had witnessed the last incident of domestic violence, and an assumption about the average number of children involved. The survey did not ask what proportion of incidents of domestic violence involved the actual abuse of children. Hence we have not made explicit allowance for any overlap.

[32] Averaged over total victims, not just the ones with children.

[33] As above.

[34] As above.

data has been found. Inflated to 2002–03 dollars the average annual cost per victim is $19.51, which equates to a total cost of **$7.9 million in 2002–03.**

8.3 Longer Term Costs

Keatsdale (2003) suggests that longer-term costs of child abuse should include the following categories; mental disability, increased medical service usage, chronic health problems, lost productivity, juvenile delinquency, adult criminality, homelessness, substance abuse and intergenerational transmission of abuse. Given the concerns about possible over-attribution of some health conditions expressed in Section 2.6.3, any possible long-term health-related costs are not investigated here. Instead attention is confined to costs associated with the additional juvenile delinquency and adult criminality associated with children who have witnessed DV.

8.3.1 Increase in Future Crime Outside the Home

Edleson (1999, p.861) reports that:

> *Several authors have reported strong associations between childhood victimization and later adult violent and criminal behaviour. Although no adult studies point to such links among child witnesses, violent adolescents were shown to have been seriously physically abused by a parent and to have witnessed weapons violations between adults in their homes significantly more often than were others. Witnessing adult violence and being abused, independently and in combination, were significantly associated with adolescents' use of violence.*
>
> *Witnessing or experiencing family violence as a child has been associated with delinquency and youth violence (Widom 2001), as well as various forms of violence toward women. Roughly one third of individuals who witness or experience violence as children become violent as adults (Kaufman & Zigler, 1987). White & Smith (2004, p.184)*

A longitudinal study by the United States Department of Justice (Samuels 2001) estimated that being abused or neglected increased the likelihood of arrest as a juvenile by 59%, as an adult by 28%, for a violent crime by 30% and overall by 29%. Maltreated children are also arrested more frequently and commit nearly twice are many offences. Tomison (2000) reports studies of juvenile offenders find between 23 to 70% had witnessed DV, however these studies show associations only, not causal relationships. Another problem with studies based on child protection and arrest records is that a significant amount of (less serious) child maltreatment and crime goes unreported (Stewart et al, 2003).

White and Smith (2004) calculate the attributable risk percentage of adolescent sexual assault. This is the reduction in the percentage of cases of adolescent sexual assault that could be eliminated if childhood victimisation was eliminated. It is calculated according the following formula:

$$\frac{\text{incidence of cases}_{\text{population}} - \text{incidence of cases}_{\text{unexposed}}}{\text{incidence of cases}_{\text{population}}}$$

The calculations suggested 8.7% of reported adolescent perpetration could be accounted for by witnessing DV. This figure needs to be treated with caution, as it involved a very small sub-sample, and does not account for possible interactive or compound effects witnessing DV and other forms of child abuse or neglect.

Keatsdale (2003) used estimates that victims of child abuse were 5% more likely to commit juvenile and 7.5% more likely to commit adult crime. Based on the studies reviewed, by Keatsdale, the increased propensity to commit juvenile crime seems rather low. However, the estimate of the increased propensity to commit adult crime seems better based.

Consistent with the above analysis that only witnessing DV is less disruptive to social development and behaviour than also being abused or criminally neglected, this study should use more conservative estimates than Keatsdale's. We assume (somewhat arbitrarily) that children witnessing DV are 5% more likely to commit juvenile crime and 3% more likely to commit adult crime. Further research is required to establish these proportions more accurately.

8.3.1.1 Juvenile Crime

Studies of the incidence and cost of crime warn how difficult it is to obtain reliable estimates (Mayhew 2003). Many crimes are not reported, and many of the impacts of crime (for example, increased fear of being a victim of crime) cannot be easily costed. Trying to isolate that proportion of crime which is committed by juvenile offenders is even more problematic. In many cases the offender of a crime is unknown. It is known that juveniles (10 to 17 year olds) form a larger proportion of all offenders relative to the age-split in the general population. Hence, dividing estimates of the total cost of crime by the proportion of juveniles in the population would not give an accurate result.

Furthermore, juveniles are much more likely to commit some crimes such as property offences (shoplifting, vandalism, motor vehicle theft) than others. These crimes are typically less costly. If juvenile offenders are apprehended they are commonly subject to different police, court and correctional programs than adult offenders.

Keatsdale (2003) relied on the costs of juvenile crime generated by Potas et al (1990). The study calculated the cost of some types of crime and took the proportion of juvenile offenders in police crime statistics to estimate the cost of crime attributable to juveniles. In this study a similar methodology is used, supplemented with more up-to-date estimates of the cost of crime.[35] Mayhew (2003) has produced updated estimates of the cost of various types of crime. Mayhew estimates the per incident cost including property damage, medical costs, lost productivity and intangible costs. He then estimates the total annual cost of crime based on rates reported to the ABS 4509.0 Crime and Safety Survey. Costs related to administering criminal justice, victim assistance, crime prevention and insurance programs are costed separately using a top-down approach.

The Australian Institute of Criminology (2003) reports on the proportion of alleged offences committed by juveniles. This data is derived from official police statistics for three states—Victoria, Queensland and South Australia. The AIC cautions about relying too heavily on these statistics, but in the absence of better data it is assumed that in the other Australian States and Territories juveniles represent a similar proportion of all alleged offenders. Note also that the AIC does not provide data on the proportion of juvenile offenders involved in criminal damage or arson. In these cases the overall proportion of juvenile to adult offenders of 20% is applied. Combining Mayhew's cost of crime data with the AIC's figures on juvenile offenders the annual cost of juvenile crime is estimated to be $3.14 billion. This may be a conservative estimate as there is insufficient information to attribute a proportion of criminal damage, arson and drug offences to juvenile offenders.

Table 30: Costs of Juvenile Crime in 2002–03

	ESTIMATED ANNUAL COST ($M)	PROPORTION JUVENILE OFFENDERS %	ATTRIBUTABLE COST ($M)
Type of Crime			
Homicide	930	5%	46.50
Assault	1,437	13%	186.81
Sexual assault	234	12%	28.08
Robbery	598	23%	137.54
Motor vehicle theft	884	28%	247.52
Unlawful entry with intent	2,434	27%	657.18
Other theft (includes shoplifting and theft from vehicles)	1,977	30%	593.10
Criminal damage	1,340	20%[(a)]	268.00
Arson	1,350	20%[(a)]	270.00
Criminal Justice Costs			
Juvenile justice	350	100%	350.00
Other criminal justice	4,460	20%[(a)]	892.00
Estimated total cost of juvenile crime			***$3,676.73***

(a) Based on AIC (2003) juvenile offenders represent 20% of all offenders

[35] We have not included Mayhew's estimates of the cost of fraud and drug offences in this analysis. This is because fraud is a unique type of offence with a high cost and low incidence rate, which biases other figures. Drug offences are not included because of the especially tenuous cost data available. We also omit costs of preventing crime, since their inclusion is inconsistent with the methodology adopted in this study.

Our focus is on the excess costs of the juvenile crime committed by those who have witnessed DV, over and above that they would have committed in any case. Assuming that children witnessing DV are 5% more likely to commit juvenile crime, the excess cost of such crime is estimated to be about **$41.6 million in 2002–03**. Such an estimate is subject to a considerable margin of uncertainty.

8.3.1.2 Adult Crime

We adopt a similar methodology to estimate the costs of additional adult crime committed by persons who witnessed DV as children. From Mayhew (2003) and Potas et al (1990), a total annual cost of crime committed by adults of $12,317 million is derived. Assuming that children who witness DV have an excess probability of 3% of subsequently committing crimes as adults, the excess cost of adult crime committed by them is estimated to be about **$83.9 million per annum**. Such an estimate is subject to a considerable margin of uncertainty.

8.3.2 Increased Use of Government Services

Witnessing DV can have long term health impacts, which require those affected to ultimately place more demands on government services. This includes not only physical symptoms, but emotional and mental health can also be affected. For example, women who witnessed marital violence reported significantly more post-traumatic stress disorder symptoms than women who did not witness marital violence (Feerick and Haguaard 1998, p.386). Consequently past children who witnessed DV (regardless of whether they are victims or perpetrators of DV in the future) may currently be suffering adverse future consequences to their health and wellbeing and thus demanding more government services.

Estimating the size of this linkage is complicated by the co-occurrence of other predictors of poor health and the large number of mediating factors which determine the long-term impact on children. Studies which have attempted to isolate the impact of witnessing DV have typically failed to find any statistically significant relationship. For example,

- English, Marshall and Stewart (2003) find no direct relationship between presence of DV and child health or behaviour outcomes. However DV has a measurable and substantial association with caregiver and family functioning, which in turn have a substantial association with child health and behaviour, suggesting that the effects of DV on child behaviour and health are primarily indirect.
- Caetano et al (2003) study the differences in the development of adulthood alcohol-related problems (long term impact) of childhood physical abuse and exposure to parental violence across gender and ethnic groupings. They found higher rates of alcohol problems for those reporting experience of parental violence across all ethnic groups and for both sexes, although most of these were not statistically significant.
- Meta-analysis by Kitzmann et al (2003) found that, on average, 63% of child witnesses were faring more poorly than the average child who had not been exposed to interparental violence. However, studies which controlled for the presence of multiple stressors (i.e. whether the child not only witnessed DV but was directly subject to physical abuse as well) had much smaller impacts. The review also found little evidence that effect sizes were moderated by child gender or age.

For these reasons the increased future use of government services by children who witness DV will not be separately costed in the study.

8.3.3 Sensitivity Analysis

If the number of children per victim experiencing DV decreased by 10% (from 1.3 children per victim to 1.2 children per victim) then total second generation costs would decrease by 8.6% —made up of 4.3% decrease in short-run costs and 11.9% decrease in long-run costs.

9. Administrative and Other Costs

9.1 Legal System Costs

A large proportion of DV incidents are not reported to police: according to the WSS, as many as 79% of physical assaults and 85% of sexual assaults are unreported. It is plausible that other forms of DV such as emotional abuse would have even lower rates of reporting. Notwithstanding these low reporting rates, the measurable costs of reported incidents are quite significant. It is estimated that the annual cost associated with the legal system response to DV is in the order of **$298 million**. The most significant cost in the legal system response is that associated with the incarceration of the perpetrator, with court system costs and private legal costs associated with dealing with the perpetrator also significant.

9.1.1 Incarceration Costs

Incarceration data related specifically to DV is not readily available. Without jurisdictions devoting considerable time and resources to supplement existing datasets, it was necessary to devise an alternative approach to costing DV incarcerations (see Part II). Using reported DV proportions for police incidents or call outs and applying them to seven offence categories for overall incarcerations, the number of DV incarcerations is estimated. Some of these offence types however carry average prison terms longer than 12 months, therefore some costs in 2002–03 are also being borne in relation to previous DV incarcerations. Thus, using the average prison term length for each offence category, the total number of new and existing incarceration days in Australia is estimated to be 1,155,351. Then, by multiplying the number of incarcerated days by the cost of an incarcerated day of $200 (Productivity Commission 2004), a national estimate of DV incarceration of **$231 million** is generated.

9.1.2 Court System Costs—Dealing With The Perpetrator

As was the case with incarcerations, data is not readily available for perpetrators appearing in court for a DV incident (rather than being recorded as appearing for the principal offence). Without separate analysis of each case, its DV nature cannot be determined. Therefore the same procedure as for incarcerations was applied (see Part II) to generate a total number of DV related perpetrators appearing in court in Australia of 26,734.

Then applying the unit cost figure of $530 (Productivity Commission 2004, from Table 6.1) to perpetrators appearing in court generates a national cost estimate of **$14.2 million.**

9.1.3 Private Legal Costs—Perpetrator Defence

The lack of perpetrator data requires that the court perpetrator appearance data calculated above is used to estimate the number of offence appearances (assuming an average appearance across all offence types of 1 day—see Section 6) for the key criminal court charge types. Using these figures, and multiplying through by the typical solicitor daily charge rate (or senior counsel for murder and attempted murder cases -see further detail in Part II) generates a private legal bill for perpetrators of **$31.7 million**.

9.1.4 Police Costs

Reasonably accurate DV call out or incident report data is available in NSW for police services. These data revealed that the total number of DV incidence reports in NSW for 2002 was 27,731. In order to determine the cost of addressing each incident, the Henderson (2000b) unit cost estimate for 'police costs' was applied to the total number of incidents
to arrive at an estimate of total costs for NSW. This estimate was then scaled across other States and Territories (see Part II) on the basis of population weights, to generate a national cost estimate of **$3.5 million.**

9.1.5 Apprehended Violence Orders and Family Court Custody Orders

While for many jurisdictions, providing total AVOs issued was not a difficulty, providing a DV specific breakdown, as against other known persons, was not as straightforward, at least in a relatively short time frame. Using the NSW Bureau of Crime figure for DV AVOs and scaling across other jurisdictions, a total number of AVOs for DV was calculated, 56,262. In order to determine the cost of applying for, considering and issuing each AVOs, the Henderson (2000b) unit cost estimate for 'judicial/court costs' was applied to the total number of AVOs to generate national estimate of costs associated with DV AVOs of **$6.4 million**.

In relation to Family Court Divorce and Custody Orders, the total number of divorces and child orders is taken from the family court (54,032 and 71,498, respectively) and a study (AIFS table 3) on divorce cases is used to generate the proportion of cases that are due to DV. These proportions were used to calculate total legal costs of these actions, assuming a half day use of a solicitor, and half of the cases are paid by legal aid. This generates a total annual cost for family court related matters of **$11 million**.

9.1.6 Coronial Costs

Data on DV specific investigations by coroners was not readily available. Consequently the average cost per potential coronial inquest (Productivity Commission 2004) is applied to the number of DV related deaths outlined earlier in Section 5. Using this approach for 570 DV deaths generates a cost of **$0.1 million**.

9.1.7 Summary

Table 31: Summary Table—Legal System Costs

COST	($M)
Perpetrator Incarceration	231.1
Court System	14.2
Private Legal (Perpetrator)	31.7
Police	3.5
AVOs and Family Court	17.4
Coroner	0.1
TOTAL VALUE	***297.9***

9.1.8 Sensitivity Analysis

Sensitivity analysis has been conducted on the factors influencing the perpetrator incarcerations cost. If the proportion of DV incidents as a proportion of all police incident reports is changed by +/– 10%, the number of incarcerations and court appearances by perpetrators is affected, thus changing perpetrator incarceration, court system, private legal and police costs by 10% and total legal system costs by 9.8%. Changes in DV incident reports also impact on our productivity estimates, and through them, our lost taxes calculations for deadweight losses. See the separate sensitivity analysis under 'Transfers' for these impacts.

9.2 Temporary Accommodation Costs

Accommodation options for DV victims identified in the literature include (Weeks and Oberin 2004 p. 140–143):

A. Stay in the home.
- With the perpetrator and risk more violence, and perhaps death.
- With the perpetrator with a Protection Order
- With the perpetrator having been removed by police
- Alone or with the perpetrator and obtain a referral for assistance or support and safety planning with an outreach worker.
- Alone or with the perpetrator and obtain a referral for assistance from a community health centre, or family service.

B. Go to extended family or friends.

C. Go to other accommodation.
- Move out into housing they purchase or rent privately.
- Crisis accommodation (SAAP),
- Safe houses (in remote areas),
- Back-packers hostels, boarding houses, hotels and motels, other refuges.
- Aboriginal hostels (in remote areas),
- Caravan parks,
- Live in their car, in a tent or humpy, on the street, in a deserted building, in an improvised dwelling, under a bridge, in a park, or in other 'rough accommodation' (ABS 2050.0 Counting the Homeless 2001).
- Police lock-up or sober-up-shelter (Katherine)
- Another house in the camp (Alice Springs town camps).

D. Seek Aboriginal elders' support in shaming or tribal law.

E. Leave the community, perhaps go to another community or inter-state.

F. Obtain priority access and get into public housing.

Many of these accommodation options involve a woman entering a period of 'homelessness' for either a short or long period of time. Specifically "homelessness" is defined as:

- Primary Homelessness—Living in their car, in a tent or humpy, on the street, in a deserted building, in an improvised dwelling, under a bridge, in a park, or in other 'rough accommodation'.
- Secondary Homelessness—Living in emergency or transitional accommodation provided under the SAAP, residing temporarily with other households (friends or family), and staying in boarding houses on a short-term basis (12 weeks or less).
- Tertiary Homelessness—Living in boarding houses on a medium to long-term basis.

Consequently, based on estimates of the total number of homeless people in 2002–03 and the proportion of these people who are there due to DV (see Part II), annually there are estimated to be 94,400 people who are homeless due to DV in 2002–03.

Table 32: Total Homeless Persons Due to Domestic Violence, 2002–03

	BOARDING HOUSE	FRIENDS OR RELATIVES	SAAP	IMPROVISED DWELLINGS	ALL
Single Male under 25	153	2,248	140	23	2,564
Single Male over 25	366	251	210	55	883
Single Female under 25	1,987	7,110	1,514	466	11,076
Single Female over 25	5,707	7,471	6,148	1,654	20,980
Couples	–	–	–	–	–
Family					
Couple	–	–	–	–	–
Male Single Parent	12	77	58	58	204
Female Single Parent	626	1,875	10,534	454	13,489
Children	2,631	12,933	24,663	4,869	45,096
Other	–	–	103	–	–
Total	***11,482***	***31,966***	***43,370***	***7,578***	***94,396***

Table 33: DV Funding For SAAP Services

AGENCY'S PRIMARY TARGET GROUP	SAAP FUNDING ($M)	TOTAL SUPPORT PERIODS	DV SUPPORT PERIODS	DV FUNDING ($M)
Young People	104.4	34,800	3%	2.9
Single Men Only	31.6	33,400	1%	0.3
Single Women Only	10.7	4,400	24%	2.5
Families	18.7	9,000	10%	1.9
Women Escaping DV	81.3	37,500	68%	55.6
Mixed	49.9	52,300	7%	3.7
Total	***296.6***	***171,400***	***22%***	***66.9***

.

The cost of SAAP services is directly calculated via SAAP funding for each agency, and the proportion of support periods due to DV

Of total SAAP funding, the Federal Government contributed 56.4% and the State and Territory Governments contributed the remaining 43.6% (Productivity Commission 2004 p. 15.35). Thus of the SAAP funding that is allocated to victims of DV, $37.7 million was incurred by the Federal Government and $29.2 was incurred by the State and Territory Governments.

However funding for SAAP crisis accommodation is also supplemented by (Weeks and Oberin 2004 p.25):

- Crisis Accommodation Program (CAP)—capital funding for SAAP services under the CSHA,
- Aboriginal and Torres Strait Islander Commission (ATSIC)—in particular Aboriginal Hostels Limited (AHL),
- Transitional Housing Management (THM) in Victoria and some State government funded women-specific services,[36]
- Non-government generalist organisations—fully and partially (34.6% received some funding from NGOs in WESNET survey),
- General community (29.2% received some funding from volunteer fund-raising and donations in WESNET survey).

Assuming the same proportions of DV funding as for SAAP applies to CAP and AHL funding the total cost of temporary accommodation due to DV funded by the government is $82.2 million in 2002–03.

Table 34: Government Funding of Domestic Violence Temporary Accommodation ($M)

	TOTAL FUNDING	DV FUNDING		TOTAL
		FEDERAL	STATE	
Supported Accomodation Assistance Program (SAAP)	296.6	37.7	29.2	66.9
Aboriginal Hostels Limited (AHL)	36.0	8.1	–	8.1
Crisis Accomodation Program (CAP)	32.2	7.3	–	7.3
Total	***364.8***	***53.1***	***29.2***	***82.2***

The costs of temporary accommodation incurred by other parties are estimated by:

- Assuming that the accommodation cost of staying with family and friends (i.e. rent free) and in improvised accommodation (i.e. a car, tent, park, street, or squat) is 0.
- Assuming that safe houses in remote areas are included in homeless people staying with family and friends, and the costs of staying at a police lock-up or sober-up-shelter (Katherine) or another house in the camp (Alice Springs town camps) are very minor.
- Assuming that the victim's contribution to staying in a boarding house, hostel $10 per day incurred by each person who stays in accommodation (ABS 2050.0 p. 25). This results in an estimated total contribution by DV victims of **$5.9 million**.
- As a majority of the services are wholly funded by the government and due to a lack of data on charity contributions made to these organisations (even for the major charities that provide housing assistance, for example the Salvation Army, Anglicare, St Vincent de Paul, and Centrecare, a detailed breakdown of charity contributions to their housing services is not available), charity contributions have not been calculated—thus these estimates are a lower bound on total DV associated temporary accommodation costs.

Total temporary accommodation costs due to DV are estimated to be **$88.1 million in 2002–03.**

[36] Due to a lack of consolidated data in this area this item has not been costed in this study.

Table 35: Summary Of Total Temporary Accommodation Costs ($M), 2002–03

	COST
Federal Government Contribution	53.1
State Government Contribution	29.2
Victim Contribution	5.9
Total	***88.1***

9.3 Other and Administrative Costs

The category of 'other and administrative costs' is a diverse mix of large and small cost items. It captures items ranging from counselling services, to interpreter services, as well as premature funeral costs, perpetrator programs, and carer costs. The total cost of this group amounts to around **$91.2 million** in 2002–03. The most significant cost categories relate to the provision of counselling services and to carer costs following the DV death of a parent.

9.3.1 Counselling Services

Where possible, data from each of the State and Territory Governments was sought in relation to the number or value of counselling services funded specifically for DV related victims. In addition, some of the key Government and Non-Government funded providers of these services were consulted.[37]

In all instances, access to comprehensive data on counselling services provided for DV victims was simply not possible. The major difficulty is determining how much of a more 'generalised' grant or service provision is directly attributable to a 'domestic violence' call or counselling session. Detailed calculations and the methodology to try and circumvent this problem are included in the Part II. Put simply, the best estimate of likely Government funded counselling services based on annual report data on grants has been taken, which generates an annual Government funded component of **$50.2 million** for counselling services only for DV cases.

Non-Government funded data was not available in any form for DV cases. In our consultations with specific service providers, the private donations are effectively subsumed into the pool of funding for all of the many services they provide. What did emerge strongly from these conversations was that for many, it was felt that it were more likely that any grant from Government for family or DV counselling would for the most part fund that activity, with private donations being directed towards other activities of the entity which did not receive direct Government support.

With this in mind, three possible scenarios have been constructed. The first scenario involved funding of DV counselling from the non-Government sector of 5% of the Government contribution, the second at 10%, and a more extreme outlier of 50%. These three possibilities implied a non-Government sector contribution of $2.5 million, **$5 million** and $25 million on top of the $50.2 million Government-sector contribution across the country.

In terms of establishing the degree to which the front line or initial call is taken by volunteer labour time, a data recording problem, noted throughout this section, is again suffered. Instead of presuming that an accurate figure would be possible to establish even with a significant amount of time and resources, it is assumed that the volunteer labour time contribution may constitute 10% of the Government funded contribution. Given the discussions with service providers, it would be difficult to sustain a higher figure (see Part II), but it is possible that even this figure represents an upper bound of the actual value of the volunteer labour contributed. Using this 10% figure, generates an annual volunteer cost of around **$5 million.**

9.3.2 Perpetrator Programs

Readily available data does not exist for the numbers of perpetrators in programs across the country. While there was a comprehensive study of DV perpetrator programs conducted in 1999 on behalf of the Commonwealth Government titled 'Ending Domestic Violence?—Programmes for Perpetrators', subsequent discussions with some providers suggested that this study underestimate both the numbers of programs and participants. The Victorian *No To Violence* organisation provided a listing of 32 providers of such programs in that State alone, and while there is unfortunately no readily accessible dataset on the number of participants in these programs, in Victoria at least, there may be as many as 350 perpetrators in programs in any given week. As a guide, there may be 1,415 individuals in programs per week.[38] Detail on the calculations is in Part II, but assuming the necessary number of facilitators on the average wage gives a cost of **$2.2 million**.

[37] Some of the key provider organisations contacted included: Relationships Australia, No To Violence, Lifeline, Benevolent Society, Barnardos, Anglicare, Centrecare.

[38] This report utilises an estimate of the number of participants in a program on a weekly basis, rather than the Henderson approach which utilises the 1999 study taking the number of participants having completed a program in a given year.

9.3.3 Interpreter Services

Our analysis of the unit record data was able to show the proportion of DV victims who would seek some sort of support from crisis, legal, financial, or police assistance. Together, support for physical or sexual DV may be sought by around 28-29% of victims. Taking this figure—and further assuming that of these victims the proportion who do not speak English, or do not speak it well (ABS Census 2001), is 2.3%—the number of incidents that may require interpreter services is estimated to be 5,183. Using the face to face and telephone interpreter charge rates from the Translating and Interpreting Service, cost of $860 per person is estimated. This generates at total cost of **$4.5 million**.

9.3.4 Funeral Costs

The 'additional' cost of funerals borne by family and friends of DV victims is based on the total number of deaths due to DV of 570. However there are some funeral cost savings that must be taken into account from victims of DV who died in previous years would have died in this year had they not suffered from DV. The BTRE (2000) calculated a weighted average cost of a funeral across all States and Territories, to estimate an Australian total average cost of $3,200 for 1996. Assuming a 2.5% inflation rate (thus an average funeral cost of around $3,804) the total cost of additional funerals is **$1.27 million** in 2002–03.

9.3.5 Imputed Carer Cost and Paid Care

The 'additional' cost of care created as a result of a fatality due to extreme DV, can be met either by paid regular home help, or alternatively by relatives. Utilising the number of DV related deaths, and assuming 35% (Henderson 2000b) had dependent children requiring care, and of these, half the cases had a remaining partner able to care for the children (i.e. not all DV deaths will see the perpetrator in jail), the remainder required care of 10 years on average. Taking an inflated care cost estimate (originally from Henderson 2000b) then gives an annual cost of paid (and imputed) care of **$26.1 million**.

9.3.6 Summary of Other and Administrative

A summary is provided in Table 36.

Table 36: Summary Table—Other and Administrative

COST	PAID BY STATE GOVERNMENTS ($M)	PAID BY COMMUNITY ($M)	PAID BY FAMILY AND FRIENDS ($M)
Counselling			
Government Funded	50.2	–	–
Non-Govt and Volunteer	–	10	–
Perpetrator Programs	2.2	–	–
Interpreter Services	4.5	–	–
Funeral Costs	–	–	1.3
Imputer Carer and Paid Care	–	26.1	–
TOTAL	***56.9***	***36.1***	***1.3***

10. Transfers

Aside from payments made in relation to victim compensation legislation in some jurisdictions, there is no data currently collected which would enable a robust estimate to be generated for transfer payments made as a result of DV. No data on the Commonwealth and State suite of transfer payments (eg. for income and disability, housing and rent, or retraining and study) enable any identification of the circumstances that triggered the 'eligibility' for the transfer payment.

This serious data deficiency creates significant problems in terms of producing a robust estimate for transfers made in relation to DV. An alternative second best approach is necessary, so that at least a reasonable figure on which to base out 'actual' economic cost of such transfers is estimated. After all, transfer payments as such are not a net cost to society, as they represent a shift of consumption power from one group of individuals to another in the community. If the act of taxation did not create distortions and inefficiencies in the economy, then transfers could be made without a net cost to the community.

Our estimates from a cross-sectional analysis of the WSS found that if a woman experienced physical violence in the past 3 years she had a **35.2%** increased chance of receiving some form of government benefits (including family payments)[39] If this increased probability of government support is applied to the standard population reliance in a 2002 Melbourne University study (Y-Ping and Wilkins 2002), the numbers of DV victims potentially requiring support is estimated. Taking the difference between the numbers in our DV population of 420,982 who would ordinarily require support (i.e. the standard reliance) and those who are now more likely to need it (i.e. 35.5% higher probability for each payment type) generates a total induced amount of transfer payments.

10.1 Income Support

The total value of income support transfer payments (including for study or mobility) for our population of DV victims totals around $2.3 billion in 2002–03. The magnitude of the 'induced' value of payments as a result of DV for this same population is **$600 million**. All of these costs are borne by society through explicit Government transfer payments. Detail on each payment type is in Part II.

Table 37: Payments Induced As A Result Of DV, 2002-03

PAYMENT TYPE	AMOUNT PAID TO INDIVIDUALS IN THE DV POPULATION ($M)	PAYMENTS INDUCED AS A RESULT OF DOMESTIC VIOLENCE ($M)
Austudy and Abstudy	79	21
Sickness Allowance	14	4
Mobility Allowance	12	3
Carer Payment	100	26
Carer Allowance	78	20
NewStart	528	138
Rent Assistance	24	6
Disability Support	929	242
Sole Parenting Payment	501	131
Special/Crisis Benefit	33	11
Total	***2,298***	***600***

[39] However, it was not found that experience of any form of domestic violence (physical assault or threat, sexual assault or threat, stalking or emotional abuse from a current or previous partner) in the past 12 months had a statistically significant impact on the probability of the woman receiving government benefits.

10.2 Victim Compensation

Where possible, data from each of the State and Territory Governments was sought in relation to the number or value of compensation payouts to victims of DV crimes. However, in a similar manner to cost breakdowns for incarcerations and offence charges, it was not common for consolidated datasets to exist. However, in NSW in 2002–03, 5,340 claims were paid for a total of $62 million in victim compensation. In the Victim Compensation Tribunal Chairperson's information documents (see Part II), it was indicated that approximately 15% of claim payments were related to DV payouts. Taking this estimate, and appropriately scaling it for other States and Territories, generates a total value of DV related payouts across the country of **$27.7 million**.

10.3 Family and Friends' Financial Support

Henderson (2000b) also estimated that family and friends gave DV victims $13.06 per victim (in 2002–03 dollars) in terms of financial help. In total this results in **$5.3 million** in financial transfers from family and friends.

10.4 Bad Debts

Bad debts incurred by the partner and accrued by the victim, such as overdue bills, personal loans and gambling debts, is another transfer associated with DV. However the data on this cost (KPMG 1994) was considered to be too sparse to be reliable, and consequently this item was not costed.

10.5 Lost Taxes

Victims and perpetrators in paid employment who are out of the workforce temporarily, or permanently due to death, disability or incarceration, will contribute less tax revenue to the Government. This lost value in production was calculated in the earlier Section 6. In terms of allocating these losses to either personal income or company income, only the employer losses as lost company revenue is included, with the remainder allocated as lost personal income in one form or another.

Applying the personal tax rate schedule in 2002–03 produces an average personal tax rate for someone on the average weekly income in that year of 20.2%. The vast majority of company income, while taxed at 30%, roughly 80% is distributed to domestic shareholders (as franked dividends), meaning the 30% tax is rebated, with the income charged at the relevant personal tax rate. Details on the calculations are in Part II. Applying these tax rates generates a total loss of tax revenue of approximately **$90.2 million**.

10.6 Deadweight Loss of Taxation—Payments And Administration

As discussed earlier, transfer payments (Government payments or services and victim compensation) as such are not a net cost to society, as they represent a shift of consumption power from one group of individuals to another in the community. If the act of taxation did not create distortions and inefficiencies in the economy, then transfers could be made without a net cost to the community. However taxation does impose a deadweight loss on the economy.

The deadweight loss of taxation represents the loss of consumer and producer surplus, as a result of the imposition of a distortion to the equilibrium (society preferred) level of output and prices. Taxes alter the price and quantity of goods sold compared to what they would be if the market were not distorted, and thus lead to some diminution in the value of trade between buyers and sellers that would otherwise be enjoyed. In a practical sense, this distortion reveals itself a loss of efficiency in the economy, which means that raising $100 dollars of revenue requires consumers and producers to give up more than $100 of value.

For the purposes of this report, a deadweight loss of 27.5% of each extra tax dollar that is required to be collected is used—the Industry Commission used this estimate in its recent report on the pharmaceuticals industry following an extensive review of the literature (Productivity Commission 2003 p.6.15–6.16). To this 1.25% for ATO administration is added (see Part II appendix for further discussion).

The total extra tax dollars required to be collected include:

- the calculation for the loss of income tax victims, perpetrators and employers;
- the additional induced social welfare payments required to be paid; and
- the value of victim compensation payments and other Government services provided (eg legal system response, counselling etc).

The total deadweight losses (i.e. total cost of transfers to society) are thus **$410 million**.

Table 38: Deadweight Loss ($M)

PAYMENT OR TAX LOSS	($M)
Induced Government Payments	600
Government Services	707
Victim Compensation	28
Lost Tax Revenue	90
TOTAL VALUE	***1,425***
DWL of (28.75)[40]	***410***

10.7 Sensitivity Analysis

Sensitivity analysis has been conducted on the factors influencing the Induced Government payments cost item (note that the Government Services item is dominated by incarceration costs, which have already been subject to sensitivity testing). The Induced Government payments item is determined largely by the 35.5% increased probability of DV victims utilising transfer payments. If this estimate is reduced by one standard deviation to 27.9%, then the estimate of induced payments falls by around 21%, which lowers the DWL estimate by around 8.7%.

Furthermore the estimate of lost tax revenue changes by around +/– 9.6% due to a change in AWE of +/– 10%, resulting in a change in the total DWL by around 0.6%. The flow through to lost taxes as a result of our changes to incarceration and other legal costs has a negligible impact on our DWL estimate.

[40] 27.5 per cent plus 1.25 per cent.

11. Summary of Annual Costs

11.1 Summary of Annual Costs

The total annual cost of DV in Australia in 2002–03 is estimated to be **$8.1 billion**. This estimate is considerably larger than that found in a previous national study (Henderson 2000), which estimated a total economic cost of around $1.6 billion (after adjustment to remove the gross value of transfer payments).[41]

An important difference between the two studies is our inclusion of an estimate of the dollar impact of pain, suffering and premature death. The measurement of these costs is only possible through our use of the relatively new health economics technique (founded on the discipline of burden of disease analysis). This technique attempts to apportion health and suffering costs to individuals as well as to measure the loss of healthy life years.

As an indication, of the $8.1 billion dollar impact of DV, as much as **$3.5 billion** is captured in our estimate of pain, suffering and premature death. This is large because suffering and pain are long lived impacts, and death obviously so.

The only other cost that approaches the magnitude of the cost of pain, suffering and premature death, is the reduction in potential living standards due to loss of economies of scale in household consumption (at $2.3 billion). This reflects a long term, seemingly robust tendency for women who have experienced DV to be less likely subsequently to be living in a partner relationship.

Compared to these pervasive long-run impacts, costs of the legal system or a short-term absence from work tend to pale in comparison (at least in dollar terms).

The next largest cost is that relating to the costs of lost productivity at $484 million. The lost productivity due to DV comes from a few key sources, namely lost production from absent victims and perpetrators (from injury and time associated with the legal system response), as well as employer losses due to higher costs such as in managing the absenteeism, and direct worker hiring and retraining costs.

The ‘administrative and other’ category is also relatively large at $480 million of which nearly one half is due to costs associated with the incarceration of DV.

Loss of economic efficiency associated with transfer payments is estimated to be $410 million. Some studies have previously included the total value of transfer payments to affected individuals. We do not support that approach as transfers merely represent a shift of consumption power from one group of individuals to another in the community. The cost of doing this is the act of taxation which facilitates the redistribution. Taxation has an efficiency consequence for the economy, and to the extent that DV induces additional welfare support and Government services beyond what would otherwise occur, the actual cost is the efficiency loss due to the collection of that additional revenue.

Health system costs of around $388 million are made up of direct costs associated with the provision of services in hospitals or other medical services, as well as pharmaceutical and other treatment costs.

The final category, second generational costs associated with children witnessing DV are relatively low at $220 million. Given that direct child abuse has been excluded in this analysis, the figure is quite high and demonstrates the trauma and long-term negative consequences of this crime.

[41] Henderson notes that her estimate is a cost of domestic violence to employers rather than a total economic cost. The method by which we have calculated individual cost items (excluding pain & suffering and premature mortality) is broadly consistent with her methodology; however we have apportioned some of the costs of domestic violence to different affected groups. Consequently comparison of the total cost is still justified.

Figure 12: Annual Cost of Domestic Violence by Category

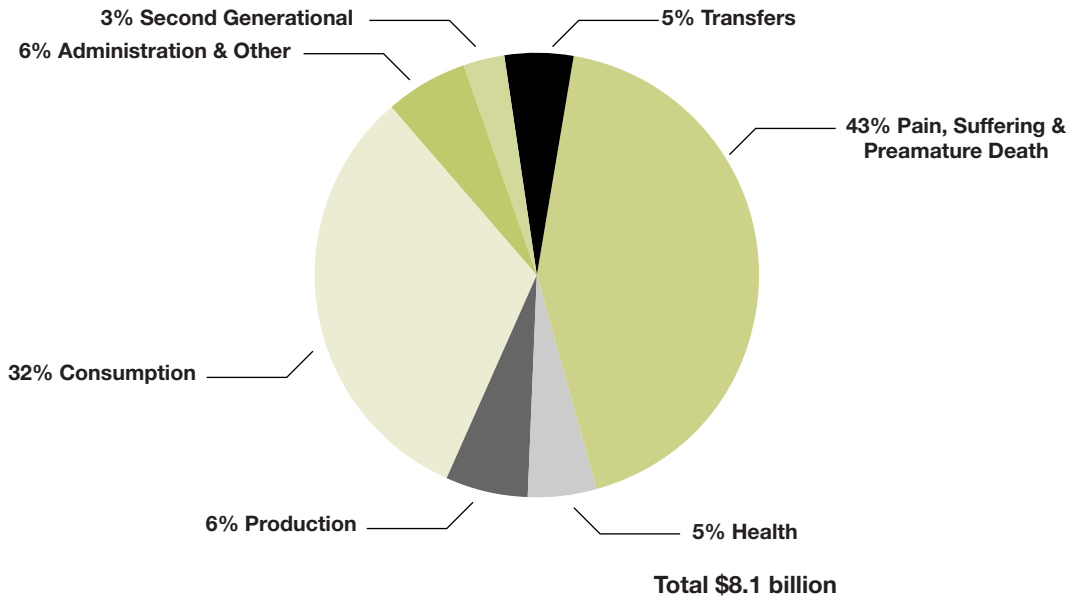
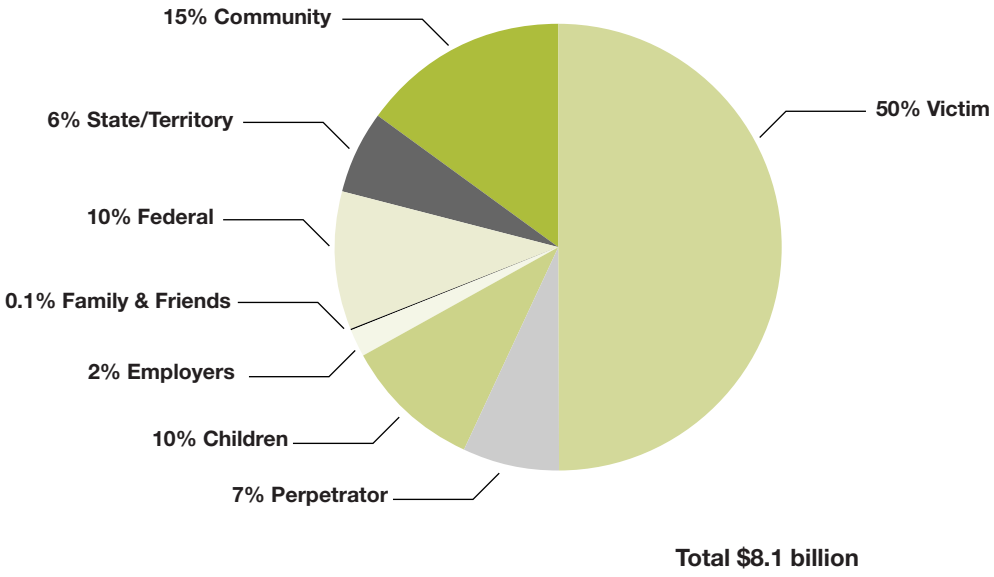


Figure 13: Annual Cost of Domestic Violence by Affected Group



11.2 Sensitivity Analysis

While conservative assumptions have been used, almost every parameter is surrounded by some margin of error. Performing a sensitivity analysis on *every* parameter would have involved expending considerable effort for very little benefit (varying many of the parameters would have a negligible impact on the total cost). Consequently the sensitivity analysis focuses on a range of variables considered to be *significant* in this study (see the end of each section for a more detailed analysis).

The choice of parameters reflects ***either*** their potential impact on an important individual cost category (for example parameters specific to pain and suffering costs and consumption costs), ***or*** their pervasive impact on a number of cost categories (for example AWE or the proportion of domestic violence incidents as a proportion of all police incident reports).

It was found that the **VSL** and the **degree of discounting** of pain and suffering costs have a very large impact on the annual cost. This is unsurprising since this cost category makes up over 40% of the total costs and any change in the related variables would therefore have a significant impact on the overall cost, especially since the error margins around these variables are also quite large.

In comparison, all the other parameters considered have a much lower impact on the overall total cost of domestic violence. Two reasons for the lower impact are: the costs on which these variables impact are not as large as those of pain and suffering; and the error margins around these variables are not considered to be as large.

Another reason for the lower impact is that in some cases changing the variables have offsetting effects on each of the cost categories. For example, decreasing the AWE decreases production costs (for example, a less productive worker being absent from work costs the economy less than a more productive worker being absent) and the deadweight loss (less taxes are being lost) but increases the costs of pain and suffering (as we have taken an average VSL every victim's life is valued at the same rate regardless of their productive capacity—consequently netting out a lower loss in wages increases the net cost of pain and suffering).

Table 39: Summary of Sensitivity Analysis

VARIABLE	IMPACT ON TOTAL ANNUAL COST	
	%	$M
Pain and Suffering Costs		
Low Case	–23.3%	–1,881
High Case	95.2%	7,689
OTHER VARIABLES		
10% decrease in AWE for Victims of DV in the past 12 months.	–0.4%	–32
10% increase in the Proportion of Domestic Violence Incidents as a Proportion of all Police Incident Reports	0.2%	18
50% Reduction in Cost of Replacing Damaged Property	–1.5%	–122
1 Standard Deviation Decrease in Victims not having a Partner	–9.6%	–777
10% Decrease in Number of Children per Victim	–2.7%	–221
1 Standard Deviation Decrease in Proportion of Victims Drawing on Government Benefits	–0.4%	–36

Table 40: Summary of Sensitivity Analysis—Excluding Pain/Suffering

VARIABLE	IMPACT ON TOTAL ANNUAL COST (EXCLUDING PAIN/SUFFERING)	
	%	$M
10% decrease in AWE for Victims of DV in the past 12 months.	–1.1%	–49
10% increase in the Proportion of Domestic Violence Incidents as a Proportion of all Police Incident Reports	0.6%	25
50% Reduction in Cost of Replacing Damaged Property	–2.7%	–122
1 Standard Deviation Decrease in Victims not having a Partner	–17.0%	–777
10% Decrease in Number of Children per Victim	–4.9%	–221
1 Standard Deviation Decrease in Proportion of Victims Drawing on Government Benefits	–0.8%	–36

Table 41: Summary Table of Costs by Category and Affected Group ($M)

	SUFFERING & PREMATURE DEATH	HEALTH	PRODUC-TION	CONSUMP-TION	ADMINIST-RATION & OTHER	SECOND GENERA-TIONAL	TRANSFER	TOTAL	TOTAL (EXCLUD-ING PAIN/ SUFFERING)
Victim	3,349	76	87	1,107	9	53	–633	**4,048**	699
Perpetrator	7	2	80	432	34	–	–	**555**	548
Children	165	–	–	604	–	–	–	**769**	604
Employers	–	–	175	–	–	–	–	**175**	175
Family/Friends	–	–	–	–	1	–	5	**7**	7
Federal	–	189	–	–	59	–	600	**848**	848
State/Territory	–	77	–	–	341	42	28	**487**	487
Community	–	45	142	432	36	125	410	**1,190**	1,190
TOTAL	***3,521***	***388***	***484***	***2,575***	***480***	***220***	***410***	***8,078***	***4,557***

We stress that a considerable margin of uncertainty surrounds our estimates. Many of the cells are based on limited data and on parameter estimates that reflect a large element of judgement.

12. Estimating Lifetime Costs

As discussed in Section 2.5, there are various possible ways to measure lifetime costs associated with DV. Our chosen approach reflects constraints imposed by the data, particularly the approach to measurement of annual costs of pain and suffering. Essentially, a measure of the average net present value per victim of current and future costs associated with the experience of DV up to the base year is sought. Consequently it is assumed that:

- short-term costs are confined to the base year; and
- longer term costs continue over the lesser of the appropriate time interval, or until the victim reaches (her) expected life span.

Future costs are discounted back to the present using discount rates, as discussed in Section 4.1.

12.1 Suffering and Premature Death

Estimation of lifetime costs per victim is based on the annual costings. The approach adopted involves a number of steps, starting with the gross cost of suffering.

- For gross suffering, the annual cost per person is divided between age groups based on the share of YLLs and YLDs by age.
- The life expectancy of each group is calculated, bearing in mind the premature death of the people in the YLL groups.
- The years to death is then also calculated, as the difference between the life expectancy at each age range and the midpoint of that range.
- The net present value for each age group is then derived by discounting the average net suffering cost (using a discount rate of 3.3%) over the number of years till death.
- The sum of these net present values then provides the average lifetime cost, which has taken into account the age distribution and premature death of the population experiencing DV.

Overall the expected gross cost of suffering over the lifetime per victim is $187,500, of which $174,880 is incurred by the victim, $4,411 is incurred by the perpetrator, and $8,209 is incurred by children.[42]

Table 42: Gross Lifetime Pain and Suffering Costs ($)

	VICTIM	PERPETRATOR	CHILD	TOTAL PER VICTIM
YLL	34,623	873	1,625	37,122
YLD	140,256	3,538	6,584	150,378
Total	***174,880***	***4,411***	***8,209***	***187,500***

It should be noted that this methodology results in larger estimates than would be generated by a strict application of the incidence approach, since we are also including some projected costs of future violence. Consequently these costs should be considered as an *indication* of costs per victim only.

12.2 Health Costs

For health impacts, there is not the need to use the different discount rates and VSL in the above scenario analysis, but the age-sensitive discounting process is still necessary to accurately estimate the expected net present value of the average health costs per victim over a lifetime. The results are:

- $3,827 for the health costs associated with premature death;
- $15,503 for the health costs associated with disability; and
- $19,330 altogether in health costs over a lifetime.

[42] Note that this is on a per victim basis not a per child basis.

Table 43: Lifetime Health Costs ($)

	VICTIM	PERPETRATOR	SOCIETY	TOTAL PER VICTIM
YLL	747	18	3,062	3,827
YLD	3,027	72	12,404	15,503
Total	***3,774***	***90***	***15,466***	***19,330***

12.3 Production Related Costs

In order to calculate the productivity costs over the lifetime the different types of productivity costs are separated into short-term and long-term costs. Those which are considered to be short-term costs are assumed to occur only in the first year (and thus do not cumulate). This gives a total short term productivity cost of $538 per victim.

Table 44: Lifetime Temporary Productivity Costs ($)

	VICTIMS	PERPETRATORS	EMPLOYERS	SOCIETY	TOTAL
Emotional Distress Or Attending Court	62	–	261	–	323
Work Or Leaving Early	–	–	13	–	13
Perpetrator Absenteeism From Harassing Victim	–	–	20	–	20
Processes (excluding incarceration)	–	2	10	–	11
Perpetrator Absenteeism From Attending Family Court	–	0	1	–	1
Voluntary Work	128	–	–	4	131
Perpetrator Time Off Perform Household Chores	–	2	–	–	2
Lost Management Productivity	–	–	35	–	35
Total per Victim	***190***	***4***	***341***	***4***	***538***

The long-term productivity costs (namely costs from incarceration, homicide and premature death, and search and hiring replacement and retraining) are calculated by assuming that the cohort of prematurely dead in the base year dwindles as each member of it reaches their expected life span. The discount rate applied to their lost production allows for projected productivity growth in the economy. Overall the long-term costs are $2,264 per victim.

Table 45: Lifetime Long-Term Productivity Costs ($)

	VICTIMS	PERPETRATORS	EMPLOYERS	SOCIETY	TOTAL
Perpetrator Absenteeism From Incarceration	–	1,653	–	–	1,653
Lost Productivity From Homicide And Premature Death	604	–	–	–	604
Search and Hiring Replacement and Retraining	–	–	6	–	6
Total per Victim	***604***	***1,653***	***6***	***–***	***2,264***

12.4 Second Generation Costs

In order to calculate the second generation costs over the lifetime the different types of second generation costs are separated into short-term and long-term costs.

Those which are considered to be short-term costs are assumed to occur only in the first year (and thus are not discounted) (see Table 29). Overall the expected short-term costs are $232 per victim.

Long term second generation costs include juvenile crime and adult crime. The ages of children witnessing DV are assumed to be the same as the age distribution in the population. It is assumed that 5% of each of these children go on to commit juvenile crime between the age of 10 and 16 and that the annual cost of the crime is equal to the expected cost per juvenile offender[43] ($6,900). Discounting to take into account the average rate of death, the average cost of juvenile crime, over the 16 years when the youngest child to observe DV is no longer a juvenile, is $19 per victim.

Using a similar methodology over a further 60 years (life expectancy at age 17) (ABS 3302.0) the expected cost of adult crime is $1 per victim.

Table 46: Lifetime Second Generation Costs ($)

	VICTIM	STATE	COMMUNITY	TOTAL PER VICTIM
Short-term	130	102	–	232
Long-term	–	–	20	20
Total per Victim	***130***		***20***	***253***

12.5 Consumption Costs

Short-term consumption cost is limited to the replacement of damaged or destroyed property. Overall the short-term costs are $597 per victim.

The long-term consumption cost is the loss of economies of scale in household consumption. We estimate the long term costs by estimating the cost per victim in 2002–03 and assuming that these costs (on the basis of the econometric analysis) last for the earlier of 20 years or expected death of the victims (and perpetrators), and discounting by 3.3%. We apply a further discount of 50% to the children's component of these costs, to allow roughly for the fact that they grow up and form their own households within the 20 year period. On this basis, the projected long-term costs are $10,104 per victim.

[43] Based on 3,003 offenders per 10,000 children between the ages of 10 and 16.

Table 47: Lifetime Long-Term Consumption Costs ($)

	VICTIMS	PERPETRATORS	CHILDREN	COMMUNITY	TOTAL
Long-Term Consumption Costs	***4,300***	***2,150***	***1,505***	***2,150***	***10,104***

12.6 Administration and Other Costs

In order to calculate the administration and other costs over the lifetime the different types of second generation costs are separated into short-term and long-term costs.

Those which are considered to be short-term costs are assumed to be incurred in the first year (and thus are not discounted). Overall the short-term costs are $544 per victim.

Table 48: Lifetime Short-Term Administration and Other Costs ($)

SHORT TERM COSTS	VICTIMS	PERPETRATORS	FEDERAL	STATE	COMMUNITY	TOTAL
Court system costs	–	–	–	35	–	35
Police	–	–	–	9	–	9
Coroner	–	–	–	0	–	0
Private legal-Perpetrator	–	78	–	–	–	78
Apprehended Violence Orders	–	–	–	16	–	16
Family Court Custody Orders	7	7	13	–	–	27
Crisis Accomodation	14	–	130	72	–	216
Counselling	–	–	–	123	25	148
Perpetrator Programs	–	–	–	5	–	5
Interpreter	–	–	–	11	–	11
Total per Victim	***21***	***84***	***144***	***270***	***25***	***544***

Long-term costs include incarceration costs, funeral costs, and imputed carer cost and paid care.

Long-term incarceration costs are calculated using a similar methodology to productivity costs due to incarceration (see Part II). The long-term cost from incarceration is $4,216 per victim.

As everyone dies, the lifetime funeral cost is the cost of a funeral prematurely brought forward to the present. Therefore funeral costs are calculated using a similar methodology to productivity costs due to homicide and premature death (see Part II). The long-term cost from funerals is $3 per victim.

Long-term carer costs are estimated by multiplying the number of premature deaths that require carer services by the carer cost per year discounted over 10 years. The long-term cost from carers is $58 per victim.

Overall the long-term costs are $4,277 per victim.

Table 49: Lifetime Long-Term Administration and Other Costs ($)

LONG TERM COSTS	FRIENDS AND FAMILY	STATE	TOTAL
Incarceration Costs	–	4,216	4,216
Funeral Costs	3	–	3
Carer Costs	–	58	58
Total per Victim	***3***	***4,274***	***4,277***

12.7 Transfer Costs

In order to calculate the transfer costs over the lifetime the different types of transfer costs are separated into short-term and long-term costs.

The short-term costs are victim compensation and financial help from family and friends. It is assumed that these cost occur in the first year and overall the short-term transfer is $68 per victim in victim compensation and $13 in financial help from family and friends.

The long-term costs are transfers, taxes and dead weight loss.

The number of victims of physical violence in the past 12 months induces $319.0 million per year for 3 years—thus resulting in an overall transfer of $2,211 per victim.

Based on the productivity losses as calculated in Section 12.3 the total lost taxes are $546 per victim.

By applying the DWL rate of 28.75 to total costs incurred by government, induced transfers and lost taxes results in a DWL of $5,975 per victim.

12.8 Summary

Health costs and productivity costs per victim must first be netted out of the gross costs of suffering and premature death per victim before total lifetime costs per victim may be calculated.

Table 50: Net Lifetime Pain and Suffering Costs ($)

	VICTIM	PERPETRATOR	CHILD	TOTAL PER VICTIM
Total	***170,312***	***2,664***	***8,209***	***181,184***

The total lifetime costs of DV are estimated to be around **$224,470 per victim** which is once again dominated by pain and suffering costs incurred by the victim (see Table 51). In comparison the annual cost, as calculated in the Section 11, per victim who has ever suffered DV is $4,570. However it should be noted that these costs are not directly comparable as the former examines costs looking forward (the economic cost of DV that occurred in 2002–03) where as the latter examines costs looking backward (the economic cost in terms of the situation if DV never occurred).

Once again it should be noted that there is considerable uncertainty around these estimates (particularly the pain and suffering costs). Furthermore, while we have included the estimated cost of loss of future lifetime earnings due to homicide and premature mortality we have not included any estimate of the loss of future lifetime earnings while alive—either due to being less productive at work or less likely to be employed—due to a lack of significant findings in this area.

Table 51: Total Lifetime Costs Per Victim ($)

	SUFFERING & PREMATURE DEATH	HEALTH	PRODUC-TION	CONSUMP-TION	ADMINIST-RATION & OTHER	SECOND GENERA-TIONAL	TRANSFERS	TOTAL	TOTAL (EXCLUD-ING PAIN/ SUFFERING)
Victim	170,312	3,774	794	4,300	21	130	–2,292	**177,039**	6,727
Perpetrator	2,664	90	1,658	2,150	84	–	–	**6,645**	3,981
Children	8,209	–	–	1,505	–	–	–	**9,714**	1,505
Employers	–	–	347	–	–	–	–	**347**	347
Family/Friends	–	–	–	–	3	–	13	**16**	16
Federal	–	9,422	–	–	144	–	2,211	**11,777**	11,777
State/Territory	–	3,814	–	–	4,544	102	68	**8,528**	8,528
Community	–	2,229	4	2,150	25	20	5,975	**10,403**	10,403
TOTAL	***181,184***	***19,330***	***2,802***	***10,104***	***4,821***	***253***	***5,975***	***224,469***	***43,285***

We stress that a considerable margin of uncertainty surrounds our estimates. Many of the cells are based on limited data and on parameter estimates that reflect a large element of judgement.

13. Where to now?

Domestic violence (DV) is a major social issue and, as this report has indicated, is associated with substantial costs and burdens across many sectors of the Australian economy, which are only now beginning to be fully recognised. The impacts of DV can be severe and persistent, as well as all too common. Pathways for intervention can be complex, as DV is highly correlated with other social issues such as substance abuse, lower socio-economic status, and mental health issues.

This report has assisted in progressing knowledge to inform relevant policy development and implementation of cost-effective interventions in a number of ways.

- It identifies some of the key issues in considering how costs associated with DV are measured.
- It provides a schematic representation of costs that is useful in systematically considering the nature of costs associated with DV and who bears them.

This, in turn, avoids double counting and maximises opportunities to comprehensively consider the full impacts of DV.

- It provides new, more up-to-date and enhanced methodologies and discussion of issues associated with measurement of the various cost elements.
- It uncovers the 'base of the iceberg'—the enormous and often hidden burden of suffering and premature death associated with DV, and highlights the extended secondary health impacts.
- It identifies a previously overlooked and potentially substantial cost associated with DV, namely: loss of household economies of scale reflecting the role of DV in fragmenting family units.
- It adopts a conservative approach, so estimates can be considered to be reliable figures for 'at least' what the costs will be.

However, there is still a long way to go. In undertaking the analysis for this project, in a number of areas, numerous arbitrary assumptions due to the paucity of robust data and analysis, and the small-scale, dated or non-Australian nature of previous research, have been made. As a result the findings are very cautious. There is an urgent need to enhance our understanding of the pathways and impacts of DV in order to improve not only our costings, but the effectiveness of policy interventions and preventive programs.

Outlined below are areas that have been uncovered during the analysis that would benefit from further investigation—focussing on, in particular, the areas where there are likely to be the most substantial gains.

13.1 Surveys are a Key Data Source

Surveys are a key data source and need to be well designed and adequately resourced.

- Measuring many of the economic costs associated with DV requires estimates of socio-economic outcomes and their costs in a period of time (e.g. a year), rather than on a 'per incident' basis. We are also interested in the total impacts in the year of the victim's cumulative experience of DV up till that point.
- For some purposes, it is appropriate to use a broad definition of DV. However, a narrower definition (e.g. physical violence) may provide more robust linkages between experience and outcomes, particularly in self-reported surveys. The resultant estimates of cost may be larger than those generated by a narrower definition.
- Surveys are a key source of information on longer-term impacts of DV, whose costs can outweigh those of shorter-term impacts. This means there is a need to collect: accurate information on respondents' time profile of past experience of DV; and comprehensive information on respondents' current socio-economic situation.
- As discussed below, DV is associated with a number of other personal facets and socio-cultural features that make it difficult to establish unambiguous causal pathways. A survey of DV experience will be much more useful if it also collects information about respondents' experience of or association with:
  - child abuse and stressful life experiences;
  - mental and physical health;
  - substance abuse;
  - financial stresses or problem gambling.
- Longitudinal surveys such as the ALSWH are a potentially powerful source of insights. However, they would be even more useful if questionnaires were designed with the possible application to costing of DV in mind.

More generally,

- Development and adoption of standard definitions, terminology and survey collection methods would be desirable, particularly with a view to methods to minimise under-reporting and to increase sample size (and scope e.g. ages) and sampling frequency or follow-up.
  - A purpose-designed Australian Survey of Intimate Partner Violence and Child Abuse and Associated Conditions (ASIPVCAAC) may well be warranted.
  - Alternatively, attention could be paid to improving the design and coverage of existing surveys. In depth follow-up questioning of the minority of respondents identified as DV victims could well be a cost-effective approach.

- There is almost a complete lack of Australian data on domestic violence against men, and on same-sex domestic violence and its impacts.
- There is a lack of data on impacts on children, and on the relationship between children as witnesses of IPV and as victims of child abuse.

13.2 Administrative Data are an Important Source of Information

Administrative data are important, particularly as a source of information on short-term costs of DV.

- There is a need to identify more clearly spending from government programs that aims to remedy problems arising from DV. At present it is often hidden in larger aggregates.
- There is dearth of data on costs attributable to DV, funded by non-government sources or through volunteer effort.

13.3 Detailed Micro-Data are Also Essential

Population surveys, such as the WSS could be an important source of broad brush information on private costs associated with short-run impacts of DV. However, they need to be supplemented with case studies of smaller groups, to provide more detailed information and to verify the estimates coming from larger scale surveys.

- Many of the case studies available to Henderson (2000) and ourselves are dated, small, and possibly unrepresentative of the wider experience of DV victims and their associates.

13.4 Attributable Fractions and Related Issues

Perhaps the most sizeable elements of the cost profile for DV are the burden of suffering and premature death, and the associated direct health costs, both of which are derived from recent collaborative research to determine estimates for the proportions of various health impacts—deaths, mental illness, substance abuse impacts and so on—that can be said to be 'caused by' ('attributable to') DV.

However, these research findings are preliminary, and there is a need in the interests of evidence-based medicine to be able to replicate the results—particularly multiple regression results that permit an ability to control for a larger number of factors that may currently still not be fully accounted for.

For example, as discussed in the report, the possibility that correlation between DV and another factor (say, depression) may both be due to a third (unidentified) factor—such as a previous life circumstance, or that the causality may be two-way. These various impacts need to be disentangled in order to generate more robust fractions that would be generally accepted among the broader health community. Such analysis would, in turn, require sound epidemiological source data. Ideally, a number of similar international evidence should also be available to support the attributable fractions so derived. There is still a long way to go in this area to refine estimates of these potentially very large and important costs.

Similarly, in relation to the second generation impacts, longitudinal analysis is required in order to disentangle risk factors, predisposition and causal relationships that link early events to later outcomes in a systematic way, controlling for a variety of potentially bio-physiological and environmental factors.

- Data from the ALSWH, ABS and, potentially ASIPVCAAC, needs to be assimilated and analysed in a comprehensive way by a dedicated research team for DV, perhaps in collaboration with an international task force, to generate solid research for longer term planning.

13.5 Broader Research and Other Issues

Issues raised by stakeholders for further work included:

- the desirability of broadening the definition of DV to include
  - extended family violence and associated costs—particularly amongst indigenous families; and
  - impact of child abuse
- the importance of identifying and quantifying the substantial unique costs associated with DV in indigenous families and non-English speaking families, and
- the importance of including costs associated with volunteers and non-government organisations.

Further data gathering and targeted case studies could address these issues.

According to economic theory, interventions should be implemented until the marginal cost of the intervention equates with the marginal benefit derived.

- This report stops short of estimating the costs of preventing and intervening to reduce DV—and these would be useful to compare with the costs of its impacts.

Access Economics

References

Access Economics (2003) *Exceptional returns: the value of investing in health R&D in Australia*, Prepared for the Australian Society for Medical Research, September.

Access Economics (2004) *Costs of workplace illness and injury to the Australian economy: Reviewing the estimation methodology and estimates of the level and distribution of costs*, Report to the National Occupational Health and Safety Organisation, March

Australian Bureau of Statistics (2001) *Basic Community Profile, Census of Population and Housing*, Cat. No. 2001.0.

Australian Bureau of Statistics (2001) *Expanded Community Profile, Census of Population and Housing*, Cat. No. 2005.0.

Australian Bureau of Statistics (2001) *Counting the Homeless, Census of Population and Housing*, Cat. No. 2050.0.

Australian Bureau of Statistics (June 2003) *Population by Age and Sex*, Cat. No. 3201.0.

Australian Bureau of Statistics (2001) *Deaths*, Cat. No. 3302.0.

Australian Bureau of Statistics (1996) *Women's Safety Survey*, Cat. No. 4128.0.

Australian Bureau of Statistics (1997) How Australians Use Their Time, Cat. No. 4153.0.

Australian Bureau of Statistics (2002) *Crime and Safety Survey*, Cat. No. 4509.0.

Australian Bureau of Statistics (2003) *Recorded Crime—Victims*, Cat. No. 4510.0.

Australian Bureau of Statistics (2003) *Information Paper: Measuring Crime Victimisation, Australia: The Impact of Different Collection Methodologies*, Cat. No. 4522.0.55.001.

Australian Bureau of Statistics (August 2003) *Employee Earnings, Benefits and Trade Union Membership*, Cat. No 6310.0.

Australian Bureau of Statistics (2000) *Working Arrangements*, Cat. No. 6342.0.

Australian Bureau of Statistics (2002-03) *Labour Costs*, Cat. No. 6348.0.55.001.

Australian Bureau of Statistics (2002-03) Australian National Accounts: National Income, Expenditure and Product, Cat. No. 5206.0.

Australian Institute of Criminology (2003) *Australian Crime Facts and Figures* 2003.

Australian Institute of Family Studies *Towards Understanding the Reasons for Divorce*, Working Paper 20.

Australian Institute of Health and Welfare (2003) *Health Expenditure, Australia, 2001–2002*, Australian Institute of Health and Welfare, Cat No HWE 24, Health and Welfare Expenditure Series No 17, September.

Australian Institute of Health and Welfare (2002–03) *Homeless people in SAAP: SAAP National Data Collection Annual Report* 2002–03.

Berger ML & Murray JF (2001) "Alternative Valuations of Work Loss and Productivity" in *Journal of Occupational and Environmental Medicine*, Vol. 43, No. 1, pp.18–24.

Blumel DK, Gibb GL, Innis BN, Justo DL and Wilson DW (1993). *Who pays? The economic costs of violence against women.* Sunshine Coast: Sunshine Coast Interagency Research Group Queensland for the Women's Policy Unit.

Brown WJ, Bryson L, Byles JE, Dobson AJ, Manderson L, Schofield M and Williams G (1996) "Women's Health Australia: establishment of the Australian Longitudinal Study On Women's Health" *Journal of Women's Health*, 5(5), 467–472.

Bureau of Transport Economics (2000) *Road Crash Costs in Australia*, Bureau of Transport Economics, Report 102, Canberra.

Bureau of Transport and Regional Economics (2002) *Rail Accident Costs in Australia*, Report 108, Commonwealth of Australia, Canberra.

Burniaux et al (March 1998) *Income Distribution and Poverty in Selected OECD Countries*, Economics Department Working Paper No 189 ECO/WKP(98)2 OECD, Paris

Caetano, R. Field, C. and Nelson, S. (2003) "Association between Childhood Physical Abuse, Exposure to Parental Violence, and Alcohol Problems in Adulthood" *Journal of Interpersonal Violence* 18(3): 240–257

Chung, D. et al (2000) *Preventing Homelessness for Women experiencing Domestic and Family Violence*.

Chung, D. and Bagshaw, D. (2000) *Women, Men and Domestic Violence*, Partnerships Against Domestic Violence.

Coid, J., A. Petruckevitch, et al. (2001). "Relation between childhood sexual and physical abuse and risk of revictimisation in women: a cross-sectional survey." *Lancet* 358(9280): 450–454.

Collins, D. and Lapsley, H. (2002) *Counting the Cost: Estimates of the social costs of drug abuse in Australia in 1998–9*, National Drug Strategy, Monograph Series No. 49.

Cutler DM and Richardson E (1998) *The Value of Health: 1970–1990*, JCPR Working Paper 28, prepared for the AEA session on "What we get for health care spending" downloadable from <www.jcpr.org/wpfiles/value.pdf>

Cutler DM and Richardson E (1997) "Measuring the health of the US population" *Brookings Paper on Economic Activity, Microeconomics*, Brookings Institute, Washington DC.

Daley, S. E., D. Burge, et al. (2000). "Borderline personality disorder symptoms as predictors of 4-year romantic relationship dysfunction in young women: addressing issues of specificity." *Journal of Abnormal Psychology* 109(3): 451–60.

Daley, S. E., C. Hammen, et al. (1997). "Predictors of the generation of episodic stress: a longitudinal study of late adolescent women." *Journal of Abnormal Psychology* 106(2): 251–9.

Daley, S. E. and C. Hammen (2002). "Depressive symptoms and close relationships during the transition to adulthood: perspectives from dysphoric women, their best friends, and their romantic partners." *J Consult Clin Psychol* 70(1): 129–41.

Department of Health and Ageing (2003) *Returns on investment in public health: An epidemiological and economic analysis*, Report to the Department of Health and Ageing by Applied Economics.

Distaff Associates. (1991). *Costs of Domestic Violence*. Sydney: NSW Women's Co-ordination Unit.

Dong, M., S. R. Dube, et al. (2003). "Adverse childhood experiences and self-reported liver disease: new insights into the causal pathway." *Arch Intern Med* 163(16): 1949–56.

Edleson JL (1999). The overlap between child maltreatment and woman battering. *Violence Against Women*, 5(2), 134–154.

English, D. Marshall, D. and Stewart, A. (2003) "Effects of Family Violence on Child Behaviour and Health During Early Childhood" *Journal of Family Violence* 18(1): 43–57

Farmer, A. and Tiefenthaler, J. (2004) Domestic Violence and its Impact on Women's Economic Status, Employers, and the Workplace, page 7–8. <http://www.caepv.org/membercenter/files/Blue%20Shield%20Literature%20Review%20(revised%2010-24).doc> Accessed 20 May

Feerick M and Haugaard J 1999. "Long-term effects of witnessing marital violence for women: The contribution of childhood physical and sexual abuse." *Journal of Family Violence*, 14(4), 377–98.

Felitti V, Anda R, Nordenberg D, Williamson D, Spitz A, Edwards V, Koss M and Marks J 1998. "Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study" *American Journal of Preventative Medicine* 14 (4): 245–58

Greenfield L, Rand M, Crave D, Klaus P, Perkins C, Ringel C, Warchol G, Maston C and Fox J (1998) "Violence by intimates: Analysis of data on crimes by current or former spouses, boyfriends, and girlfriends" *Bureau of Justice Statistics Factbook*, US Dept. of Justice, Washington.

Hammen, C. (1991). "Generation of stress in the course of unipolar depression." *Journal of Abnormal Psychology* 100(4): 555–61.

Hammen, C. (2003). "Interpersonal stress and depression in women." *J Affect Disord* 74(1): 49-57.

Hammen, C. and P. A. Brennan (2001). "Depressed adolescents of depressed and nondepressed mothers: tests of an interpersonal impairment hypothesis." *Journal of Consulting and Clinical Psychology* 69(2): 284–94.

Hammen, C., R. Henry, et al. (2000). "Depression and sensitization to stressors among young women as a function of childhood adversity." *Journal of Consulting and Clinical Psychology* 68(5): 782–7.

Hammen, C., J. Shih, et al. (2003). "Interpersonal impairment and the prediction of depressive symptoms in adolescent children of depressed and nondepressed mothers." *J Am Acad Child Adolesc Psychiatry* 42(5).

Health and Safety Executive (1999) *The costs to Britain of workplace accidents and work-related ill health in 1995–96*, Second edition, HSE Books.

Henderson M (2000a). *Impacts and Costs of Domestic Violence on the Australian Business/Corporate Sector*. Brisbane: Lord Mayor's Women's Advisory Committee, Brisbane City Council.

Henderson, M. (2000b). *Technical Appendix: Impacts and Costs of Domestic Violence on the Australian Business/Corporate Sector.* Brisbane: Lord Mayor's Women's Advisory Committee, Brisbane City Council.

Indermaur, D. (2001) "Young Australians and Domestic Violence" *Australian Institute of Criminology Trends & Issues in Crime and Criminal Justice* No. 195.

Industry Commission (2003) *Evaluation of the Pharmaceutical Industry Investment Program.*

Industry Commission (1995) Work, *Health and Safety Report No. 47*, Volumes I and II, AGPS, Canberra.

Kalmuss, D. (1984) "The Intergenerational Transmission of Marital Aggression" *Journal of Marriage and the Family* 46(1): 11–19.

Keatsdale (2003) *The Cost of Child Abuse and Neglect in Australia*, Keatsdale Pty Ltd Management Consultants for the Kids First Foundation.

Kitzmann, K., Gaylord. N., Holt, A. and Kenny, E (2003) "Child Witnesses to Domestic Violence: A Meta-Analytic Review" *Journal of Consulting and Clinical Psychology* 71(2): 339–352.

Kniesner TJ and Leeth JD (1991) "Compensating wage differentials for fatal injury risk in Australia, Japan and the United States" *Journal of Risk and Uncertainty* 4(1), 75–90.

KPMG Management Consulting. (1994). E*conomic Costs of Domestic Violence in Tasmania*, Tasmanian Domestic Violence Advisory Committee. Hobart: Office of the Status of Women.

KPMG Management Consulting. (1996). T*he Financial and Economic Costs of Domestic Violence in the Northern Territory.* Darwin, NT: Office of Women's Policy, Northern Territory Government, Domestic Violence Strategy.

Laing L and Bobic N (2002) *Economic Costs of domestic violence: Literature Review*, Australian Domestic and Family Violence Clearinghouse, University of New South Wales, Sydney, April.

Laurence L & Spalter-Roth R (1996). *Measuring the Costs of Domestic Violence Against Women and the Cost-Effectiveness of Interventions: An initial assessment and proposals for further research*. Washington: Institute for Women's Policy Research.

Lloyd S (1997). "The effects of Domestic Violence on Women's Employment". *Law & Policy*, 19(2), 139–167.

Mayhew, P (2003a) 'Counting the Costs of Crime in Australia: Technical Report' *Australian Institute of Criminology Technical and Background Paper Series No. 4.*

Mayhew, P (2003b) 'Counting the Costs of Crime in Australia' *Australian Institute of Criminology Trends & Issues in crime and criminal justice* No. 247.

Mathers, Vos and Stevenson (1999) *The burden of disease and injury in Australia*, AIHW, Cat No PHE 17, Canberra.

Mathers and Penm (1999) *Health system costs of injury, poisoning and musculoskeletal disorders in Australia*, 1993–94, AIHW Cat. No. HWE 12, Canberra.

Mathers C, Stevenson C, Carter R and Penm R (1998) *Disease Costing methodology used in the Disease Costs and Impact Study 1993–94*, AIHW Cat. No. HWE-7, Australian Institute of Health and Welfare, Canberra.

Miller TR, Cohen MA and Wiersma B (1996) *Victim Costs and Consequences: A New Look*, Research Report, National Institute of Justice, January.

Miller P, Mulvey C and Norris K (1997) "Compensating differentials for risk of death in Australia" *Economic Record* 73(223), 363–372.

Mouzos, J. (1999) "Femicide: An overview of major findings" *Trends and Issues in crime and criminal justice* No 124. pp. 1–6. Canberra: Australian Institute of Criminology.

Murphy KM and Topel R (1999) *The Economic Value of Medical Research*, University of Chicago Business School.

Murray C & Lopez A (1996) *The Global Burden of Disease: a comprehensive assessment of mortality & disability from diseases, injuries & risk factors in 1990 & projected to 2020*, Volume 1, Global Burden of Disease & Injury Series, Harvard: Harvard School of Public Health.

Murray C, Lopez A, Mathers C, & Stein C (2001) *The Global Burden of Disease 2000 Project: aims, methods & data sources*, Discussion Policy Paper No. 36, WHO, November.

National Center for Injury Prevention and Control—NCIPC (2003) *Costs of Intimate Partner Violence Against Women in the United States*, Atlanta (GA): Centers for Disease Control and Prevention.

Nordhaus W (1999) *The Health of Nations: The Contribution of Improved Health to Living Standards*, research papers presented at a conference sponsored by Lasker/Funding First, December, Department of Economics, Yale University, downloaded 2 April 2003 from <www.laskerfoundation.org/reports/pdf/healthofnations.pdf>

Oxenburgh M (1991) *Increasing Productivity and Profit through Health and Safety*, CCH International, Australia.

Oxley, H, J-M Burniaux, T-T Dang and MM d'Ercole (1997) "Income distribution and poverty in 13 OECD countries", *OECD Economic Studies* No. 29, II, 55–94.

Paolucci, E. O., M. L. Genuis, et al. (2001). "A meta-analysis of the published research on the effects of child sexual abuse." *Journal of Psychology* 135(1): 17–36.

Partnerships Against Domestic Violence (2002) *Partnerships Against Domestic Violence Annual Report 2000–01: A substantial beginning to a new commitment*, Office of the Status of Women, Canberra.

Potas, I, Vining, A & Wilson, P (1990) *Young People and Crime: Costs and Prevention* Australian Institute of Criminology, Canberra downloadable at <http://www.aic.gov.au/publications/young-people/>

Productivity Commission (2004) *Review of Government Service Provision.*

Rao, U., C. Hammen, et al. (1999). "Continuity of depression during the transition to adulthood: a 5-year longitudinal study of young women." *Journal of the American Academy of Child and Adolescent Psychiatry* 38(7): 908–15.

Roberts, G. (1988). Domestic Violence: Costing of Service Provision for Female Victims—20 Case Histories. in Queensland Domestic Violence Task Force (Ed.), *Beyond These Walls: Report of the Queensland Domestic Violence Task Force* to The Honourable Peter McKechnie, M.L.A., Minister for Family Services and Welfare Housing (pp. 429–503), Brisbane.

Roberts GL, O'Toole BI, Raphael B, Lawrence JM, Ashby R (1996) "Prevalence study of domestic violence victims in an emergency department" *Annals of Emergency Medicine* 27: 741–753.

Rudolph, K. D., C. Hammen, et al. (1997). "A cognitive-interpersonal approach to depressive symptoms in preadolescent children." *Journal of Abnormal Child Psychology* 25(1): 33–45.

Schelling (1968) "The life you save may be your own" in SB Chase (ed) *Problems in public expenditure and analysis*, Brookings Institution, Washington DC, p127–162.

Smith, S., Rosen, K. and Middleton, K. (2000) "The Intergenerational Transmission of Spouse Abuse: a Meta-Analysis" *Journal of Marriage and the Family* 62(3): 640–654.

Somer E and Braunstein A. (1999). "Are Children Exposed to Interparental Violence Being Psychologically Maltreated?" in *Aggression and Violent Behaviour*, 4(4), 449–456.

Straus, M. and Gelles, R. (1990) *Physical Violence in American Families: Risk Factors and Adaptations to Violence in 8145 Families*, Transaction Press, New Brunswick, USA.

Tjaden, P. and Thoennes, N. (July 2000) *Extent, Nature, and Consequences of Intimate Partner Violence: Findings From the National Violence Against Women Survey.*

Tjaden, P. and Thoennes, N. (November 2000) *Full Report of the Prevalence, Incidence, and Consequences of Violence Against Women.*

Tolley GS, Kenkel DS, Fabian RG, eds (1994) *Valuing Health for Policy: An Economic Approach*, University of Chicago Press, Chicago.

Viscusi WK (1993) "The value of risks to life and health" *Journal of Economic Literature*, 13:1912–46.

Viscusi and Aldi (2002) *The value of a statistical life: a critical review of market estimates throughout the world* Discussion Paper No. 392, Harvard Law School, Cambridge MA, November, downloadable from <www.law.harvard.edu/programs/olin_center/>

VicHealth (2004) T*he health costs of violence: Measuring the burden of disease caused by intimate partner violence: A summary of findings* Project report with contributors from VicHealth, the Victorian Department of Human Services, Australian Institute of Family Studies, University of Melbourne, University of Queensland, June.

Weeks, W. and Oberin, J. unpublished *Women's Refuges, Shelters, Outreach And Support Services In Australia: From Sydney Squat To Complex Services Challenging Domestic And Family Violence.*

Wise, L. A., S. Zierler, et al. (2001). "Adult onset of major depressive disorder in relation to early life violent victimisation: a case-control study." *Lancet* 358: 881–887.

World Health Organization (2002) *World report on violence and health*, edited by EG Krug, LL Dahlberg, JA Mercy, AB Zwi and R Lozano, WHO, Geneva, especially Chapter 4 "Violence by Intimate Partners".

Yi-Ping Tseng and Roger Wilkins (May 2002) *Reliance on Income Support in Australia: Prevalence and Persistence* Working Paper No. 6/02, Melbourne Institute of Applied Economic and Social Research.

Zanarini, M., A. Williams, et al. (1997). "Reported pathological childhood experiences associated with the development of borderline personality disorder." *American Journal of Psychiatry* 154(8): 1101–1106.

Notes