Hospital-treated assault injury among Victorian women aged 15 years and over due to intimate partner violence (IPV), Victoria 2009/10 to 2013/14

Erin Cassell and Angela Clapperton

Summary

Intimate partner violence (IPV) has serious detrimental effects on women’s health and wellbeing. For the purpose of this study, an incident of intimate partner violence (IPV) is defined as an assault on a woman perpetrated by a domestic partner that results in physical injury and presentation to hospital for treatment. A woman is defined as a female aged 15 years and over.

- Over the 5-year period 2009/10 to 2013/14 there were 3,794 IPV-related assault injury cases among women aged 15 years and over treated in Victorian hospitals—1,660 hospital admissions and 2,134 Emergency Department (ED) presentations (non-admissions)—an average of 759 cases per year.
- These counts are conservative because of underreporting of IPV-related assault injury cases on hospital datasets and underrecognition of cases in the emergency department, when women present for treatment, when they are interviewed on admission to a ward or during treatment.
- Most injured women (80%) were in age range 15-44 years; one-third (32.5%) were in age group 25-34 years; around one-quarter (26%) were in age group 35-44 years; and 21% in the age group 15-24 years. From age 45 the frequency of cases decreased as age increased. This pattern did not change when injury rates for these five age groups were compared.
- Women born in Australia comprised 75% of hospital-treated IPV-related assault injury cases (n=2,847). Among overseas-born women, case counts were highest in New Zealand-born women (n=93, 2.5% of all hospital-treated cases), followed by women born in England (n=74, 2.0%), China (n=61, 1.6%) and Sudan (n=58, 1.5%). Indigenous women comprised 5% of IPV-related hospital treated injury cases (n=183).
- At least 64% of IPV-related assault injury incidents occurred in the home. Six percent occurred in public places. Over one-quarter of cases were coded to ‘unspecified location’.
- Available information indicates that 99% of perpetrators were men, mostly the current partner of the injured women, and that former partners were involved in at least 8% of IPV-related assault injury cases. A slightly higher proportion of women in the youngest age group (15-24 years) were assaulted by former/ex partners (11%) than women in the other 10-year age groups (3-9%).
- Among admissions and ED presentations, the most common mechanism of injury was bodily force e.g., assault by hitting, punching, kicking and shoving (70%). A blunt object, for example a stake or a pole, was used in a further 8% if IPV-related assault cases and a sharp object for example glass, knife or blade was used in 4.5% of cases.
- The head/face/neck was the most commonly injured body region (48% of injuries overall), followed by the upper limbs (18% - shoulder, arm, hand).
Part 1 Hospital study: Assault injury to women due to intimate partner violence (IPV), Victoria 2009/10 to 2013/14

Authors: Erin Cassell, Angela Clapperton

1. Introduction

Intimate Partner Violence (IPV) has profoundly detrimental effects on women’s health and wellbeing including immediate and repeated physical and sexual trauma and injury, poor physical health, adverse pregnancy outcomes and psychological illnesses and mental health issues including depression, anxiety, post-traumatic stress disorder, suicide ideation and self-harm (Sarkar et al., 2008, review; Dillon et al., 2013, review).

The Australian Bureau of Statistics (ABS) Personal Safety Survey (PSS) conducted in all states and territories in 2012 found that an estimated 17% of Australian women aged 18 years and over (1,479,900 women) had experienced partner violence—physical and sexual violence and threats of violence—since age 15 and 1.5% (132,500) had experienced partner violence in the last 12 months (ABS, 2014). The estimated last 12-months prevalence of partner violence for Victorian women was also 1.5% (33,700 women).

The first review of family violence deaths in Victoria found that there were 100 female homicides perpetrated by male intimate partners (current and former) over the 11-year period 2000-2010, an average of 9 per year (Walsh et al., 2012). Among Victorian women aged 18-44 years, IPV is associated with 7.9% of the total burden of disease with the largest contributors to the disease burden of IPV being poor mental health (73% mostly depression, anxiety and suicide), followed by harmful tobacco, alcohol and illicit drug use (22%) (Vos et al., 2006). Australian studies also indicate that a history of IPV is associated with increased health service use (Family GP, hospital and specialist doctors) (Loxton et al., 2004; Hegarty et al., 2013).

The aims of this study are to investigate the frequency and pattern of physical injury among women presenting to hospital for treatment of injuries caused by IPV-related assaults and to make a preliminary assessment of the completeness of IPV assault data held on hospital datasets with recommendations on ways to improve case capture. (A summary of research findings published in recent literature reviews on the prevalence, risk factors and interventions to address intimate partner violence is included in Part 2 of this report.)

2. Methods

2.1 Definition

For the purpose of this study, an incident of Intimate partner violence (IPV) is defined as an assault perpetrated by a domestic partner that results in physical injury and presentation to hospital for treatment. This aligns to the definition implicit in coding instructions in the WHO International Classifications of Diseases, Version 10 – Australian Modifications (ICD-10-AM) used to code injury hospital admissions in Victoria, and the Victorian Emergency Minimum Dataset (VEMD) User Manual used to code injury emergency department (ED) presentations. It is a narrower definition than that adopted by the World Health Organisation (WHO) that includes acts of physical aggression, sexual coercion, psychological abuse and controlling behaviours (WHO, 2010).

2.2 Case selection

De-identified Injury cases treated in Victorian hospitals are recorded on two separate datasets, both held by the Victorian Injury Surveillance Unit (VISU). The Victorian Admitted Episodes Dataset (VAED) records admissions to all public and private hospitals in Victoria; the Victorian Emergency Minimum Dataset (VEMD) records presentations to the Emergency Departments (EDs) of the 39 Victorian public hospitals that provide 24-hr ED services. The VEMD records cases that are treated and discharged from the ED and cases that are assessed in the ED and admitted to a ward for treatment. Because the datasets overlap, when both are searched for relevant cases (such as in this study), admitted cases recorded on the VEMD are deleted from most analyses to prevent over-counting.

The case selection process is different for each dataset. All hospital admissions on the VAED are coded to ICD-10-AM, a detailed system of coding. By contrast, there are limited coded data items in the classification system used for entering cases onto the VEMD, supplemented by a ‘Description of injury event’ field into which the patient’s description of what
happened (a short case narrative) is entered. Case narratives should provide more detail on the mechanism of injury and the circumstances of the injury event and could include additional information on the perpetrator of the assault (e.g., whether current or former partner, husband, boyfriend). The VAED and VEMD are episode (case) based datasets, not patient-based, so the past medical history of patients presenting with IPV-related injuries could not be investigated in either dataset.

2.2.1 Selecting hospital admissions from the VAED

Hospital admissions that occurred in the 5-year period July 1, 2009 to June 30, 2014 were selected for detailed analysis. Cases were selected if the person was a Victorian female, aged 15 years and over at the time of admission and had a first recorded external cause code in the range X85–Y09 – assault. The fifth character subdivision of the external cause code is used to describe the relationship of the perpetrator of the assault to the victim, so cases were only selected if the fifth character was ‘0’ – spouse or domestic partner. Transfers within and between hospitals were excluded to avoid over counting.

Trend analyses are confined to the 8-year period July 1, 2004-June 30, 2012. In July 2012, a significant change was made to the Victorian hospital admission policy whereby an episode of care delivered entirely within a designated ED or urgent care centre (UCC) which lasted for four or more hours from the time of first treatment was no longer classified as an admission. This policy change had the effect of reducing the number of admissions recorded on the VAED for the fiscal years 2012/13 and 2013/14, so these two years were left out of all trend analyses.

2.2.2 Selecting ED presentations (non-admissions) from the VEMD

ED presentations that occurred in the 5-year period July 1, 2009 to June 30, 2014 were selected for analysis. Cases were selected if the injured person was a Victorian female, aged 15 years and over and the human intent variable was coded to 5 ‘Maltreatment, assault by domestic partner’. Other eligible cases were identified by text searching the narratives of cases coded to 3 ‘Sexual assault’, 7 ‘Assault not otherwise specified’, 9 ‘Intert cannot be determined’, 10 ‘Other specified intent’ and 11 ‘Intent not specified’. Cases with departure status recorded as either ‘ward setting at this hospital campus’ or ‘transfers to another hospital campus’ and return visits (type of visit= return visit) were excluded to avoid over counting. The outcome of this selection process is summarised in Table 1.

### Table 1 Selection of IPV-related assault injury cases among women aged 15 years and over, Victoria 2009/10 to 2013/14

<table>
<thead>
<tr>
<th>Source</th>
<th>Number of cases identified</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VAED – Hospital admissions</strong></td>
<td></td>
</tr>
<tr>
<td>Intent = assault (X86-Y09) and Perpetrator = spouse or domestic partner</td>
<td>1,660</td>
</tr>
<tr>
<td><strong>VEMD – ED presentations (non-admissions)</strong></td>
<td></td>
</tr>
<tr>
<td>Intent = Maltreatment or assault by partner</td>
<td>1,367</td>
</tr>
<tr>
<td>Text description indicated assaulted by their partner</td>
<td>767</td>
</tr>
<tr>
<td>Intent code = sexual assault</td>
<td>645</td>
</tr>
<tr>
<td>Intent code = assault not otherwise specified or sexual assault</td>
<td>np</td>
</tr>
<tr>
<td>Intent code = cannot be determined</td>
<td>72</td>
</tr>
<tr>
<td>Intent code = other specified</td>
<td>62</td>
</tr>
<tr>
<td>Total ED presentations identified</td>
<td>2,134</td>
</tr>
<tr>
<td>Total hospital-treated cases identified</td>
<td>3,794</td>
</tr>
</tbody>
</table>

Note: * = fewer than 5 cases in cell count; np = not publishable due to small number in another cell

### 2.2.3 Identifying alcohol involvement among hospital admissions

Cases were identified as involving alcohol if they contained an ICD-10-AM diagnosis or external cause code referring to alcohol, following the approach taken in a published Australian alcohol and injury study by McKenzie et al (2010). The codes used to identify alcohol involvement were:

- External cause codes: Y90 Evidence of alcohol involvement determined by blood alcohol level; Y91 Evidence of alcohol involvement determined by level of intoxication.

### Diagnosis codes:
- E24.4 Alcohol-induced pseudo-Cushing’s Syndrome
- E52 Niacin deficiency [pellagra]
- F10 Mental and behavioural disorders due to use of alcohol
- G31.2 Degeneration of nervous system due to alcohol
- G62.1Alcoholic polyneuropathy
- G72.1 Alcoholic myopathy
- I42.6 Alcoholic cardiomyopathy
- K29.2 Alcoholic gastritis
- K70 Alcoholic liver disease
- K85.2 Alcohol induced acute pancreatitis
- K86.0 Alcohol induced chronic pancreatitis
- O35.4 Maternal care, care for (suspected) damage to foetus from alcohol
- T51.0 Finding of alcohol in blood
- Z04.0 Blood-alcohol and blood-drug test
- Z50.2 Alcohol rehabilitation
- Z71.4 Counselling and surveillance of alcohol use disorder
- Z72.1 Alcohol use
- Z86.41 Personal history of alcohol use disorders.
3. Results

3.1 Trends in yearly frequency and rate of adult female IPV-related assault injury

Trends were plotted for the eight fiscal years 2004/5 to 2011/12 as the definition of a hospital admission was tightened in July 2012 (Figures 1-2). This change resulted in a decrease in the frequency of recorded admissions in 2012/13 and 2013/14.

3.1.1 Trend in hospital admissions

There was a small increase in the FREQUENCY of IPV assault injury ADMISSIONS among women over the eight years from 336 in 2004/5 to 374 in 2011/12, representing an estimated annual increase of 0.3% (-2.0% and 2.6%) and an overall increase of 2.4% (-14.7% to 22.5%). This did not represent a significant change based on the trend line (Figure 1).

There was a small decrease in the RATE of assault injury ADMISSIONS among women over the eight-year period from 16.8/100,000 in 2004/5 to 16.7/100,000 in 2011/12, representing an estimated annual decrease of 1.4% (-3.8% and 0.9%) and an overall decrease of 11.0% (-26.5% to 7.3%). This did not represent a significant change based on the trend line (Figure 1).

3.1.2 Trend in ED presentations

There was a significant decrease in the FREQUENCY of IPV assault injury ED PRESENTATIONS (non-admissions) among women over the eight year period from 507 in 2004/5 to 458 in 2011/12, representing an estimated annual reduction of 2.3% (-3.5% and -1.1%) and an overall decrease of 16.9% (-25.0% to -8.4%) based on the trend line (Figure 2).

There was a significant decrease in the RATE of IPV assault injury ED PRESENTATIONS among women over the eight-year period from 25.3/100,000 to 20.3/100,000 in 2011/12, representing an estimated annual reduction of 4.0% (-5.2% and -2.9%) and an overall significant decrease of 27.8% (-35.0% to -21.0%) based on the trend line (Figure 2).

The downward trend in the frequency and rate of ED presentations for IPV-related assault injury may not represent a real decrease as it may be related to the observed deterioration in the quality of the injury data submitted by some of the 39 VEMD hospitals over the study period (VISU, unpublished data).

3.2 Detailed analysis: hospital-treated injury (2009/10 to 2013/14)

3.2.1 Case counts

Hospital-treated IPV assault injury cases for the five most recently available fiscal years of data (July 1, 2009 to June 30, 2014) were analysed in more detail. Over this period, there were 3,794 IPV assault injury cases among women aged 15 years and over - 1,660 hospital admissions and 2,134 ED presentations (non-admitted cases) (Table 1). This represents an average of 759 cases per year (332 admissions and 427 ED presentations).

Case counts are probably underestimated because of underrecognition and underreporting of IPV-related assault injury cases presenting to Victorian hospitals. Case counts represent injuries of injury; there is no method of identifying women who present more than once for treatment of IPV-related assault injuries. The DHHS has the capacity to create a person-based dataset which could be interrogated to investigate ED use by patients experiencing recurrent injuries related to IPV and their use of the ED for other illnesses and conditions.
3.2.2 Age

Table 2 shows the age distribution of IPV-related assault injury cases. A similar age pattern was observed among hospital admissions and ED presentations. Overall, most cases (80%) were in age range 15-44 years. One-third were in age group 25-34 years (32.5%); one-quarter in age group 35-44 years (26%) and 21% in age group 15-24 years. From age 45 the frequency of cases decreased as age increased. This age pattern did not change when hospital-treated assault injury rates for the five age groups were compared (Figure 3).

3.2.3 Country of birth and indigenous status

Women born in Australia comprised 75% (n=2,847) of the hospital-treated IPV-related assault injury cases. Among overseas-born women, case counts were highest in New Zealand-born women (n=93, 2.5% of all hospital-treated cases), followed by women born in England (n=74, 2.0%), China (n=61, 1.6%) and Sudan (n=58, 1.5%). Indigenous women comprised 5% of IPV-related hospital treated injury cases (n=183).

According to the 2011 Census, 67% of Victoria’s female population aged 15 years and over were born in Australia, 17% in New Zealand, 4.7% in England, 2.0% in China, 0.1% in Sudan and 0.7% were indigenous Australians (ABS 2012 & 2013). These figures indicate that women born in Australia, New Zealand and Sudan and indigenous women are over-represented in hospital-treated IPV assault injury cases. Caution should be exercised when interpreting these results; country of birth and indigenous status may be inconsistently recorded on the datasets.

3.2.4 Location of injury event

Most IPV-related assault injury incidents occurred in the private domain – the home (64%, n=2,411). A small proportion occurred in public places (6%, n=231). These figures are underestimates as 41% of admission and 14% of ED presentations were coded to ‘unspecified’ place of occurrence (Table 3).

3.2.5 IPV-related assault hospitalisations by Department of Health & Human Services (DHHS) regions

The DHHS delivers services through its eight geographical regions. There are three metropolitan regions (Eastern, North & West, and Southern) and five rural regions (Barwon-South Western, Gippsland, Grampians, Hume, and Loddon Mallee). This analysis was confined to hospital admissions.

Hospital admission rates were highest in Southern Metropolitan Region (17.3 female IPV-related assault injury cases/100,000 adult female residents) and the North and West Metropolitan Region (15.6) (Figure 4). They were lowest in the Grampians Region (9.6) and the Eastern Metropolitan Region (11.1) (Figure 4). Care should be taken when interpreting these results because the different hospitals servicing the 8 regions may vary on the quality and completeness of the injury data they contribute to the VAED.

Table 2 Distribution of hospital-treated IPV-related assault injury incidents by age group, Victoria 2009/10-2013/14

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Hospital admissions n</th>
<th>Hospital admissions %</th>
<th>ED presentations n</th>
<th>ED presentations %</th>
<th>Hospital-treated n</th>
<th>Hospital-treated %</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>296</td>
<td>17.8</td>
<td>503</td>
<td>23.6</td>
<td>799</td>
<td>21.1</td>
</tr>
<tr>
<td>25-34</td>
<td>558</td>
<td>33.7</td>
<td>675</td>
<td>31.6</td>
<td>1,233</td>
<td>32.5</td>
</tr>
<tr>
<td>35-44</td>
<td>466</td>
<td>28.1</td>
<td>533</td>
<td>25.0</td>
<td>999</td>
<td>26.3</td>
</tr>
<tr>
<td>45-54</td>
<td>231</td>
<td>13.9</td>
<td>255</td>
<td>11.9</td>
<td>486</td>
<td>12.8</td>
</tr>
<tr>
<td>55+</td>
<td>109</td>
<td>6.7</td>
<td>168</td>
<td>7.9</td>
<td>277</td>
<td>7.3</td>
</tr>
<tr>
<td>ALL</td>
<td>1,660</td>
<td>100.0</td>
<td>2,134</td>
<td>100.0</td>
<td>3,794</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3 Distribution of hospital-treated IPV-related assault injury incidents by location (place of occurrence)

<table>
<thead>
<tr>
<th>Location</th>
<th>Hospital admissions n</th>
<th>Hospital admissions %</th>
<th>ED presentations n</th>
<th>ED presentations %</th>
<th>Hospital-treated n</th>
<th>Hospital-treated %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>886</td>
<td>53.4</td>
<td>1,525</td>
<td>71.5</td>
<td>2,411</td>
<td>63.5</td>
</tr>
<tr>
<td>Road, street &amp; highway</td>
<td>30</td>
<td>1.8</td>
<td>81</td>
<td>3.8</td>
<td>111</td>
<td>2.9</td>
</tr>
<tr>
<td>Trade &amp; service area</td>
<td>31</td>
<td>1.9</td>
<td>32</td>
<td>1.0</td>
<td>53</td>
<td>1.4</td>
</tr>
<tr>
<td>Place for recreation</td>
<td>NA</td>
<td>NA</td>
<td>84</td>
<td>2.1</td>
<td>44</td>
<td>1.2</td>
</tr>
<tr>
<td>School, public buildings</td>
<td>10</td>
<td>0.6</td>
<td>13</td>
<td>0.6</td>
<td>23</td>
<td>0.6</td>
</tr>
<tr>
<td>Other specified</td>
<td>26</td>
<td>1.6</td>
<td>150</td>
<td>7.0</td>
<td>176</td>
<td>4.6</td>
</tr>
<tr>
<td>Unspecified places</td>
<td>677</td>
<td>40.8</td>
<td>299</td>
<td>14.0</td>
<td>976</td>
<td>25.7</td>
</tr>
<tr>
<td>ALL</td>
<td>1,660</td>
<td>100.0</td>
<td>2,134</td>
<td>100.0</td>
<td>3,794</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: NA=code not available
3.2.6 Perpetrator of assault – gender and partner status

In this study the injured persons were all women (only female IPV assault cases were selected from the VAED and the VEMD) and the perpetrators were their current or past intimate partners. All data recorded on the VAED are coded and there is no code to identify the gender of the perpetrator. Therefore, some of the IPV assault injury hospital admissions included in the study dataset could have female perpetrators if the injured woman was in a same sex relationship. A search of case narratives of ED presentations indicated that the perpetrator was a female in less than 1% of cases that included specific information on the sex of the perpetrator.

Partner status (current or former)

Similarly, a text search of the case narratives of ED presentations was used to identify whether the perpetrator was the current or a former partner of the injured female. The recording of this information in the case narrative is not systematic. Both presentations and admissions recorded on the VEMD (n=2,566 cases) were examined.

In at least 8% of cases the assault was perpetrated by a former partner. A slightly higher proportion of women in the youngest age group (15-24 years) were assaulted by former/ex partners (11%) than women in other 10-year age groups. From age 25 years, the proportion of women assaulted by their former/ex partners decreased as age increased (range: 9% in women aged 25-34 years, 8% in women aged 35-44 years and 45-54 years through to 3% in women aged 55 years and older).

3.2.7 Mechanism of injury (weapon used)

Overall and among both admissions and presentations, the most common mechanism of injury was bodily force (70%) (Table 4). A blunt object for example a stake, bar, plank of wood or a pole was used in a further 8% of cases and a sharp object for example knife, shard of glass or blade in 4.5% of cases.

The information in case narratives recorded on the VEMD is usually provided by patients when they present to the nurse on the triage desk in the ED or recorded by the doctor providing treatment. Most narratives are brief e.g., struck/hit/punched/kicked by partner (husband/defacto/boyfriend) or ex-partner, with some information on body site of assault (this information is already coded).

Some narratives gave more graphic details of the violent incident, revealing that women were thrown or tackled to the floor, thrown or shoved onto furniture or at/through windows, thrown across the room, punched and kicked, dragged by their hair, kick-boxed and assaulted then thrown/dragged out of vehicles. In extreme cases women were burnt, stabbed/cut by knives, syringes or other bladed implements, manually strangled, held captive and assaulted over extended periods or abducted and assaulted.

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Figure 4  IPV-related assault injury hospital admission rates by DHHS region, Victoria 2009/10-2013/14

Table 4  Hospital-treated IPV-related assault injury incidents by mechanism of injury, Victoria 2009/10-2013/14

<table>
<thead>
<tr>
<th>Mechanism of Injury</th>
<th>Hospital admissions</th>
<th>ED presentations</th>
<th>Hospital-treated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Bodily force</td>
<td>1,240</td>
<td>74.7</td>
<td>1,407</td>
</tr>
<tr>
<td>Blunt object</td>
<td>114</td>
<td>6.9</td>
<td>192</td>
</tr>
<tr>
<td>Sharp object</td>
<td>90</td>
<td>5.4</td>
<td>82</td>
</tr>
<tr>
<td>Other specified means</td>
<td>138</td>
<td>8.3</td>
<td>376</td>
</tr>
<tr>
<td>Unspecified means</td>
<td>78</td>
<td>4.7</td>
<td>77</td>
</tr>
<tr>
<td>ALL</td>
<td>1,660</td>
<td>100.0</td>
<td>2,134</td>
</tr>
</tbody>
</table>

Notes: (1) Body region is based on first occurring injury diagnosis
(2) *Cell counts less than 5

Table 5  Hospital-treated IPV-related assault injury incidents by body region of injury, Victoria 2009/10-2013/14

<table>
<thead>
<tr>
<th>Body Region</th>
<th>Hospital admissions</th>
<th>ED presentations</th>
<th>Hospital-treated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Head/face/neck</td>
<td>912</td>
<td>54.9</td>
<td>895</td>
</tr>
<tr>
<td>Trunk</td>
<td>281</td>
<td>16.9</td>
<td>196</td>
</tr>
<tr>
<td>Upper extremity</td>
<td>257</td>
<td>15.5</td>
<td>425</td>
</tr>
<tr>
<td>Lower extremity</td>
<td>87</td>
<td>5.2</td>
<td>162</td>
</tr>
<tr>
<td>Multiple body regions</td>
<td>17</td>
<td>10.1</td>
<td>42</td>
</tr>
<tr>
<td>Other specified (maltreatment syndromes NFS)</td>
<td>48</td>
<td>2.9</td>
<td>41</td>
</tr>
<tr>
<td>Unspecified</td>
<td>71</td>
<td>4.3</td>
<td>66</td>
</tr>
<tr>
<td>ALL</td>
<td>1,660</td>
<td>100.0</td>
<td>2,134</td>
</tr>
</tbody>
</table>

Notes: (1) Body region is based on first occurring injury diagnosis
(2) *Cell counts less than 5
3.2.8 Injury pattern: injury site, type and most common specific injuries

### Injury site

The most commonly injured body region among admissions and ED presentations was the head/face/neck (48% overall), followed by the upper limbs (18%) and the trunk (12%) (Table 5).

### Injury type

Among hospital admissions, fracture was the most frequently occurring injury type (22%), followed by superficial injury (19%), open wound (13%) and intracranial injury (7%) (Table 6). Among ED presentations (non-admissions) superficial injury was the most common injury type (25%), followed by dislocation, strain, sprain (15%), open wound (13%) and fracture (10%) (Table 6).

### Common specific injuries

Among hospital admissions the five most frequently occurring specific injuries were: superficial injuries to the head (12%), fracture of skull and facial bones (10%), open wound of head (9%), intracranial injury - mostly concussion (7%) and fracture at wrist and hand level (3%). Among ED presentations (non-admissions) the five most common injuries were: superficial injury to the head (11%), open wound of head (8%), unspecified multiple injuries (6%), superficial injury involving multiple body regions (6%) and dislocation, sprain and strain of joints and ligaments of head - mostly dislocations of the jaw (4%).

#### 3.2.9 Pregnancy status of injured women

On the VAED, pregnancy is identified by the presence of ICD-10-AM codes in the range Z33-Z35 or O00–O99. At least 11% (n=174) of the 1,660 women admitted to hospital for IPV-related assault injury were pregnant (13% if the age range is confined to 15-44 years).

More than three-quarters of the injured pregnant women (77%) were aged between 20 and 34 years, and cases were fairly evenly distributed across the 5-year age groups within this 15-year age range. Smaller proportions were in age groups 15-19 years (10%), 35-39 years (9%) and 40-44 years (4%).

As shown in Figure 5, the two age groups with higher proportions of pregnant women in their ranks were 15-19 year olds (27%) and 20-24 year olds (22%). Around 15% of women in age groups 25-29 and 30-34 years were pregnant. Much lower proportions of injured women in age group 35-39 years and 40-44 years were pregnant, 6% and 3% respectively.

There is no code to identify whether the patient is pregnant on the VEMD – pregnancy could be mentioned in the case narrative, but the narrative is unstructured so this information is not systematically recorded. Pregnancy was recorded in the narratives of only 3% (n=56) of IPV assault ED presentations (non-admitted cases). Aside from under-reporting, the lower proportion of pregnant women among ED presentations than admissions could be also partly due to increased likelihood of hospitals to admit pregnant women because of concerns about miscarriage or harm to the unborn child – this requires further investigation at the hospital level.

### Table 6 Hospital-treated IPV-related assault injury incidents by type of injury, Victoria 2009/10-2013/14

<table>
<thead>
<tr>
<th></th>
<th>Hospital admissions</th>
<th>ED presentations</th>
<th>Hospital-treated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Superficial injury</td>
<td>320</td>
<td>19.3</td>
<td>532</td>
</tr>
<tr>
<td>Fracture</td>
<td>358</td>
<td>21.6</td>
<td>217</td>
</tr>
<tr>
<td>Open wound</td>
<td>210</td>
<td>12.7</td>
<td>285</td>
</tr>
<tr>
<td>Dislocation, sprain &amp; strain</td>
<td>32</td>
<td>1.9</td>
<td>317</td>
</tr>
<tr>
<td>Intracranial injury</td>
<td>112</td>
<td>6.7</td>
<td>46</td>
</tr>
<tr>
<td>Injury to muscle &amp; tendon</td>
<td>19</td>
<td>1.1</td>
<td>103</td>
</tr>
<tr>
<td>Eye injury-excluding foreign</td>
<td>41</td>
<td>2.5</td>
<td>26</td>
</tr>
<tr>
<td>Injury to internal organs</td>
<td>34</td>
<td>2.0</td>
<td>10</td>
</tr>
<tr>
<td>Other &amp; unspecified injury</td>
<td>534</td>
<td>32.2</td>
<td>598</td>
</tr>
<tr>
<td>ALL</td>
<td>1,660</td>
<td>100.0</td>
<td>2,134</td>
</tr>
</tbody>
</table>

Notes
1. Type of injury is based on first occurring injury diagnosis
2. Other and unspecified injury includes maltreatment syndromes, injury to blood vessels, crushing injury, traumatic amputation, foreign body, burns and poisoning or toxic effects and unspecified nature of injury

### Figure 5 Proportion of women aged 15 years and over that were pregnant at the time of IPV-related assault injury in 5-year age groups – hospital admissions, Victoria 2009/10-2013/14

![Figure 5](image-url)
Injury pattern among pregnant women (hospital admissions only)

The injury pattern among pregnant women was first compared to their non-pregnant counterparts using the first occurring injury diagnosis code (the principal diagnosis). Comparison of the pattern of injury among pregnant and non-pregnant women showed that 42% of pregnant women admitted to hospital for IPV assault injury hadjuries to the abdomen, lower back and pelvis compared with only 7% of non-pregnant women (Table 7). By contrast, head injury was much less common in pregnant than non-pregnant hospitalised women (20% cf. 53%).

A second comparative analysis was undertaken that included all injury diagnoses codes recorded for each case, because more than one injury diagnosis code may be assigned to each case. The results were similar to the above. Half of the pregnant women had an injury to the abdomen, lower back and pelvis compared with 15% of the non-pregnant women, whereas only 25% of the pregnant women had a head injury compared to 64% of non-pregnant women.

3.2.10 Alcohol involvement

Information on alcohol involvement is only available for the assaulted woman, not the perpetrator. A number of diagnosis and external cause codes identifying alcohol involvement are available on the VAED for hospital admissions (see section 2.2.3). Twelve per cent (n=199) of injured women were affected by alcohol when they were admitted to hospital. Well over half of these women were acutely intoxicated (57%), 14% had dependence syndrome, 11% had harmful use and 11% were in a state of withdrawal. The remaining cases were coded to other and unspecified alcohol use (8%).

Alcohol involvement is not systematically collected in VEMD case narratives; only 3% of IPV-related assault case narratives mentioned that the injured woman was affected by alcohol when presenting to the ED for treatment.

### Table 7  
Comparison of pattern of injury in pregnant and non-pregnant women among IPV-related assault injury hospital admissions using principal diagnosis, Victoria 2009/10-2013/14

<table>
<thead>
<tr>
<th>Injury Site</th>
<th>Pregnant</th>
<th>Non-pregnant</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAD INJURY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superficial injury of head</td>
<td>34 19.5</td>
<td>789 53.1</td>
</tr>
<tr>
<td>Fracture of skull and facial bones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open wound of head</td>
<td>5 2.9</td>
<td>137 9.2</td>
</tr>
<tr>
<td>Intracranial injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other and unspecified injuries of head</td>
<td>13 7.5</td>
<td>191 12.9</td>
</tr>
<tr>
<td>NECK INJURY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superficial injury of thorax</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open wound of thorax</td>
<td>0 0.0</td>
<td>5 0.3</td>
</tr>
<tr>
<td>Fracture of ribs, sternum and thoracic spine</td>
<td>0 0.0</td>
<td>33 2.2</td>
</tr>
<tr>
<td>Injury of heart</td>
<td>0 0.0</td>
<td>*</td>
</tr>
<tr>
<td>Injury of other and unspecified intrathoracic organs</td>
<td>0 0.0</td>
<td>21 1.4</td>
</tr>
<tr>
<td>Other and unspecified injuries of thorax</td>
<td></td>
<td>33 2.2</td>
</tr>
<tr>
<td>ABDOMEN, LOWER BACK &amp; PELVIS</td>
<td>73 42.0</td>
<td>98 6.6</td>
</tr>
<tr>
<td>Superficial injury of abdomen, lower back and pelvis</td>
<td>8 4.6</td>
<td>8 0.5</td>
</tr>
<tr>
<td>Open wound of abdomen, lower back and pelvis</td>
<td></td>
<td>5 0.3</td>
</tr>
<tr>
<td>Fracture of lumbar spine and pelvis</td>
<td>0 0.0</td>
<td>14 0.9</td>
</tr>
<tr>
<td>Dislocation, sprain and strain of joints and ligaments of lumbar spine and pelvis</td>
<td>0 0.0</td>
<td>*</td>
</tr>
<tr>
<td>Injury of intra-abdominal organs</td>
<td>0 0.0</td>
<td>6 0.4</td>
</tr>
<tr>
<td>Injury of urinary and pelvic organs</td>
<td>0 0.0</td>
<td>6 0.4</td>
</tr>
<tr>
<td>Other and unspecified injuries of abdomen, lower back and pelvis</td>
<td>64 36.8</td>
<td>57 3.8</td>
</tr>
<tr>
<td>UPPER LIMB</td>
<td>14 8.0</td>
<td>233 15.7</td>
</tr>
<tr>
<td>LOWER LIMB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER</td>
<td>13 7.5</td>
<td>76 5.1</td>
</tr>
<tr>
<td>Malnutrition syndromes</td>
<td>8 4.6</td>
<td>40 2.7</td>
</tr>
<tr>
<td>Other and unspecified</td>
<td>5 2.9</td>
<td>36 2.4</td>
</tr>
<tr>
<td>No injury diagnosis recorded</td>
<td>29 16.7</td>
<td>20 1.3</td>
</tr>
<tr>
<td>ALL</td>
<td>174 100.0</td>
<td>1,486 100.0</td>
</tr>
</tbody>
</table>

Note: *Cell counts less than 5
Discussion

The current study is focussed on investigating the immediate, serious physical harm done to women when they are assaulted by their current or former intimate partners. Over the five-year study period, 3,794 women aged 15 years and over attended Victorian hospitals with IPV-related assault injuries, most commonly to the head, face and neck. Forty-four percent were admitted to a hospital ward for treatment; the remainder (56%) were treated in the emergency department and discharged. The hospital admission rate for women with IPV-related injury is slightly higher than for women who present to hospital for treatment of unintentional (accidental) injury (44% vs 39%).

These figures are likely underestimates of even the number of women in Victoria who disclose that their injury was IPV-related on presentation to the ED or during treatment. The current study found an additional 767 ED presentations for partner assault (153 cases per year) by text searching the narratives of cases coded by the 39 VEMD hospitals to five other ‘human intent’ codes: ‘sexual assault’, ‘assault not otherwise specified’, ‘intention cannot be determined’, ‘other specified intent’ and ‘intention not specified’. The average number of additional eligible cases identified per VEMD hospital was 20 (range 0-135). However, almost all case narratives from the three VEMD hospitals that had the highest proportion of cases coded to these five codes were uninformative – all three were major hospitals in terms of the number of injury cases treated (VISU unpublished data). Several other hospitals with high proportions of cases coded to these 5 codes provided variable quality case narratives, with over half uninformative (VISU, unpublished data).

Four overseas ED studies (three from the U.S. and one from Canada) found that between 2 and 4.3% of female patients aged 16/18 years and older presenting to EDs have acute injuries caused by a current or former intimate partners (Sprague et al., 2014, review). Three UK Accident and Emergency Department studies have reported lower prevalence estimates of IPV-related acute trauma (0.3% through 0.5 to 1%) (Sethi et al., 2004). There have been no recent Australian hospital studies that have investigated the underrecording of identified IPV-related cases presenting to the emergency department and/or on admission by surveying patients in the ED and hand searching patient records.

Medical and other ED staff with responsibility for data collection and entry should be trained/ counselled to use the specific VEMD Human Intent code 5 Multitreatment, assault by domestic partner when they assess that partner violence is the most likely human intent in the occurrence of the injury (as instructed in the VEMD User Manual) and the quality of VEMD data should be closely monitored. ED clinicians should also be alerted to the patterns of injury associated with IPV – head, neck or face injuries, especially if injury to multiple body sites is also noted, and the injury event happened in the home and was unwitnessed (Wu et al., 2010, review; Yau et al., 2013). These markers of IPV were identified in a meta-analysis of data from observational studies conducted in EDs in the U.S., Greece and Ireland and could be used for case finding (Wu et al., 2010, review).

VEMD hospitals are sourced by the Department of Health and Human Services (DHHS) to collect injury surveillance data (and the collection is mandatory) but no data quality benchmarks for coded and case narrative data have been developed or enforced. This shortcoming should be addressed, as good quality hospital injury data are needed to underpin the development of sound public policy and prevention and control measures to reduce injury (including IPV-related assaults on women) and to monitor the effectiveness of any new preventative interventions. The Victorian government has recently funded the development of the Victoria Family Violence Index to measure its effectiveness in addressing family violence and ED presentations data are being considered for inclusion in the Index, underlining the importance of immediate action to improve VEMD data quality (Premier of Victoria, 2015). Hospital admissions data should also be considered for inclusion in the index as they may be a more stable indicator.

The core VISU grant from DHHS does not cover the provision of regular ED staff training on VEMD data collection to improve data quality. VISU provides the ED Directors of all VEMD hospitals with a tailored annual report on the quality of their hospital’s coded VEMD data benchmarked against similar hospitals. Past interactions between hospital ED and VISU staff over data quality issues indicate that the attitudes of senior ED and hospital managers are key influences on the quality of VEMD injury surveillance data collected in the ED.

The population-based Australian Bureau of Statistics (ABS) Personal Safety Survey (PSS), last conducted in 2012, is also a potential source of information on the number of women who seek hospital ED treatment for IPV-related assault injury over a 12-month period (which would give an estimation of VEMD case capture rate). However, the current questionnaire collects information on GP use but not separately for ED service use. There is evidence from overseas studies that women experiencing partner abuse are high users of ED services (for both trauma and non-trauma-related complaints) and that they use the ED rather than other health care services (Richardson et al., 1996; Hoelle et al., 2015).

The ABS should consider the inclusion of ‘hospital Emergency Department nurse or doctor’ as a discrete response to the current questions in the partner violence section of the survey that seek information on the medical treatment sought by persons experiencing physical injury and the help-seeking actions taken by persons experiencing partner violence. This change in the PSS (which was last conducted in 2012 and is planned to be conducted every five years) would allow assessment of the completeness of partner assault data collected in Victorian hospitals.

The above discussion pertains to current under-reporting of patient-disclosed cases in Victorian hospitals, not under-reporting due to non-disclosure of IPV by patients. This issue is discussed below in the section headed ‘Interventions in the ED to address IPV’.

IPV and pregnancy

Disturbing findings from the current study were that at least 13% of women aged 15-44 years admitted to hospital for IPV-related assault injury were pregnant and that the most common body region injured among pregnant women was the abdomen, pelvis and lower back. The pattern of IPV assault injuries among pregnant women was very different to that found for their counterparts who were not pregnant. Based on analysis of injury diagnoses data (more than one diagnosis can be recorded for each case), the current study found that half the pregnant women hospitalised for IPV-related injuries had injuries to the abdomen, pelvis and lower back compared to 15% of their non-pregnant counterparts. The pattern was reversed for head injuries – around two-thirds of non-pregnant women had head injuries compared with one-quarter of pregnant women. More research is needed to confirm this finding (as the sample of admissions in the current study may be subject to bias) and to investigate whether the abdominal area of pregnant women is specifically targeted in some partner assaults.
Australian and overseas research studies confirm that abdominal trauma is a frequent outcome of IPV assaults on pregnant women (Sarkar, 2008 review; Bailey, 2010 review). Documented detrimental effects of assaults on pregnant women include breast and genital injury, miscarriage, pre-term birth or abortion, later trimester bleeding and infection and, in extreme cases, death (Sarkar, 2008 review). For the unborn child, adverse effects include foetal distress, lesser gestational weight gain, pre-term birth and foetal death (Sarkar, 2008 review).

Does pregnancy trigger, escalate or protect against IPV? A review of research in this area by Bailey (2010) indicates that the answer is currently unclear due to differences in the way IPV was defined and assessed in studies on pregnancy and partner violence, and the different populations studied. What is known is that the majority of women who report violence from their intimate partner during pregnancy also report a prior history of IPV (Gartland et al., 2011; Bowen et al., 2005; Bailey 2010).

There are few longitudinal studies in Australia and comparable countries that have investigated the prevalence and pattern of IPV among large cohorts of pregnant women before and during pregnancy and after childbirth. A British longitudinal study followed a cohort of 7,600 women while pregnant to 33 months after the birth of their child (Bowen et al., 2005). Participants were not asked about their experience of IPV (physical and/or emotional) prior to pregnancy. The study found that IPV escalated after childbirth with a smaller proportion of women reporting IPV during pregnancy (5.1%) than at 8 months (7.7%), 21 months (8.8%) and 33 months (11.0%) after childbirth.

In an Australian longitudinal cohort study, 1,507 pregnant women aged 18-50 years were recruited from six Melbourne hospitals and followed through their pregnancy to 12 months after birth (Gartland et al., 2011). The women were not asked about their experience of physical/emotional abuse, past or current, in the questionnaire completed in early pregnancy. However, a much higher proportion of women than in the British study (17% vs. 8%) reported experiencing physical and/or emotional abuse by their current partner in the first year after childbirth: 9% reported emotional abuse alone, 5.4% reported both physical abuse and emotional abuse and 2.2% reported physical abuse alone.

The Australian study also investigated women’s experience of fear of any partner before, during and/or after pregnancy (Gartland et al., 2011). Close to one quarter of women (23.8%) reported fear at some time over the period studied: 14.7% reported fear of an intimate partner (not necessarily their current partner) prior to pregnancy; 5.1% reported being afraid of their current partner during pregnancy; and a similar proportion (5.4% but not always the same women) reported being afraid of their current partner in the 12 months following childbirth. Most of the women reporting fear after childbirth also reported fear before and/or during pregnancy. The study found that women’s experience of fear varied considerably over time, with relationship changes such as separation accounting for some of this variability.

There is evidence from the 2012 ABS Personal Safety Survey that pregnancy triggers partner violence in some relationships (ABS 2014). The survey found that around three-quarters of women in Australia who reported experiencing partner violence by their current partner were pregnant at some time during the relationship. Around one-fifth of these women experienced partner violence during pregnancy and for more than half of this group it was the first time they had experienced partner violence (ABS, 2014).

The risk factors associated with IPV risk in pregnancy and the effectiveness of trialled interventions to address IPV in this vulnerable group of women are discussed in Part 2.

IPV and alcohol use

The current study found that at least 12% of women admitted to hospital for IPV-related injury had used alcohol, with over half of these women acutely intoxicated on admission and a further one quarter diagnosed as either having dependence syndrome or suffering from alcohol withdrawal. Findings from a high quality Australian study indicate that these figures are likely underestimates (McKenzie et al., 2010). McKenzie and colleagues examined a stratified random sample of 4,373 injury hospitalisations drawn from four states of Australia (including Victoria) and compared the proportion of alcohol-related cases using ICD-10 codes (as used in the current study) to the proportion identified by a manual patient medical record review (McKenzie et al., 2010). The study found that among assault injury patients, the coded data only identified 29% of the alcohol-related assault cases identified by the search of medical records (McKenzie et al., 2010). The study did not investigate the amount of underreporting due to failure of clinicians to note observed alcohol involvement in the patient’s medical record.

There is consistent evidence that alcohol use by one or both partners is a contributory factor to IPV occurrence and the severity of IPV-related injuries, but findings from risk factor studies indicate a weaker than expected association between alcohol use and IPV when other risk factors are controlled for in the analysis (Capaldi et al., 2012). Delineating cause and effect is also a problem as alcohol use may be a response to IPV. It has been suggested that interventions that reduce alcohol consumption (e.g., alcohol pricing, alcohol sales restrictions, alcohol outlet density controls and couples and individual level treatment interventions) may also reduce IPV. A recent systematic review found that only a small number of evaluation studies had been done in this area and that none convincingly established that any reductions in IPV were attributable to the alcohol intervention (Wilson et al., 2014, review).

Interventions in the ED to address IPV

As discussed above, the current study revealed that each year in Victoria at least 750 women presenting to Victorian hospitals for treatment of injuries disclose that they were assaulted by their current or former partner. It is not known what support, advice or services, if any, are offered to these patients. There is another group of patients who seek health care in the ED for injury and other complaints but do not disclose the associated abuse. Barriers to disclosure identified in overseas research include patient-related factors such as embarrassment, shame, fear of retaliation from partner, reluctance to identify the perpetrator and the lack of privacy in the ED setting; clinician-related factors include lack of knowledge, skills, confidence and/or willingness to inquire about IPV and competing demands in the busy ED setting (Waalen et al., 2000; Feder et al., 2006; Yau et al., 2013).

There are two alternative approaches to improving the identification of women who are experiencing IPV in health care settings: routine inquiry of all women regardless of presumed risk (screening) or asking only women with symptoms (case finding) (Taft et al., 2013). The World Health Organisation (WHO) published a set of clinical and policy guidelines in 2013 setting out the appropriate responses of health care providers to IPV against women, including clinical intervention and emotional support) based on research evidence and expert opinion (WHO, 2013).

The WHO guidelines do not recommend routine screening in the ED but support the more selective case finding approach to improve diagnosis and care, provided that
clinicians have been trained on how to enquire sensitively about IPV, the best way to respond to women making disclosures, and there is a developed response/referral/care pathway policy and services in the hospital (WHO, 2013). The WHO guidelines highlight the importance of doing as much as possible during first contact in the ED, in case the injured woman does not return (WHO, 2013). However, the findings of a meta-analysis of qualitative studies on the experiences and expectations of survivors highlighted that clinicians should be respectful and not pressure women to disclose information or take precipitous actions such as leaving the relationship or reporting the assault to the police (Feder et al., 2006).

The most recently published systematic review of the evidence base for patient screening for IPV supports the WHO position on screening. The Cochrane review of randomised or quasi randomised trials assessed whether screening in health care settings increased identification and referral to support agencies, improved women’s subsequent wellbeing and did not cause harm (Taft et al., 2013). Only randomised or quasi randomised studies that involved all women aged ≥16 attending a healthcare setting were eligible. Eleven eligible trials (four conducted wholly or partly in EDs) were identified. Pooling the data from six studies, the review found that screening increases the identification of IPV by 103% (RR, 2.33; 95%CI 1.40 to 3.89) compared to usual care, particularly in antenatal settings but also in the ED. The reviewers commented, however, that rates of identification were low compared with best estimates of IPV prevalence (Taft et al., 2013). There was no evidence that screening increases referrals to domestic violence support services (based on 3 studies) or reduced IPV (based on 2 studies), and weak evidence that screening does not cause harm (one study).

The reviewers concluded that there is insufficient evidence to recommend screening in health care settings, as current evidence from good quality studies does not show that screening improves outcomes for women identified as experiencing IPV (Taft et al., 2013). They recommended further research on screening versus case finding (Taft et al., 2013).

At least three Victorian hospitals—the Royal Women’s Hospital (RWH), in partnership with Bendigo Health (BH) and Our Watch (OW) and the Dandenong Hospital—are undertaking projects to improve their response to patients who disclose family violence (The Age Newspaper 24/3/2015; personal communication, Pippa van Paauwe, Project Manager, Preventing violence against women, Planning and Service Development, Royal Women’s Hospital). Medical personnel in all three hospitals are being trained to better identify and sensitively respond to patients experiencing partner/family violence and briefed on legal redresses for women experiencing IPV. Both the Royal Women’s and Dandenong Hospitals have entered into partnerships with community and legal centres working in the area of family violence to improve the hospital’s support for women who disclose they are experiencing family violence. Lawyers from family violence agencies/ community legal services are providing free legal help, on-site at these hospitals one or more times a week, for referred patients.

The Royal Women’s Hospital is also examining ways to systematically record and track patients who disclose IPV/family violence and the support they are given, as much of this information is currently stored on paper files or separate electronic datasets in a number of different hospital departments (personal communication, Pippa van Paauwe, Project Manager, Preventing violence against women, Planning and Service Development, Royal Women’s Hospital). The RWH-BH-OW project Strengthening Hospitals Responses to Family Violence, funded by the Department of Health and Human Services, is designed as a demonstration project with the expectation that the learning and any developed resources are made available to all Victorian hospitals.

Because individual Victorian hospitals are beginning to address the issue of IPV, it appears an opportune time to develop and conduct a study involving a representative sample of the 39 Victorian VEMD hospitals to underpin a system-wide, evidence-based approach. This is in line with the Victorian government’s preferred approach to addressing family violence articulated in the Terms of Reference of Victoria’s Royal Commission into Family Violence (RCFV, 2015). More knowledge is needed about: the capture of IPV-related assault cases in the ED and on the VEMD and the VAED; the hospital- and staff-related barriers to the identification and recording of IPV cases; the current level and type of support provided to women disclosing IPV in the ED or on admission; and the feasibility of trialling an evidence-based intervention in the ED setting to better identify, support and care for Victorian women experiencing IPV.

Conclusion

The current study highlights the serious physical harm done to Victorian women by their current and former partners. The figures reported in this study may underestimate the size of the problem, due to underreporting and underrecording of IPV assault cases on hospital datasets, the lack of a case finding approach in Victorian EDs and the barriers to patient disclosure that operate in the ED and the broader hospital setting. Caution should therefore be exercised when interpreting these findings.

Some of our major hospitals do not provide complete and informative data on IPV-related ED presentations and hospital admissions – the need for improved data quality should be acknowledged and addressed by hospital management with DHHS taking the lead on this issue. Reliable estimates of the size of the IPV-related injury problem are needed to better inform government decisions on resource allocation to IPV research, prevention and services and to evaluate preventive interventions.


The recommendations at the end of Part 2 of this report are mainly restricted to strategies and measures to determine the prevalence of partner violence in Victoria and improve the quality of data on (domestic) partner assault cases recorded on hospital datasets (the VEMD and VAED).

Acknowledgement

The authors would like to thank Ms Sonia Reisenhofer, International Development and Co-ordination, School of Nursing & Midwifery, La Trobe University and Dr Ian Mosley, Senior Lecturer, College of Science, Health & Engineering, La Trobe University for their editorial comments on an earlier version of this hospital study report.
Part 2: Summary of the current state of knowledge of IPV prevalence in Australia, the known risk factors for IPV and the efficacy and effectiveness of trialled interventions

Authors: Erin Cassell, Tharanga Fernando

It is outside the scope of this project to provide an independent literature review. This section of the report includes a summary of the current state of knowledge of IPV prevalence in Australia (and Victoria), the known risk factors for IPV and the efficacy and effectiveness of trialled interventions based on recently published literature reviews with additional information on some recently published local studies and some commentary.

Prevalence of IPV in Australia and Victoria

Prevalence is defined as the number of instances of a given disease or condition in a given population at a designated time (Last, 1988). The annual prevalence is the total number of persons with the disease or condition at any time during a year and includes new and continuing cases. The lifetime prevalence is the total number of persons known to have the disease or condition for at least part of their lifetime.

Population based surveys have the potential to provide reliable evidence on the exposure of women living in Australia and Victoria to violence, including intimate partner violence (IPV) although they may still be affected by under-reporting as respondents may be reluctant to disclose their experience of partner violence and/or their relationship with the perpetrator.

The recently released ABS survey Personal Safety, Australia 2012 (PSS) is the most up-to-date source of information on Australian women’s (and men’s) experience of violence (physical and sexual violence and threats of violence) (ABS, 2014). The survey investigated the nature and extent of violence and partner violence experienced by women and men since the age of 15 (‘lifetime’ prevalence) and in the 12 months prior to the survey, an indication of annual prevalence (ABS, 2014).

A representative sample of over 17,000 adult women and men aged 18 years and over from all Australian states and territories completed the questionnaire in face-to-face interviews conducted by specially trained interviewers from February to December 2012. The response rate to this household survey was 55%, so bias may be an issue. Results were extrapolated to the whole Australian population. The PSS was previously conducted in 2005 (ABS, 2006) and is planned to be conducted every five years, so the prevalence of violence and IPV in Australia can be monitored over the long term. Survey data were analysed by gender, age, type of violence, selected characteristics of different types of violence and state/territory of residence. State-based data analysis may have been limited because of sample size issues. The Victorian government should consider funding the oversampling of the Victorian population in the PSS 2017 to improve the reliability and usefulness of survey data for prevention and evaluation purposes.

The methodology of the survey and definitions used are summarised in Table A. The key published results of PSS 2005 and PSS 2012 on the extent and nature of violence experienced by women are summarised in Tables B and C. The ABS publishes only selected data in their web-published releases and associated data cubes. Universities can access the unit record level file for research purposes on application to the ABS.

Federal government bodies co-funding the PSS should ensure that key IPV prevalence data by gender, age and type of violence (physical and sexual) are made publicly available in the first ABS release of survey results. Australia’s National Research Organisation for Women’s Safety (ANROWS) has been funded to do additional analysis of PSS 2012 data (ANROWS, 2015). The Victorian government should resource a University-linked research group to analyse and compare the Victorian data on violence and partner violence in the PPS 2005 and 2012 as there is the potential to derive valuable additional information from these surveys.

Federal government bodies co-funding the PSS should ensure that key IPV prevalence data by gender, age and type of violence (physical and sexual) are made publicly available in the first ABS release of survey results. Australia’s National Research Organisation for Women’s Safety (ANROWS) has been funded to do additional analysis of PSS 2012 data (ANROWS, 2015). The Victorian government should resource a University-linked research group to analyse and compare the Victorian data on violence and partner violence in the PPS 2005 and 2012 as there is the potential to derive valuable additional information from these surveys.

Prevalence of women’s experience of violence in Australia and Victoria

The PSS 2012 found that an estimated 41% of all women in Australia aged 18 years and older had experienced violence (physical and sexual assaults and threats of assaults) perpetrated by males and females over their ‘lifetime’ (defined as since age 15) reducing to 5% in the 12 months prior to the survey (ABS, 2014; Table B). There was little change in the reported overall prevalence of violence against women (‘lifetime’ and in past 12 months) by male and female perpetrators between PSS 2005 and PSS 2012 (Table B). The sparse data released for Victoria revealed that 5% of women reported experiencing violence in the 12 months leading up to the survey in 2012, the same as the figure for Australia; no ‘lifetime’ prevalence figure for Victoria is published (Table B).

When available data on the types of violence experienced by women in Australia were examined, PSS 2012 revealed that 30% of women reported experiencing physical assault since age 15 years, 13% reported being the subject of threats of physical harm, 17% reported experiencing sexual assault and 4% reported experiencing sexual threats (ABS 2014, Table B). Again, there appeared to be little change in the prevalence of the different types of violence experienced by women between the surveys (Table B). No estimates were published for Victoria (Table B).

When the analysis was confined to women’s experience of violence perpetrated by men, the PSS 2012 found that an estimated 39% of women in Australia had experienced violence perpetrated by men since the age of 15; the 12 months prevalence figure was not published and no data were provided on the types of violence experienced (ABS, 2014; Table B).

Estimates of the prevalence of partner violence were also selectively reported (Table C). There was sparse published data for both Australia and Victoria in the ABS release (ABS, 2014; Table C). The PSS 2012 found that an estimated 17% of Australian women had experienced partner violence since the age of 15; the estimated prevalence of partner violence by a same sex partner was 0.1% (ABS 2014, Table C). Sixteen percent reported experiencing physical violence and 5% reported experiencing sexual violence since age 15 (Table C). A much smaller proportion of women reported experiencing partner violence in the past 12 months (1.5%); figures on the types of partner violence experienced were not published although the sample size may have been too small to produce reliable estimates except for physical violence. The only published estimate of IPV prevalence for Victoria was the 12 months prevalence estimate; 1.5% of women had experienced partner violence in the last 12 months, the...
same as the estimate for Australia. If oversampling of the Victorian population was funded, future PSSs could provide much needed reliable estimates of the prevalence of IPV and the different types of IPV for this state and allow monitoring of the trends in IPV in Victoria over time.

Other sources of information on the extent and nature of IPV in Victoria


The aim of the VFVD is to report and monitor incidents of family violence from the full range of Victorian data sources to underpin the development and evaluation of new multi-sector and co-ordinated justice and service initiatives that address family violence and improve the safety of women and children in Victoria.

In summary, these data sources show that in Victoria there were:

- 40,892 family violence incidents reported to Victoria Police in 2010/11, a 14.6% increase from the previous year, most likely due to increased reporting and improved police response rather than an increase in incidents (Victoria Police, LEAP dataset).
- 26,652 intervention orders granted by Victorian Magistrates’ Court in 2009/10, affecting 43,906 family members, from the 43,958 applications made (Victorian Magistrates’ and Children’s Court Courtlink database).
- 23,500 client support periodsflagged for domestic violence-related issues provided by the Victorian Accommodation Assistance Program (VSAAP) agencies in 2009/10.
- 18,574 services provided to family violence clients (both victims and perpetrators) in 2010/11 by Victoria Legal Aid (VLA).
- 16,307 clients (including affected women and children and men who use violence) provided with services by the Department of Human Services (DHS) agencies in 2010/11, 1.4 times as many as in the previous year (Department of Human Services, Integrated Reporting Information System [IRIS]).
- 621 presentations to 38 public hospital emergency departments in 2009/10 for injuries due to maltreatment/assault by a domestic partner or child maltreatment by a parent/guardian (Department of Health, Victorian Emergency Minimum Dataset- VEMD). [Note: the current study found more cases by searching narratives of cases coded to a broader range of Human Intent codes.]

In May 2015, the Victorian Minister for the Prevention of Family Violence announced that ANROWS has been funded to develop the Victoria Family Violence Index by defining what measures, statistics and data should be included in the index (Premier of Victoria, 2015). Potential inclusions are: hospital emergency department (ED) presentations, police data, the number of convicted perpetrators, homelessness and community attitudes towards women and violence.

Table A Definitions used and study characteristics of Australian population surveys investigating women’s exposure to (Intimate) Partner Violence: Personal Safety Surveys (PSSs), Australia 2005 (ABS 2006) and 2012 (ABS 2014)

<table>
<thead>
<tr>
<th>Study Characteristics</th>
<th>Personal Safety Survey, Australia 2005 (ABS 2006) and 2012 (ABS, 2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitions</td>
<td>Partner violence: any incident of physical assault, physical threat, sexual assault or sexual threat involving a person the respondent currently lives with, or lived with at some point in a married or de facto relationship. Includes same sex partners. Does not include violence by a boyfriend or girlfriend or date. Only incidents perpetrated by current or past cohabitating partners included.</td>
</tr>
<tr>
<td></td>
<td>Physical violence: includes incidents involving the occurrence, attempt or threat of physical assault experienced by a person since the age of 15 (earlier physical assaults are defined as abuse). The types of physical assaults included are the same as included in International Violence Against Women’s Survey (IVAWS).</td>
</tr>
<tr>
<td></td>
<td>Sexual violence: Any incident involving the occurrence, attempt or threat of sexual assault experienced by a person since the age of 15. Sexual threat involves the threat of acts of a sexual nature; sexual assault includes rape, attempted rape, aggravated sexual assault with a weapon, indecent assault, penetration by objects, forced sexual activity and attempts to force a person into sexual activity. Excludes unwanted sexual touching (defined as sexual harassment).</td>
</tr>
<tr>
<td></td>
<td>Prevalence: ‘Lifetime’ prevalence: term not used. Equivalent item descriptor: ‘since the age of 15 years’</td>
</tr>
<tr>
<td></td>
<td>12-month prevalence: in last 12 months</td>
</tr>
<tr>
<td>Method</td>
<td>Computer Assisted Interview (CAI); face-to-face interviews with men and women aged 18 years and older.</td>
</tr>
<tr>
<td>Sample design</td>
<td>Dwellings in each state and territory were selected at random using stratified, multistage area sample design.</td>
</tr>
<tr>
<td>Household selection method</td>
<td>41,350 private dwellings were selected (targeting 31,650 females and 9,700 males) and approached. From these, 30,200 eligible dwellings were identified.</td>
</tr>
<tr>
<td>Respondent selection method and conduct of interviews</td>
<td>A person aged 18 years and over who is a usual resident of the selected household was randomly selected. All interviews were conducted with respondents alone in a private setting, the option of conducting interview in an alternative location or by telephone was offered. No proxy interviews were conducted. Interpreters or other family members were not used. A small number of interviewers with foreign language skills were trained – foreign language interviews were mainly conducted over the phone.</td>
</tr>
<tr>
<td>Selection and training of interviewers</td>
<td>All female. Experienced ABS interviewers; a two-day training program that included tailored sensitivity and awareness training. Male interviewers available on request but no requests received.</td>
</tr>
<tr>
<td>Structure of survey</td>
<td>CAI (Computer Assisted Interview) developed by the Australian Bureau of Statistics with the assistance of a Survey Advisory Group of experts in the field of crime and violence.</td>
</tr>
<tr>
<td>Sample size</td>
<td>17,050 persons aged 4-18 (13,307 women and 3,743 men)</td>
</tr>
<tr>
<td>Response rate</td>
<td>Final response rate 57% [57% for females (n=13,307);and 56% for males (n=3,743)]</td>
</tr>
</tbody>
</table>
The Index, a world first, will enable the government to monitor progress on initiatives to address/reduce family violence in Victoria over time and provide guidance for decision makers on how and where to allocate resources. The findings of the current study indicate that measures will need to be taken to improve the completeness and quality of ED presentations data recorded on the VEMD. Hospital admissions should also be considered for inclusion because they may be a more stable indicator. The strength of including hospital data in the Index is that these data include cases that are not reported to police.

**Risk factors for IPV**

The most recent comprehensive systematic review of the literature investigating risk factors for IPV was conducted by Capaldi et al. (2012) and covered papers published from 1980 to 2011. For the purposes of this review, IPV was defined to include the perpetration of physical, psychological and sexual abuse in married, cohabitating and dating couples. The authors commented that the quality of studies had improved over time, which allowed them to adopt more stringent study inclusion criteria than previous reviews (Capaldi et al., 2012).

Only two types of studies qualified: longitudinal studies (a strong design for risk factor research) and cross sectional studies that included a representative community comparison group that had not experienced IPV (i.e. case control/comparison studies) (Capaldi et al., 2012). The strength of longitudinal studies, also known as cohort studies, is that they measure risk factors prior to the abuse outcome (that is prospectively), so the confounding effect of competing risk factors can be controlled for in the analysis. A limitation of studies of cross-sectional design per se is that it is impossible to know whether exposure to the risk factor was present prior to the experience of IPV, a necessary condition to prove causality, or whether the risk factor may have been an outcome of the IPV. For example, alcohol use is commonly observed in victims of IPV – only a longitudinal study can reliably untangle whether alcohol use is a risk factor for IPV or a proximal or longer term response to partner abuse.

The literature screening and evaluation process undertaken by Capaldi and colleagues (2012) found 228 articles (using 95 unique samples) that met all five inclusion criteria: (1) publication in a peer reviewed journal; (2) a representative community sample or a ‘clinical’ sample (for example women in shelters, injured women presenting to hospitals) with a representative community sample (a representative community sample or

<table>
<thead>
<tr>
<th>Survey dates</th>
<th>August to December 2005</th>
<th>February to December, 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Nature and extent of violence experienced by men and women since the age of 15 and in last 12 months</td>
<td>Nature and extent of violence experienced by men and women since the age of 15 and in last 12 months</td>
</tr>
<tr>
<td>RESULTS</td>
<td>Since age 15 AUS (VIC)</td>
<td>Last 12 months AUS (VIC)</td>
</tr>
<tr>
<td>Experienced violence persons</td>
<td>44.9% (n/a)</td>
<td>8.3% (8.6%)</td>
</tr>
<tr>
<td>male</td>
<td>50.1% (n/a)</td>
<td>10.9% (10.9%)</td>
</tr>
<tr>
<td>female</td>
<td>39.9% (n/a)</td>
<td>5.8% (6.5%)</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a (n/a)</td>
<td>n/a (n/a)</td>
</tr>
<tr>
<td>Physical assault persons</td>
<td>41.0% (n/a)</td>
<td>7.5% (7.7%)</td>
</tr>
<tr>
<td>male</td>
<td>49.0% (n/a)</td>
<td>10.4% (10.1%)</td>
</tr>
<tr>
<td>female</td>
<td>33.3% (n/a)</td>
<td>4.7% (3.1%)</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a (n/a)</td>
<td>n/a (n/a)</td>
</tr>
<tr>
<td>Physical threat persons</td>
<td>35.0% (n/a)</td>
<td>4.8% (n/a)</td>
</tr>
<tr>
<td>male</td>
<td>40.5% (34.7%)</td>
<td>6.5% (6.4%)</td>
</tr>
<tr>
<td>female</td>
<td>29.2% (25.1%)</td>
<td>3.1% (3.4%)</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a (n/a)</td>
<td>n/a (n/a)</td>
</tr>
<tr>
<td>Experienced sexual violence</td>
<td>12.4% (n/a)</td>
<td>1.1% (1.5%)</td>
</tr>
<tr>
<td>persons</td>
<td>5.5% (n/a)</td>
<td>0.6% (1.0%)*</td>
</tr>
<tr>
<td>male</td>
<td>19.1% (n/a)</td>
<td>1.6% (2.1%)</td>
</tr>
<tr>
<td>female</td>
<td>10.8% (8.8%)</td>
<td>2.1% (2.3%)</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a (n/a)</td>
<td>n/a (n/a)</td>
</tr>
<tr>
<td>Sexual assault persons</td>
<td>n/a (n/a)</td>
<td>0.9% (n/p)</td>
</tr>
<tr>
<td>male</td>
<td>4.8% (5.1%)</td>
<td>0.6% (n/p)</td>
</tr>
<tr>
<td>female</td>
<td>16.8% (16.7%)</td>
<td>1.3% (1.8%)</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a (n/a)</td>
<td>n/a (n/a)</td>
</tr>
<tr>
<td>Sexual threat persons</td>
<td>n/a (n/a)</td>
<td>0.3% (n/p)</td>
</tr>
<tr>
<td>male</td>
<td>0.9% (n/p)</td>
<td>0.1% (n/p)</td>
</tr>
<tr>
<td>female</td>
<td>4.6% (4.4%)</td>
<td>0.5% (n/p)</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a (n/a)</td>
<td>n/a (n/a)</td>
</tr>
</tbody>
</table>

Notes: Estimate has a relative standard error of 25% to 50% and should be used with caution. *np: not available for publication but included in totals where applicable. n/a: not available in published ABS PSS 2005 and 2012 releases (ABS, 2006 and ABS, 2014) but relevant items collected in survey.

**Figure A. Ecological model – four levels of influence on risk factors for IPV**

comparison group; (3) a response rate of at least 50%; (4) the use of a physical or sexual violence outcome measure; and (5) control of confounding factors in the analyses. Most eligible studies (around 60%) were cross-sectional with a comparison group and few included sexual violence. Most investigated bidirectional — male to female and female to male — violence; none involved same sex couples.

Eligible studies were mostly conducted in the United States, but there were a few studies from Canada, United Kingdom, New Zealand and Australia. Study findings were evaluated and discussed hierarchically with evidence from longitudinal studies given greater weight.

The authors used ‘dynamic development systems’ perspective as the organising conceptual framework when summarising systems’ perspective as the organising framework when summarising

**Individual-level factors**

**Age:** Evidence clearly indicated that younger age is a risk factor, and older age a protective factor, for IPV. IPV peaks in late adolescence and young adulthood and then declines as age increases.

**Socioeconomic status:** The weight of evidence suggested that unemployment and low income are stronger and more robust demographic risk factors for IPV than education level.

**Race/ethnicity:** Available evidence (mostly from the U. S.) indicated that minority group membership is predictive of IPV, with findings of greater risk (for both IPV victimisation and perpetration) being most consistent for African-Americans and mixed for Hispanic Americans. A New Zealand birth cohort study found that men and women reporting Maori ethnicity are at higher risk of both IPV victimisation and perpetration.

**Results**

Since age 15

<table>
<thead>
<tr>
<th>Experience partner violence</th>
<th>Personal Safety Survey Australia 2005 (n=16,400)</th>
<th>Personal Safety Survey Australia 2012 (n=17,069; 13,307 women and 3,763 men aged 9-18)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Since age 15 AUS (VIC)</td>
<td>Last 12 months AUS (VIC)</td>
</tr>
<tr>
<td>all persons</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>male</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>female</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Physical partner violence**

<table>
<thead>
<tr>
<th>Physical assault</th>
<th>Personal Safety Survey Australia 2005 (n=16,400)</th>
<th>Personal Safety Survey Australia 2012 (n=17,069; 13,307 women and 3,763 men aged 9-18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>all persons</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>male</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>female</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Physical threat**

<table>
<thead>
<tr>
<th>Physical threat</th>
<th>Personal Safety Survey Australia 2005 (n=16,400)</th>
<th>Personal Safety Survey Australia 2012 (n=17,069; 13,307 women and 3,763 men aged 9-18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>all persons</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>male</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>female</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>female, male perpetrator</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Sexual violence**

<table>
<thead>
<tr>
<th>Sexual assault</th>
<th>Personal Safety Survey Australia 2005 (n=16,400)</th>
<th>Personal Safety Survey Australia 2012 (n=17,069; 13,307 women and 3,763 men aged 9-18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>all persons</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>male</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>female</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>female, male partner</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Notes:**

- Estimate has a relative standard error of 25% to 50% and should be used with caution
- np: not available for publication but included in totals where applicable
- n/a: not available in ABS PSS 2005 and 2012 releases (ABS, 2006 and ABS, 2014), but items collected in survey

**Exposure to IPV in family of origin and experience of child abuse:** There was emerging evidence that more proximal risk factors related to subsequent problematic development, including antisocial behaviour and substance use problems, may mediate this association.
studies investigating the association between developmental characteristics, such as conduct disorder in children and antisocial personality disorders in adults, and IPV. There was robust evidence that conduct disorder/problems/antisocial behaviours in childhood and adolescence are strong predictors of IPV perpetration in adulthood and that adult antisocial behaviours and hostility are substantial risk factors for IPV involvement.

**Stress:** Emerging evidence suggested that stress—financial, parenting, work-related and acculturation—is a predictor of IPV perpetration.

**Substance (alcohol and illicit drug) use:** Although there was evidence of an association between indicators of alcohol use and IPV perpetration and victimisation, the review authors considered that the proposition that alcohol use is a significant predictor of IPV is not established. Findings from studies that investigated the role of alcohol, after controlling for other risk factors, were conflicting. There was emerging evidence that illicit drug use may be a stronger predictor of IPV perpetration and victimisation than alcohol use.

**Relationship-level factors**

**Parenting factors (other than witnessing parental IPV and child abuse):** Findings from adolescent studies indicate that parenting factors were relatively low-to-moderate predictors of dating violence—the positive involvement of parents in the lives of their adolescent children through tracking/monitoring and the encouragement of nonviolent behaviour was found to protect against dating violence perpetration and victimisation.

**Involvement with aggressive peers (for dating violence):** There was relatively robust evidence that having friends who are violent is a strong predictor of involvement in dating aggression (both perpetration and victimization) at adolescence and some evidence that higher friendship quality is a protective factor.

**Social and emotional support/isolation:** Study results were mixed on the protective effect of support but the weight of evidence from a comparatively small number of studies suggested that support and tangible help from others, and from parents for adolescents, are protective for IPV perpetration and victimisation.

**Relationship status and characteristics:** The review authors commented that relationship factors were relatively understudied but that available evidence clearly indicated that marital/relationship status is associated with IPV. Although there were some classification issues, the weight of evidence indicated that being married is protective for IPV when compared with being in a cohabitating (defacto/common law) or dating relationship and being separated is a strong predictor of IPV victimisation.

**Marital or relationship conflict:** Marital or relationship conflict was found to be a robust proximal predictor of IPV for men and women and low relationship satisfaction was shown to be a risk factor for IPV for men and women, which, according to the authors, was most likely due to an association with relationship conflict.

**Community level factors**

**Neighbourhood and community characteristics:** This is a young area of research. The review authors reported that the results from studies investigating neighbourhood and community risk factors, for example neighbourhood disadvantage, collective efficacy (community cohesiveness, willingness to intervene with a neighbour) and social cohesion, were mixed. They concluded that there was no clear evidence to support any of the risk factors studied to date, after controlling for confounders. Most research in this area has been conducted in the U.S. and results may not be relevant to the Australian context because of major differences in neighbourhood profiles in relation to socioeconomic factors and racial/ethnic composition.

Readers interested in the status of current research on neighbourhood environment and IPV and the way forward in terms of questions for future research and recommendations on ways to improve research quality are referred to a recently published systematic review by Beyer et al. (2015). The review included 36 cross sectional studies, 22 conducted in the United States with the remainder mostly conducted in developing countries. No studies were set in Europe or Australia.

**Societal level factors**

No studies of societal-level risk and protective factors were eligible for inclusion in the review by Capaldi et al. (2012). The societal level risk factors for IPV raised in the World Health Organisation (WHO) report Preventing intimate partner and sexual violence against women (WHO, 2010) include traditional gender norms supporting inequality and social norms supportive of violence, ideologies of male sexual entitlement and weak legal sanctions in the area of IPV. The WHO report authors commented that societal level risk and protective factors are under-researched and that gaining a better understanding of how societal norms and laws impact on IPV perpetration should be a priority for future research (WHO, 2010).

**Factors associated with increased risk of IPV during pregnancy**

In the Victorian study by Gartland and colleagues, women who reported fear of an intimate partner and women who experienced IPV in the first year following childbirth were significantly more likely to be younger (aged 18-24 years), not married, on a pension for income, have less education, not be in the paid workforce during early pregnancy and not be eligible for paid maternity leave compared to their counterparts who did not report fear/experience physical or emotional IPV in the 12 months after childbirth (Gartland et al., 2011).

A number of overseas studies confirm that these socio-demographic factors are associated with increased risk of IPV during pregnancy (Bailey, 2010 review). Study authors recommended that young pregnant women from disadvantaged backgrounds should be the special focus of interventions for preventing or reducing IPV. Gartland et al. (2011) also recommended that governments should take into account the potentially beneficial effects of reduced IPV when calculating the costs and benefits of policy initiatives such as a paid parental leave schemes.

**Evidence on effectiveness of interventions to prevent or reduce IPV**

A recent comprehensive review of the effectiveness of intervention programs by Eckhardt et al. (2013), a component of the The Partner Abuse State of Knowledge Project established in the U.S., included studies published from 1990 to 2011 that compared a group of individuals (IPV victims or perpetrators) in an active intervention program to a clearly identified relevant comparison group using an experimental or quasi experimental design. The review authors discussed the issues confronting the authors of past IPV literature reviews and concluded that their reviews were adversely affected by the small number and variable quality of available studies, their highly limited target populations and their overly restrictive focus on revictimisation as the key intervention outcome.
Eckhardt and colleagues further commented that although revictimisation is a very worthy study outcome, it may be a ‘bridge too far’ for interventions that are focussed on the victim rather than the perpetrator of partner violence (Eckhardt et al., 2013). Additional/alternative study outcome variables that they considered appropriate in the context of victim interventions were: reduction of the negative effects of abuse, enhancement of personal and emotional functioning, and positive change in more proximal risk variables such as employment, independent living and safety behaviours (Eckhardt et al., 2013).

Interventions targeting women experiencing IPV

Thirty-one eligible studies evaluating interventions for victims of IPV were reviewed, 16 examining brief interventions (a few minutes to 3 hours of contact) and 15 examining more extended interventions (>3 hours of contact). These studies employed a wide array of outcome variables including partner abuse revictimisation (used in only 40% of studies), behaviours thought to reduce revictimisation risk (e.g., safety behaviours, community resource use), common adverse health outcomes of partner abuse (e.g., PTSD, depression) and other hypothesised indicators of change or recovery (e.g., self-esteem, self-efficacy, social support) (Eckhardt et al., 2013). The diverse nature of the interventions, the different trial settings and the array of outcome variables used made it difficult to succinctly summarise the review results.

Brief interventions

The review found mixed evidence on the effectiveness, under trial conditions, of brief interventions conducted in medical settings (9 studies); prenatal clinics (5 studies), emergency departments (2 studies), primary care (1 study) and multiple medical contexts (1 study). The most consistent positive result was that brief interventions significantly increased the immediate safety planning behaviours of the intervention group compared with controls in four of the six studies reporting this outcome variable (McFarlane et al., 1997; Parker et al., 1999; McFarlane et al., 2002 & 2004; Gillum et al., 2009), but the extent to which safety planning translated to a reduced risk for ongoing abuse was not established.

Only one of four studies with the outcome of enhanced use of community resources reported positive results (Muellemann & Feighny, 1999, conducted in a single hospital emergency department). Only two of the seven studies that had the outcome variable of reduced abuse or violence exposure in the intervention group relative to controls reported positive results (Tiwari et al., 2005; Parker et al., 1999). Both these effective interventions involved pregnant women who disclosed experience of IPV in prenatal care settings; one intervention consisted of a single counselling session given by a nurse midwife (Tiwari et al., 2005) and the other of three counselling sessions evenly spaced throughout pregnancy (Parker et al., 1999).

The results from the two studies (3 articles) conducted in family violence legal clinics were assessed by the review authors as more encouraging, with one study finding increased use of safety behaviours that lasted over an 18-month period (McFarlane et al., 2002) and the other finding substantial reductions in abuse revictimisation relative to controls and some improvements in social support (Bell & Goodman., 2001). The two studies of advocacy interventions related to community policing reported no significant impact on community resource use or risk of revictimisation but one found increased use of legal system interventions and help-seeking for children exposed to IPV (Stover et al., 2009).

Extended interventions

The reviewers reported that the evidence supporting the efficacy of extended counselling and advocacy interventions for IPV victims was more encouraging, mainly based on the promising evidence from several well specified cognitive behavioural therapy (CBT) interventions. The positive findings from two, comparatively small, studies were highlighted: the Kubany and colleagues’ (2003; 2004) Cognitive Trauma Therapy for Battered Women (CTT-BW) and Johnson and colleagues’ (2011) Helping to Overcome PTSD through Empowerment (HOPE) program.

The CTT-BW program targeted formerly battered women who had Post Traumatic Stress Disorder (PTSD) and had ended the abusive relationship (Kubany et al., 2003 & 2004). Several cognitive approaches were used including trauma history exploration, PTSD education, stress management, exposure therapy, self-monitoring of negative self talk and avoiding revictimisation. The larger of the two U.S. clinical trials of CCT-BW involved 125 ethnically diverse women randomly assigned to immediate and delayed CTT-BW. The study found that PTSD was remitted in 91% of women in the immediate intervention group and 83% of the women in the delayed group who completed the program, with large decreases in depression and guilt and substantial increases in self-esteem. Gains were maintained at 3- and 6-month follow-ups.

The HOPE intervention targeted residents of women’s shelters (Johnson et al., 2011). The exploratory RCT of HOPE involved 70 residents of two battered women’s shelters in the U.S. who had all experienced an incident of IPV in the month prior to their admission to the shelter and met the diagnostic criteria for IP-related PTSD or sub-threshold PTSD. Participants were randomly assigned to the HOPE group (n=35), with the control group (n=35) receiving standard shelter services (SSS). The intervention group received a maximum of 12 sessions of HOPE (1-1.5 hours of counselling offered bi-weekly) while in the shelter over a maximum of 8 weeks.

Sessions covered psychoeducation regarding interpersonal violence, PTSD, safety planning, empowerment and CBT skills to manage PTSD and its associated features. Participants in HOPE were found to be significantly less likely to report reabuse than were the control (SSS) group in the 6-months post shelter (47% versus 82%, OR =5.1, 95%CI 1.66 to 15.70). The impact of HOPE on PTSD symptoms was mixed. HOPE did not reduce overall PTSD severity but participants who had received more than five sessions of HOPE reported fewer depressive symptoms and higher levels of empowerment and social support than the control (SSS) group over the six months follow-up period. The study authors recommended that any future trial of this approach should offer post-shelter sessions to participants to give as many as possible the ‘full dose’ of 12 sessions, as the authors believed this could improve study outcomes.

Other extended counselling and advocacy interventions also appeared promising. The reviewers reported that two studies (three articles) of a program of intensive one-on-one advocacy for abused women who had left shelters to facilitate their access to community services showed significantly positive effects on participants’ wellbeing, quality of life and/or resource use (Sullivan and Bybee, 1999; Sullivan et al., 2002; Bybee and Sullivan 2005–3-year follow-up of 1999 study). One of the studies also reported a significant decrease in physical abuse at two-year follow-up (Sullivan and Bybee, 1999), but this outcome was not sustained at 3 years (Bybee & Sullivan, 2005).

Similarly, women in the Healthy Start home visitation program reported significantly lower physical assault victimisation and perpetration than controls during the 3 treatment years but the difference was not significant at the post-intervention follow-up (years 7-9) (Bair-Merritt et al., 2010). Several other therapeutic interventions showed generally favourable impacts on psychological conditions related to IPV victimisation, for example depressive...
Generally, the BIPs involved one or two system although some attended voluntarily. The studies were mostly conducted in the U.S. and participants in the BIPs were predominantly referred by the criminal justice system although some attended voluntarily. Generally, the BIPs involved one or two counsellors facilitating group work over the length of the program that varied from 8 to 52 weeks.

The review by Eckhardt and colleagues (2013) also covered batterer intervention programs (BIPs) for male IPV perpetrators. The eligibility criteria for inclusion in the review were: (1) one or more intervention conditions for perpetrators of IPV and all intervention participants must have been identified as perpetrators; (2) at least one clearly identified comparison group in an experimental or quasi-experimental design; (3) single-group pretest–posttest studies were only included if they used multivariate statistical methods to reduce selection effects; (4) one measure of violence recidivism via police and/or partner report; and (5) publication date from 1990 to 2011, unless reviewers deemed the study “significant” (Eckhardt et al., 2013).

Although finding that there was considerable variability in intervention methods and approaches, the reviewers divided the 30 eligible studies into two groups based on the model of treatment upon which the intervention was based: ‘traditional BIP’ group (20 studies) and alternative to traditional BIPs – ‘alternative BIP’ group (10 studies) (Eckhardt et al., 2013).

The effectiveness of traditional BIPs

The ‘traditional BIP’ group included programs that provide treatment based on a psychoeducational model termed the “Duluth” model (14 studies), a cognitive-behavioural treatment (CBT) model (4 studies), a culturally focussed CBT model - for African American males (1 study) and anger management (1 study). The Duluth model BIP attempts to educate men about their patriarchal attitudes including their perceived right to use power and violence to control and subjugate women and to change related behaviours. The CBT model BIPs consider IPV a learned behaviour and provide therapy to modify how men think about violence and how they manage intense emotions, and teach skills and techniques to enable men to manage their behaviour and prevent future violent episodes.

Nine of the 20 traditional BIPs (7 of the 14 Duluth BIPs and 2 of the 4 CBT BIPs) reported statistically significant differences in recidivism rates between the intervention and comparison group based on some combination of criminal justice records and self/partner reported IPV (Dutton, 1986; Palmer et al., 1992; Taylor et al., 2001; Dobash et al., 1996; Babcock & Steiner 1999; Jones & Gondolf, 2002; Shepard et al., 2002; Bennett et al., 2007; Coulter & Vandeweerdt, 2009). One other (the anger management intervention) showed a small effect (Chen et al., 1989).

Only one of the nine studies finding a significant effect on recidivism used a randomised design (Palmer et al., 1992) and this study and two case control studies that reported positive effects (Dobash et al., 1996 and Palmer et al., 1992) had major methodological flaws. The review authors commented that it appeared that as the methodological rigour of studies increased the likelihood of finding evidence of effectiveness decreased (most studies using a randomised design showed no significant effect), tempered by their qualification that well-designed case control studies can provide reliable evidence of program effectiveness if selection biases are controlled for in the analysis.

The effectiveness of alternative BIPs

The ten studies in the alternative category evaluated supportive or motivational enhancement/stage of change-based active treatment (5 studies); variants of couples therapy (3 studies); a case management–based intervention (1 study); and a combined substance abuse and IPV intervention (1 study). Interventions were delivered in various formats: group format (5 studies); a non-group couple/dyadic approach (1 study); and an individual approach (3 studies).

Two included studies appear to the current author to be ineligible because self-report of instances of IPV was the sole outcome measure of recidivism (see eligibility criterion 4 above). Six studies combined partner-reported and self-reported instances of IPV to measure recidivism and two used partner reported IPV and official records of IPV-related charges.

Six studies were found to be effective (Stith et al., 2004; Musser et al., 2008; Alexander et al., 2010; Brannen & Rubin, 1996; Woodin & O’Leary, 2010; Mbilinyi et al., 2011). One of these appeared to be of questionable eligibility (Mbilinyi et al., 2011) as recidivism was measured only by self-report, one had a very small comparison group consisting of study dropouts (Stith et al., 2004) and another was only marginally effective (Musser et al., 2008). Three of the effective studies compared an active treatment to a no-treatment control group and reported statistically significant differences in recidivism rates between the intervention and the control group.

Two of these involved brief motivational enhancement interventions delivered via telephone counselling (Mbilinyi et al., 2011, possibly ineligible) or in a single session feedback session, with the majority of the session with the perpetrator and then the dyad (Woodin & O’Leary, 2010). The third was a 12-week couples’ therapy intervention but the comparison group was small and made up of cases that failed to attend treatment (Musser et al., 2008).

One study that compared a motivational interviewing-based intake to a structured intake control group found at 6 month follow-up that rates of physical IPV were lower for those in the intervention group than the comparison group (p<.10 – described by the review authors as a marginally significant result) (Musser et al., 2008). This was considered ‘effective’ because of its experimental nature and positive results it reported on secondary outcomes (more treatment engagement and greater responsibility assumptions).

The two other effective studies compared at least two active alternative treatments. Studies in which IPV perpetrators were assigned to couples treatment (Brannen & Rubin, 1996) or to a stages-of-change based intervention (Alexander et al., 2010) reported lower recidivism rates (of IPV and physical IPV, respectively) than IPV perpetrators assigned to traditional Duluth-model BIP.

The review authors concluded that, overall, there was no consistent good quality evidence that either traditional or non-traditional approaches were effective at preventing future episodes of IPV but they found that interventions that address perpetrators’ motivation and readiness to change, in the context of traditional or non-traditional approaches, showed most promise (Eckhardt et al., 2013).

Interventions addressing IPV among pregnant women

Two other recent reviews have exclusively focussed on interventions to address partner violence during pregnancy. The review by Bailey (2010) examined the evidence base for the effectiveness of screening for IPV during pregnancy by prenatal care providers and of the strategies used to manage patients experiencing IPV. Bailey (2010) included a discussion of the merits of available screening
tools in relation to ease of administration, reliability and validity and concluded that three shorter version tools could be effectively used in prenatal care: the 4-item HITS (Hits, Insults, Threatens, Screams tool), the 7-item WASST (Woman Abuse Screening Tool) and the 5-item AAS (Abuse Assessment Screen), although others query whether further testing and validation of these tools are needed (Rabin et al., 2009). Bailey (2010) commented that the field is beginning to learn the best way to screen for IPV but is behind hand on how to effectively intervene. Her review found few studies that demonstrated the effectiveness of patient management options. She included and updated the findings from two earlier reviews of studies evaluating treatment options (Wathen & MacMillan, 2003 and Ramsay et al., 2009) and concluded that the interventions addressing IPV in pregnancy that currently showed most promise are: (1) encouraging patients to use the available shelter and advocacy programs in their area, preferably referring patients to shelters that provide women with intensive advocacy (12 hours or more in total) as part of or after a shelter stay; and (2) providing women with information on protections available through the legal system and on local programs offering assistance for battered.

A recently published systematic review update by the Cochrane Pregnancy and Childbirth group, that only included randomised controlled trials, reached a more sobering conclusion (Jahanfar et al, 2013). Ten studies met the eligibility criteria but their quality assessment scores ranged from very low to moderate. Most of the studies did not report on whether there had been any reduction in episodes of IPV but focussed on whether the interventions improved secondary health outcomes for the mother (such as reducing post-natal depression) or for the baby (such as lessening the risk of reduced birthweight and preterm birth).

The review found that there was evidence from a single study of moderate quality (Kickey et al., 2010) that women who received a psychological therapy intervention reported fewer episodes of partner violence during pregnancy and after birth than the control group of women (risk ratio RR 0.62, 95% CI 0.43 to 0.88).

Results from the studies that measured secondary health outcomes were inconsistent or showed no effect. The review authors concluded that there is currently insufficient evidence to recommend any particular interventional approach to prevent or reduce IPV against pregnant women and that large, high quality randomised controlled trials (RCTs) are needed to fill the knowledge gap of what works to reduce IPV experienced by pregnant women.

Recent local interventions to address IPV in pregnant women and mothers of young children

The Mothers’ AdvocateS In the Community (MOSAIC) study, conducted by researchers from La Trobe and Melbourne Universities (Taft et al., 2011) missed the cut-off date for inclusion in the reviews by Eckhardt and colleagues and by Bailey, and was not covered in the Cochrane review. Because it was a well-designed trial conducted in Victoria its findings are of particular interest and are included in this report. MOSAIC was a cluster randomised trial of a home visiting program. The intervention paired pregnant women and mothers of young children who disclosed IPV at a primary care visit with trained and supervised non-professional mentors. The mentors (all mothers) offered befriending, advocacy, parent support and referrals during weekly home visits over 12 months.

The study was conducted in 106 Melbourne primary care (maternal and child health nurse and general practitioner) clinics: participating nurses and GPs were trained to enhance their capacity to identify and support women experiencing IPV. Two hundred and fifteen eligible women were recruited into the trial (141 into the intervention arm and 74 into the comparison arm). The primary outcome measures were: reduction in IPV measured by the Composite Abuse Scale (CAS); and/or reduction in depression measured by the Edinburgh Post-natal Depression Scale (EPDS).

Results were mixed. At the 12 months follow-up, mean IPV scores were significantly lower for the intervention group than the comparison group (15.9 vs 21.8 AdjDiff=-8.67, 95%CI -16.2 to -1.15). However, this impact weakened and the adjusted difference between groups did not reach statistical significance when the Propensity Score (PS) analysis was applied to address possible selection bias due to the imbalance in the numbers of women recruited in the two arms of the trial (AdjDiff=-8.75, 95%CI -8.2 to 0.70). There was no significant difference in mean depression scores in the intervention arm compared with the comparison arm before or after the PS score was applied (AdjDiff (before PS applied) = -1.90, 95% CI -4.12 to 0.32). Despite the training given to clinicians, lower than expected numbers were recruited into the trial, especially into the comparison arm, which may have impacted on the capacity of the study to detect small but significant positive effects on the study’s secondary outcomes - wellbeing, social support and parenting stress.

Although there are questions around the effectiveness of screening in primary health care (WHO, 2013), in late 2009 the Victorian government introduced compulsory screening for family violence (defined to include child abuse and IPV) by maternal and child health nurses (MCHNs) at the 4 weeks home visit of mothers with newborns. MCHNs, who visit over 95% of all Victorian mothers with newborns, were provided with three hours of training that upskilled them in administering the four screening questions for IPV and child abuse, identifying the symptoms of family violence and managing the referral process to specialist family violence services.

The research group that conducted MOSAIC have registered a new cluster randomised trial (MOVE) to evaluate an enhanced model of the mandatory IPV screening process in Victoria in 80 MCH nursing centres, involving 160 nurses (Taft et al., 2012). The enhanced model will address some of the identified challenges facing MCHNs when screening for IPV and the issue of sustainability, and will be compared to basic mandatory IPV screening. The enhanced model will include later implementation of an extended (6-item) IPV screening tool nested in a general maternal health checklist, a self-completion (pen and paper) screening method for mothers rather than the face-to-face interview (research shows that this is more acceptable to women), the distribution of clinical guidelines to MCHNs to assist the referral process and the use of team mentor nurses to support MCHNs implementing the enhanced screening process. At 12 month follow-up the primary outcomes assessed in the trial will include IPV inquiry, disclosure by women and referrals.

Conclusion

Establishing the prevalence of IPV (overall and by type of violence) in the Victorian population remains a research challenge. The results of the reviews reported here indicate that more analytical research is needed to establish the risk and protective factors for IPV and that there is a long way to go in the search for effective interventions to reduce the perpetration of IPV and to prevent and address the harm done to women who have or are experiencing IPV. It appears that substantial and sustained government investment is needed to attract (and sustain) high quality and experienced researchers to partner with practitioners on large trials of improved or
novel interventions for both victims and perpetrators of IPV, that build on the learning from previous research.

**Recommendations**

- The Victorian government should resource a University-linked research group to analyse and compare the Victorian data on violence and partner violence in the ABS Personal Safety Surveys 2005 and 2012 as there is the potential to derive valuable information from these surveys for prevention and evaluation purposes.

- The Victorian government should consider funding the oversampling of the Victorian population in the next ABS Personal Safety Survey-PSS (projected to be conducted next in 2017) so that reliable estimates of the 12-month prevalence of partner violence and the different types of partner violence can be made for Victoria to enable monitoring of trends.

- Federal government bodies co-funding future ABS Personal Safety Surveys (PSSs) should ensure that key IPV prevalence data by gender and type of violence (physical and sexual) are made publicly available in the first release of the PSS results.

- Representations should be made to the ABS to consider the inclusion of ‘hospital Emergency Department nurse or doctor’ as a separate response to the current questions in the ABS PSS that seek information on the medical treatment sought and help-seeking actions taken by persons experiencing partner violence so that case capture on the VEMD can be assessed.

- The DHHS should set data quality and completeness benchmarks for the injury surveillance items on the VEMD as over one-third of the 39 public hospitals contributing data to the VEMD, including some of our major hospitals, are contributing low quality injury surveillance data.

- Hospital ED clinicians (nurses and doctors) should be:
  - trained to routinely report alcohol and illicit drug involvement in the case narrative field for assault injury (and all injury) cases.
  - alerted to the pattern of injury in female patients who were injured at home that indicates partner violence - head and face injury and injury to multiple body sites; and
  - Hospital coders entering data onto the VAED should be instructed to use the ICD-10 diagnoses or external cause codes related to alcohol involvement when there is documentation of alcohol levels or alcohol intoxication in the medical record of injury patients.

- The DHHS should permit VISU to hold a patient-based dataset constructed by DHHS that could be used to investigate recurrent ED presentations of patients for IPV-related injuries and the use of the ED by these patients for other illnesses and conditions, and for other approved research purposes.

- A study should be conducted (in a representative sample of the 39 VEMD hospitals) to investigate: the capture of IPV-related assault cases in the ED and on the VEMD and the VAED; the hospital- and staff-related barriers to the identification and recording of IPV cases; the current level and type of support provided to women disclosing IPV in the ED or on admission; and the feasibility of trialling an evidence-based intervention in the ED setting to better identify and care for Victorian women experiencing IPV.

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**INDEX**

**Subject**
- Asphyxia.................................................................60
- Assaults........................................................................55,73
- Baby walkers, update..................................................16,20,25,34
- Baseball...........................................................................56
- Boating-related recreational injury.................................56
- Bunk beds.........................................................................11,75
- Button Batteries....................................................................75
- Bicycles - Bicycle related..................................................6,31,34,44,65
  - Cyclist head injury study...............................................2,7,8,10
- Burns - Scalds, Burns prevention.......................................3,12,25
  - Unintentional burns and scalds in vulnerable populations.57
- Child care settings..............................................................16,76
- Client survey results............................................................28
- Cutting and piercing (unintentional)....................................52
- Data base use, interpretation & example of form.........................2
- Deaths from injury (Victoria)..................................................11,38,76
- DIY maintenance injuries...................................................18
- Dog bites, dog related injuries............................................3,12,25,26,34,69
- Domestic architectural glass.................................................7,22,25
- Domestic Violence..............................................................21,30,79
- Drowning/near drowning, including updates.........................2,5,7,30,34,55
- Elastic luggage straps..........................................................43
- Escalator.............................................................................24
- Exercise bicycles, update.......................................................59
- Falls - Child, older Persons, Home, Bunk Beds, 4.44.45.48.59.65.75.77.78
- Farm, Tractors....................................................................30,33,24,47,68
- Finger jam (hand entrapment)..............................................10,14,16,25,59
- Fireworks............................................................................47
- Geographic regions of injury................................................46
- Home..................................................................................14,32,59.65,76
- Horse related........................................................................7,23
- Infants - injuries in the first year of life...............................8
- Injury surveillance developments, inc. ICD10 coding...........30,43
- Intentional.............................................................................13

**Edition**
- Latrobe Valley
  - First 3 months, Injury surveillance & prevention
  ..........................................................9, March 1992, Feb 1994
  Ladders..............................................................................63
  Lawn mowers........................................................................22
  Marine animals....................................................................56
  Martial arts..........................................................................11
  Mobility scooters...................................................................62
  Motor vehicle related, non-traffic, vehicle jack injuries........20,63
  Motorcycles.........................................................................64,65
  Needlestick injuries.........................................................11,17,25
  Nursery furniture...............................................................37,44
  Older people..........................................................................19
  Off-street parking areas.....................................................20
  Pedestrians..........................................................................71,72
  Playground equipment.......................................................3,10,14,16,25,29,44,61,65,77
  Poisons - Domestic chemical and plant poisoning..............28
  - Drug safety and poison control........................................4
  - Dishwasher detergent update..........................................10,6
  - Early Childhood, Child Resistant Closures.......................27,2,47
  - Adult overview...............................................................39
  Power saws, Chainsaws.....................................................22,28
  Road injury.........................................................................36,65,76
  Roller Blades, Skateboards...............................................2,5,25,31,44
  School................................................................................10
  Settings for injury..............................................................76
  Shopping trolleys..............................................................22,25,42
  Smoking-related...............................................................21,25,29,44
  Socio-economic status and injury...........................................49
  Sports - child sports, adult sports, surf sports, snow sports
  ..........................................................8,9,4,4,15,51,56,66,74,76
  Suicide - motor vehicle exhaust gas...................................8,11,20,25,41
  Trail bikes............................................................................31
  Trampolines........................................................................13,42,61,75
  Vapouriser units..............................................................43
  Venomous bites and stings...................................................35
  VISS: How it works, progress, A decade of Victorian injury
  surveillance.................................................................1,26,40
  VISAR: Celebration of VISAR’s achievements......................50,61
  VISAR name change to VISU...............................................17,18,58,76
  Work-related.................................................................17,18,58,76
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Ballarat Base Hospital
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Echuca Base Hospital
The Geelong Hospital
Goulburn Valley Base Hospital
Maroondah Hospital
Mildura Base Hospital
The Northern Hospital
Royal Children’s Hospital
St Vincents Public Hospital
Wangaratta Base Hospital
Warrnambool & District Base Hospital
Western Hospital - Footscray
Western Hospital - Sunshine
Williamstown Hospital
Wimmera Base Hospital
From November 1995
Dandenong Hospital
From December 1995
Royal Victorian Eye & Ear Hospital
Frankston Hospital
From January 1996
Latrobe Regional Hospital

From July 1996
Alfred Hospital
Monash Medical Centre
From September 1996
Angliss Hospital
From January 1997
Royal Melbourne Hospital
From January 1999
Werribee Mercy Hospital
From December 2000
Rosebud Hospital
From January 2004
Bairnsdale Hospital
Central Gippsland Health Service (Sale)
Hamilton Base Hospital
Royal Women’s Hospital
Sandringham & District Hospital
Swan Hill Hospital
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How to access VISU data:

VISU collects and analyses information on injury problems to underpin the development of prevention strategies and their implementation. VISU analyses are publicly available for teaching, research and prevention purposes. Requests for information can be lodged via the data request form on the VISU website or by contacting the VISU office by phone.