



DEPARTMENT OF HUMAN SERVICES SUBMISSION TO THE PARLIAMENTARY INQUIRY INTO THE CAUSE OF FATALITY AND INJURY ON VICTORIAN FARMS

JANUARY 2004

Summary of key findings

- Victorian data for 2001 shows that the rate of fatal injuries was 24 percent higher in rural residents compared to metropolitan.
- In 2001 Victoria had 20 deaths recorded as occurring on farms. Data from 1990 to 2000 shows that tractors are involved in over 50% of adult farm fatalities.
- Males of working age are the key group requiring admission to hospital. Falls account for the most accidents leading to hospital admission.
- The major causes of emergency department presentations for adults include animal related (including horses), being struck by or colliding with an object or person, cutting or piercing by an object and falls.
- Tractor (and other forms of transport) related injuries and drowning are main causes of child farm fatalities (1992-1999).
- In 2001, injury-related admissions comprised 9% of all hospital admissions for children under age 15. Motorcycle related accidents are the most common cause of hospital admissions, followed by falls. Horse-related and motorcycle injuries are the most common cause of injury resulting in emergency department presentations.
- The data highlights the need to target working farmers, to prevent accidents involving tractors, falls, motorcycles and animals. For children, the prevention of motorcycle-related accidents and falls need to be prioritised. Further investigation of these types of accidents may be required in order to develop effective preventive interventions.
- Effective interventions will require the consideration of broader factors affecting farm life. The impact of economic and market conditions, droughts, fires all add to increased risk of injury. Economic issues can affect farm safety directly through unsafe practices. Farmers would need to be involved in the development of any interventions to ensure social, economic and cultural factors are incorporated. In addition, the fact that farms are businesses as well as home needs to be considered, as it is this unusual environment that leads to many of the injuries, particularly those incurred by children.
- Interventions need to be multi-faceted and comprehensive, as this is the most effective health promotion approach.

1 INTRODUCTION

The Department of Human Services is involved in a range of activities contributing to injury prevention. Currently these include support for child injury prevention, sports injury prevention, falls prevention (for senior Victorians) and farm injury (FarmSafe). The Department also funds some injury prevention research initiatives including the Chair of Injury Prevention at Monash University Accident Research Centre. VicHealth funds the Victorian Injury Surveillance and Applied Research centre (VISAR).

The Public Health Group provides capacity in respect of data analysis and interpretation including linking farm injury with broader population data. It also has specific expertise in health promotion and interventions to achieve population health outcomes within a socio-environmental framework.

This document provides a comprehensive overview of the nature and causes of fatal and non-fatal injuries sustained on Victorian farms and suggests avenues for prevention. Data from the Australian Bureau of Statistics, Victorian hospital admissions and emergency department (ED) presentations, Victorian Burden of Disease studies and other secondary sources have informed this submission. This quantitative data highlights the complexity of the farm injury issue. There are multiple forms of injury associated with different activities and tasks on farms, affecting different age groups and people (including non-workers and children).

Whilst this data provides an overview of the impact of injury on the Victorian farming community, it does not adequately represent the incidence of farm injury. For example, data on presentations to general practitioners that do not require referral to a hospital are not available. Coding frameworks used for hospital collected data do not provide a high level of information regarding the nature and events associated with the injury. Coding of the place of occurrence on mortality data is not always complete.

Information included in this paper arises from different data sources. These often utilise different collection methodologies and different definitions. Direct comparison of different data sets is difficult and should only be used to identify broad differences, trends and contexts.

This submission highlights the need for preventative strategies that draw on a socio-environmental framework. These strategies should build on the current available health sector data to address the social, economic, environmental and lifestyle factors that impact on the incidence and prevalence of Victorian farm injuries. Farm fatality and injury has been placed within the context of a social model of health including factors such as economic hardship, environmental disasters (such as drought and fire), access to services and community response capacity.

2 DATA DESCRIPTION OF FARM INJURY

2.1 Mortality

The AIHW report Health in Rural and Remote Australia (Australian Institute of Health and Welfare 1998) found that injury is a major contributor to premature mortality in Australia, and there is a strong pattern of increasing mortality from injury with increasing remoteness, particularly for males.

**Table 1: Total Death /100,000 population
1992-99, by Rurality and Gender, Australia**

	Males	Females
Capital cities	828	509
Other metro	843	522
Large rural	886	534
Small rural	883	529
Other rural	877	527

Source: AIHW 1998

This is further highlighted by 2001 ABS mortality data which shows a crude Victorian injuries death rate of 0.40 per 1000 population for rural residents, compared to 0.33 per 1000 population for metropolitan residents: a 24 percent higher rate. The actual fatal injury may have occurred anywhere in Australia, but rural residents experience a higher mortality rate from all injuries.

Table 2: Metropolitan and rural injury mortality, Victoria 2001

Area of usual residence	Population	Injury Deaths	Crude injury mortality rate per 1,000 population
Metropolitan	3,489,334	1,140	0.33
Rural	1,333,230	538	0.40
Victoria	4,822,564	1,678	0.35

Source ABS Mortality Data

A total of only 20 deaths in 2001 were coded as occurring on a farm. The place of occurrence has been recorded on death records since 1999, but the degree of completeness is variable depending on the cause of death.

Table 3: Farm Fatalities, Victoria 2001

Cause of death	Deaths
Suicide	12
Falls	2
Drowning	2
Natural and environmental	1
Striking crushing	1
other unintentional	1
Homicide and violence	1
	20

ABS mortality data

The National Occupational Health and Safety Commissions (NOHSC) 1998 report on work-related traumatic fatalities identifies agriculture as being second behind transport and storage as the industry with the highest frequency of work related fatalities for the period 1989-1992. The rate of farm related fatalities is 19.5 deaths per 100,000 persons (employed in that agriculture) per annum, the fifth highest rate of workplace fatalities by industry (VISAR unpublished).

The diversity of farming life is reflected in the following statistics, with tractor accidents, falling objects, and the incidence of electrocution contributing significantly to the causes

of these fatalities. Injuries associated with tractor are the most significant cause of fatalities and are the focus of ongoing preventative initiatives.

(Note that this data does not include suicide as included in overall farm fatalities above).

Table 4: Agriculture work-related deaths, Victoria (15 years of age and over), 1990-2000

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Tractor												
Roll over	4	2	5	3	5	2	1	1	1	1	1	26
Run over	1	1	0	0	1	4	1	1	2	3	3	17
Caught in between	1	0	1	2	2	0	1	2	1	1	2	13
Other	1	0	0	1	1	0	0	0	0	0	0	3
Tractor total	7	3	6	6	9	6	3	4	4	5	6	59
Non-tractor												
Hit by falling object	0	0	2	0	2	1	3	2	2	1	2	15
Transport	0	2	1	0	2	1	0	1	0	3	0	10
Electrocution	0	0	0	0	0	1	1	3	0	0	2	7
Other	1	0	0	1	1	3	2	1	3	5	1	18
Total non-tractor total	1	2	3	1	5	6	6	7	5	9	5	50
TOTAL	8	5	9	7	14	12	9	11	9	14	11	109

Lough & Day 2001

Source: Victorian WorkCover Authority

2.2 Hospitalisations

Hospital admissions data reflects increased injury experience in rural communities. Residents of rural centres represented 11% of the Victorian population but accounted for 13% of admitted hospital cases and 21% of ED presentations (based on 1998 – 1999 hospital admission and 1999-2000 ED presentations (Ashby et al. 2001).

The AIHW report Health in Rural and Remote Australia (Australian Institute of Health and Welfare 1998) found:

- Hospital rates for injury are much higher in rural and remote zones compared to the metropolitan zones.

Research conducted in 2001 found rurality to be a clear risk factor for injury with the following found to increase with increasing rural remoteness (Ashby et. al 2001):

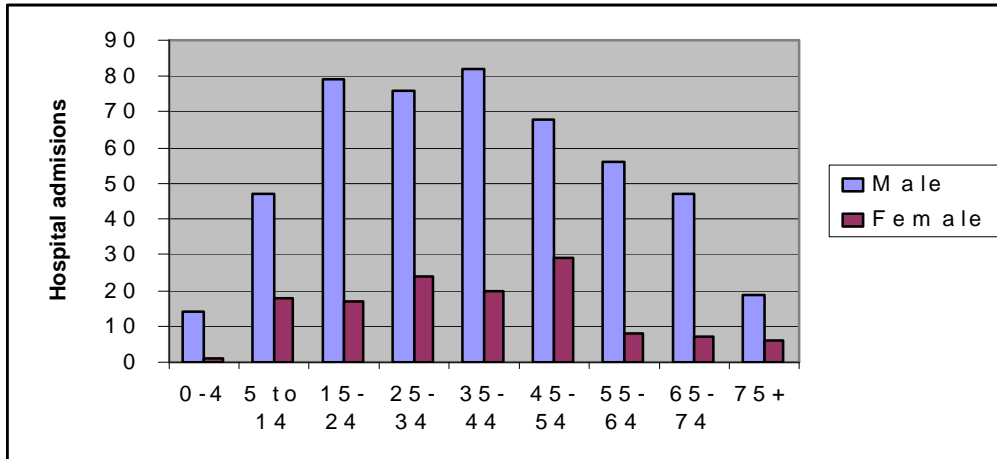
- Injury hospitalisations in off-road motorcyclists (37.6 per 100,000 in remote areas, 22.9 per 100,000 in rural centres and 10.9 per 100,000 in metropolitan centres).
- Injury hospitalisations associated with animals being ridden (32.6 per 100,000 in rural/remote areas, 16.2 per 100,000 in rural centres and 6.0 per 100,000 in metropolitan centres).
- Other injury hospitalisations associated with animals (eg animal bites, being stepped on etc) were higher in rural/remote areas (84.9 per 100,000) than in rural centres (54.2 per 100,000) and metropolitan centres (23.5 per 100,000).
- Injury hospitalisations, due to other causes (eg drowning, fire/burns/scalds, machinery accidents etc) were generally higher in rural/remote areas than in metropolitan areas. In particular, injuries associated with power tools more common in rural/remote areas (14.9 per 100,000) than in rural or metropolitan centres (12.0 per 100,000).

2.2.1 Characteristics of Individuals Injured on Farms

Figure 1 details the number of Victorian hospital admissions resulting from farm injuries by age and sex. It shows that a significantly higher number of males are hospitalised

than females, with males peaking in the 15 – 44 age range. While males of working age are the key group identified, it is worth noting that injuries occurred across all age including children in pre-employment ages and older people outside of normal working ages.

Figure 1: Farm Injury hospital admissions 2001 (VAED data)



Unpublished Department of Human Services
Based on selected ICD10 code for farm related injuries

2.2.2 Nature of Injuries Sustained on Farms

Hospital and emergency department data provides information on the nature and of the injury sustained based on selected ICD10 codes and descriptions.

Fractures accounted for the majority of non-fatal farm injuries admitted to hospital in 2001, followed by intracranial and open wound injuries. Internal injuries, amputations, burns and injuries to nerves are all severe injuries. The nature of injuries highlights the impact and potential long-term impact of farm injuries. (Also see 2.2.3)

Table 5: Nature of non-fatal Victorian farm Injuries Admitted to Victorian Hospitals, 2001.

	Male	Female	Total
Fractures	193	59	252
Other	58	17	75
Open Wound	56	13	69
Intracranial Injury	51	15	66
Sprains	32	6	38
Dislocations	19	4	23
Poisoning	17	3	20
Amputations	13	1	14
Internal Injuries	13	1	14
Burns <20%	12	2	14
Injury To Eyes	7	3	10
Crushing	6	2	8
Injured Spinal Cord	6	0	6
Injured Nerves	3	2	5
Burns >20% & <60%	2	2	4
	488	130	618

2001 VAED hospital data compiled by Department of Human Services, unpublished.

2.2.3 Causes of Injury sustained on farms

Causes of farm injuries (in adults) resulting in emergency department presentations not resulting in an admissions are provided in Table 6.

Causes of farm injury are varied, with the major causes for adults requiring medical attention at a hospital emergency department including animal related (including horses), being struck by /collision with an object or person, cutting / piercing by an object and falls.

Table 6 Victorian emergency department presentations farm injuries: adults (15 years and older)

Injury Cause	1996/97	1997/98	1998/99	1999/00	Total
Horse related	148	232	211	166	757
Struck by/collision with object	160	185	143	201	689
Cutting/piercing object	190	176	150	168	684
Falls	195	177	161	147	680
Motorcycles	127	154	166	159	606
Animal (excluding horse)	127	130	141	154	552
Machinery	79	62	86	50	277
Transport	55	43	40	34	152
Burns	22	21	19	9	71
Firearms	7	6	5	2	20
Other categories	160	129	194	114	597
Total	1250	1315	1316	1204	5085

Source: Lough & Day 2001

The broad categories of injury identified in ED presentations are also present in hospital admissions. However, falls represent a larger proportion indicating a more severe form of injury.

Motorcycles, agricultural/farm machinery, farm animals, motor vehicles and riding animals rank high as causes of hospital admission whereas horse related and struck/collision and cutting/piercing types of injuries are less common.

Table 7: Victoria farm injury hospital admission (15 years of age and over)

Injury Cause	1993/94	1994/95	1995/96	1996/97	1997/98	5-year Total
Falls	145	77	81	72	81	456
Motorcycles	55	54	54	47	59	269
Agricultural/farm machinery	54	47	39	41	45	226
Farm animals	64	37	35	46	41	223
Motor vehicle (occupant)	26	26	36	34	34	156
Animal being ridden (inc horses)	43	36	12	15	9	115
Other categories	192	163	165	133	143	796
Total	579	440	422	388	412	2241

Lough & Day 2001

Source: Victorian Inpatient Minimum Database

2.2.4 Settings in Which Farm Injuries Occur

Further, Fragar, L & Franklin; (2000) noted in their study into the health and safety of Australia's farming community that "the agricultural industry or enterprise type tends to be the greater predictor of injury risk in relation to rate of injury, nature of injury and agents of injury, rather than geographic location per se" (2000: 8).

The review and comparison of farm injury prevention in Queensland and Victoria by Day and Ferguson (Day L, Ferguson K; 1999) shows the spread of injury across different categories of farms. For Victoria meat cattle farming has the highest rate of injury but rates are relatively consistent across all other groups (see Table 3). The data also identifies a significant difference in injury rates between Victoria and Queensland with Victorian farmers experiencing significantly higher injury rates in all categories.

Table 8: Serious¹ injuries per 100,000 hours worked, farm safety survey, Queensland and Victoria, 1998

	Qld	95% CI	Vic	95% CI
Sheep (wool / meat)	3.53	2.31-4.75	9.35	7.41-11.29
Milk cattle	4.29	3.39-5.19	6.95	5.6-8.3
Meat cattle	5.42	4.43-6.41	14.60	11.1-18.1
Cereal grains	2.36	1.50-3.22	7.48	5.52-9.44
All properties	3.05	2.77-3.33	8.65	7.69-9.61

Day L, Ferguson K; 1999

2.2.5 Summary of adult injuries

The significant impact of agricultural work represented in emergency department presentations and hospital admissions data is a matter of serious concern:

- Falls, motorcycles, agricultural/farm machinery, farm animals, motor vehicles and riding animals are the primary causes of hospital admissions for farm injuries.
- Transport (both machine and animal), dangerous objects and falling all contribute to farm injuries presenting at emergency departments.

There is no indication from this data regarding the severity of the injuries, outcomes or long-term consequences. Further research and analysis would be required to provide a more detailed picture and to prioritise issues and prevention opportunities.

2.2.6 Child Injury on Farms

A report on the Health and Safety of Australia's farming community (Fragar, L and Franklin, R; 2000) found that "child deaths and injury is an important health and safety problem to be addressed on Australian farms. Drowning in farm dams and bodies of water is the most common cause of death of toddlers on farms, and farm vehicles, motorcycles, horses and other animals are important agents of injury for older children.

Tractor (and other forms of transport) related injuries and drowning are the main causes of injury related to child farm fatalities during 1992-1999 (Lough and Day 2001).

¹ Serious injuries were defined as those which required medical care, work activities to be suspended for one day or more, or the injured person not to work at the same pace or with the same ease as usual for five days or more.

Table 9: Injury related farm fatalities – Children (under 15 years of age)

Cause	1992-1995	1996	1997	1998	1999	Total
Drowning	5	0	0	1	0	6
Tractor	5	0	0	0	1	6
Transport (ex. tractors)	1	2	0	2	2	7
Others	0	0	1	1	0	2
Total	11	2	1	4	3	21

Lough & Day 2001

Source: Coroners' Facilitation System

For children under 15 years, there were 14,401 injury related admissions, which comprised 9% of hospital admissions. Administrative admissions aside, the leading causes of admission in children were respiratory diseases and perinatal admissions. Other common reasons for admission were diseases of the digestive system and diseases of the nervous system and sense organs.

Motorcycle related accidents are the most common cause of farm injury related hospital admissions for children. As with adults, falls are also prominent among hospital admissions reflecting the severity of these injuries.

Table 10: Farm injury hospital admission - children (under 15 years)

Injury Cause	1993/94	1994/95	1995/96	1996/97	1997/98	Total
Motorcycles	30	25	21	18	22	116
Falls	27	16	10	7	9	69
Motor vehicle (occupant)	11	8	15	9	7	50
Agricultural farm machinery	9	8	12	7	5	41
Pedal cycles	11	7	5	9	4	36
Animal being ridden (inc. horses)	8	6	8	3	8	33
Farm animal	7	6	4	3	7	27
Other categories	33	24	21	25	27	130
Total	136	100	96	81	89	502

Lough & Day 2001

Source: Victorian Inpatient Minimum Dataset

Victorian data presented in the following tables provides the causes of child farm injury emergency department presentations. As for adults, horse related injuries are the most common form of injury resulting in ED presentations. Motor cycle accidents also feature prominently even through the data is for children less than 15 years of age. This suggests a high level of unsafe use of motor cycles on farms.

Table 11: Farm injury emergency department presentations (excluding admissions) for children (under 15 years)

Injury Cause	1996/97	1997/98	1998/99	1999/00	Total
Horse related	65	67	77	53	262
Motorcycles	49	64	66	73	252
Falls	46	34	39	36	155
Struck by/collision with object or person	19	8	11	31	69
Animal (excluding horse)	13	24	11	16	64
Cutting/piercing object	11	19	19	17	66
Transport	9	9	14	16	47
Burns	2	10	11	8	31
Other categories	24	15	14	6	39
Total	238	250	261	256	1005

Lough J & Day L 2001

Source: Victorian Emergency Minimum Dataset

2.2.7 Summary of child injuries

Farm injuries to children reflect the risks associated with the residential / workplace mix associated with farm life. Children in non-farm settings would not normally be exposed to machinery injuries, motor cycles, animal related and others identified above. The types of injuries are also associated with stages of development. As young children become increasingly mobile, they are at increased risk of injuries such as drowning. Older children typically move beyond this risk but use of equipment such as motorcycles poses different dangers.

Children experience different injury risks and preventative measures need to be targeted to meet the needs of different groups.

2.3 Injury Burden on the Rural Victorian Population

The 1996 Victorian Burden of Disease Study was the first comprehensive assessment of the health status of the Victorian population, incorporating measures of both mortality and morbidity into one measure; the DALY. DALYs indicate years of 'healthy' life lost calculated as a combination of years of life lost due to premature mortality (YLL) and equivalent 'healthy' years lost due to disability (YLD). The study found that injury contributed 7% of the total disease burden in Victoria. The total burden for the 2001 study has not yet been calculated so the injury proportional contribution cannot be provided, but is expected to be smaller with the decline in many injury causes.

Injury contributes significantly to overall morbidity and mortality of the Victorian community, particularly for rural communities who experience higher overall rates.

Table 12: Burden of injury in crude rates per 1,000 population, Metropolitan / rural 2001

	YLL rates	YLD rates	DALY rates
Metropolitan	6	2	8
Rural	7	3	10

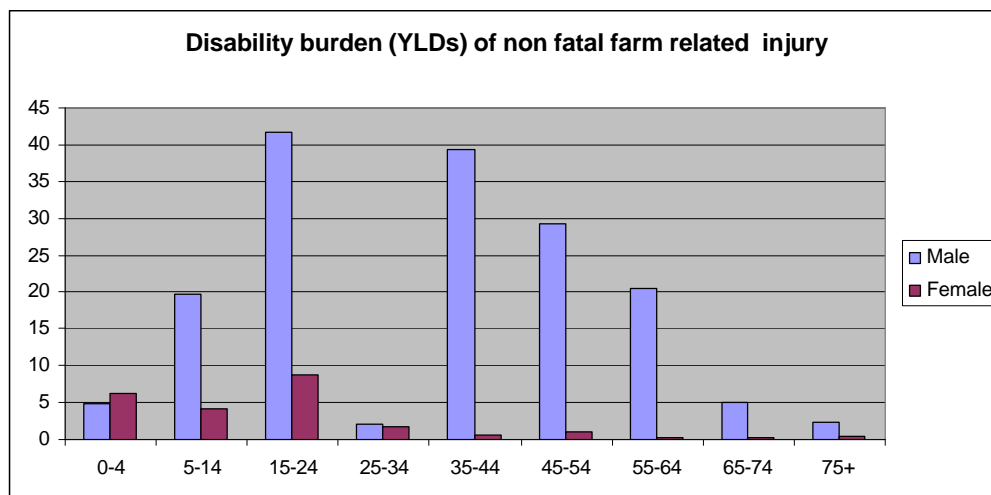
Department of Human Services, unpublished

An examination of the injuries sustained on farms in 2001 reveals that while fractures may be the most frequent type of injury, the greatest burden arises from the spinal injuries, amputations and burns. Many of the conditions treated in hospital lead to very little ongoing disability as defined in the Burden of disease studies.

Table 13: Disability burden associated with Admissions to Victorian hospitals 2001

YLDs 2001			
	Male	Female	Total
Injured Spinal Cord	99	0	99
Amputations	31	2	33
Burns >20% & <60%	13	13	25
Fractures	10	5	14
Intracranial Injury	11	3	14
Injured Nerves	1	0	1
Dislocations	0	0	0
Sprains	0	0	0
Internal Injuries	0	0	0
Open Wound	0	0	0
Injury To Eyes	0	0	0
Crushing	0	0	0
Burns <20%	0	0	0
Poisoning	0	0	0
Other	0	0	0
	165	24	189

Read in conjunction with Table 5, Table 13 highlights that low frequency injuries can cause significant disability burden. As an example, in 2001 injured spinal cord accounted for only six hospital admissions but contributed 99 years lived with disability. The disability burden of non fatal farm injuries falls unevenly across age groups, and reflects, to a certain extent, the volatility of a single year's hospitalisation data. With the exception of the 25-34 age group in 2001, males and females at younger ages bear the serious disability of injuries on farms.



3 DISCUSSION

The analysis of the farm injury data highlights some key population groups and issues within farming communities. While the high number of adult males supports the need for approaches which target working farmers, the fact that there are injuries which also involve females and children suggests the need for farming families and communities to be included.

The data supports some current initiatives in injury prevention. For example, the high incidence of tractor accidents supports the current approach to rollover accidents being undertaken by the WorkCover Authority. Falls also feature prominently for both adults and children, particularly in hospital admissions, warranting further examination of the circumstances associated with these events.

Motorcycles represent a high proportion of injuries for both adults and children – motorcycles are the top ranking injury of children admitted to hospital. This highlights the risks associated with motorcycle use by children on farms and suggests the need for an examination of approaches to reduce this type of farm accident.

Accidents involving animals are prominent in both the adult and children's injuries, and horse related injuries are particularly prevalent. Further investigation may be warranted to gain better understanding of the causes of these incidents.

In addition to injuries resulting from falls, and accidents associated with motorcycles and animals, children also are involved in drownings on farms. A discussion of a detailed analysis of children's drownings on farms is presented further in the discussion.

The above data highlights the diversity of injuries and the population groups that are affected. There are different injury events, different tasks and different environments – there are no single solutions. The causal and risks factors associated with injuries are complex and inter-related with broader workplace and social, cultural and economic issues.

The adoption of a broader perspective of farm injury prevention, taking into account factors beyond the immediate details of the injury is needed to achieve a long term and sustainable difference to farm injury rates. Specific issues such as safety of equipment, regulation need to be addressed as well as attention to broader issues affecting the health and well being of farmers and their families.

Beyond the immediate farm setting, community health and the impact of economic and market conditions, droughts, fires, etc. add additional stresses and strains and potentially increase the risk of injury. The complexity and inter-relationships between these factors highlight the challenges in preventing farm injuries.

3.1 Social, cultural and economic factors

Farm injury prevention is not isolated from the impact of broader socio-economic conditions that influence the health and well being of farmers and rural communities in general. It is of note that the majority of discussion regarding farm injuries focus on the mechanics of the injury event with little examination of broader factors that may increase or decrease risk. However, evidence would suggest that this is a missing focus requiring greater attention.

Hazard No. 49 *Socio-Economic Status and Injury* (VISAR 2001) identifies the link between socio-economic disadvantage and increased injury risk. Evidence is also

available regarding increased risk in rural communities with lower socio-economic status. A report from Southern Area Health Service in NSW tested whether the injury separation rate was related to socioeconomic status finding that the lower the relative socioeconomic status of the LGA, the higher the risk for injury (Southern NSW Public Health Unit). However, detailed examination of the issue is limited and is identified as a significant gap requiring additional research (NHMRC, 1999).

Economic issues can affect farm safety directly through unsafe practices such as:

- the use of aged farming machinery and equipment
- poorly maintained equipment and machinery, subject to makeshift do-it-yourself repairs
- the limited ability to employ farm workers, resulting in owner-operators working long hours, working alone, lifting heavy objects unaided etc.
- the use of family members, including children, to assist with farm jobs which are sometimes beyond their skills or physical capacity
- the un-affordability of protective clothing and equipment for some farmers

(Day et.al 1999: 23)

The issue of suicide invites a potential link between increased suicide risk associated with economic hardship, the impact of drought, fires etc. Suicide rates for male farmers have been double that of the male population (age standardised) (National Rural Public Health conference, 1997). The same pressures as discussed in the context of suicide are also likely to increase risk of injury through compromised working conditions and reduced capacity.

Farmers' and community perceptions are also important. Farm safety / injury prevention can also be seen as a "cost imposition". The study by Day et al. further examined farmer attitudes to safety and reported that "...reduced farm income, combined with farmers' perception that farm safety measures are an additional cost which they just can't afford, act as a significant constraint to the adoption of safety measures by farmers" (Day et.al 1999: 23).

A statement from the President of the National Farmers' Federation identified independence as an important consideration when he advised that "farmers want information and occupational health and safety strategies that help them build on the control that they already have over their farm environment" (Donges 2001:4). This highlights the need to involve and empower farmers to reduce the risk of injury on their properties.

Promoting "health" to farmers as a "resource" worthy of protection may assist in shifting the view of investment in safety as a cost burden to one of economic protection. Additional effort is required to promote the positive benefits of injury prevention in respect of farmers' economic livelihood.

The opportunities for different types of rural communities to be involved in and support farm injury prevention also needs to be considered. For example small rural communities (<10,000 people) face different issues and capacity building may require the development of skills, organisational structures, resources and commitment to farm injury prevention.

3.2 Characteristics of the farm environment – business and home

The characteristics of farm work and uses of the farm environment directly influence injury risk. Farm work typically involves the use of dangerous equipment and hazardous substances, handling of animals, environmental dangers and other risks. Farm safety / injury prevention is further compromised by factors such as the need to perform multiple

tasks in different locations, potentially long hours, working alone, an ageing population, isolation from peers and geographic remoteness (Day et. al 1999: 25).

At the same time, the majority of farms in Australia are classified as family farms, serving as residences and places of business. Family leisure-time activities take place in the farm setting, making it difficult to separate business from family life" (Tanewski et.al 2000: 5). This means that a unique feature of the agricultural industry is the presence of family members, including children, in the workplace and at times, their direct involvement in farm work (Day et. al 1999:25).

The frequency and type of child farm injuries highlights the issue:

- Children less than 15 years made up 20% of all unintentional farm related fatalities in Australia with children less than five years representing 63% of all child fatalities (Mitchell RJ et al. 2001).
- 75% of child injuries occurred with the child in close proximity of the work being carried out (Queensland 1989 - 1992) (Franklin et al. 1999).
- A review of unintentional machinery injuries in Victoria (Day McGrath) found that almost all machinery related deaths on farms in the study could have been prevented by not carrying children as passengers on tractors (Day L, McGrath A 1999).

Drowning remains one of the highest causes of child farm injury fatalities (Table 9) predominantly affecting toddlers or younger children. The Department of Human Services commissioned work through the State Coroner's Office (SCO) to investigate drowning deaths of young children (0-5 years) in dams in Victoria. The purpose of the investigation was to examine the factors contributing to these deaths and identify means of preventing drowning incidents in the future. The report was presented in October 2003 and examined twenty-seven deaths occurring between 1989 and 2001, 11 on properties defined as farms, five on hobby farms and 11 on non-farm properties. It was found that there were five major factors common amongst the incidents: age of the toddler; low level of carer supervision; toddler located outside the house; dam within a 600 metre vicinity of the toddler; and insufficient barriers between the dam and the toddler. The report made the following recommendations:

- future public awareness campaigns by water-safety organisations should be broadened to include safety messages that account for the differences between rural and urban water hazards, in particular the use of the "*be dam careful*" slogan should be reconsidered by the Victorian farming industry;
- any public awareness campaign should address carers consciousness of how quickly toddlers can get into danger, especially those most at risk in the one to three years age bracket;
- the idea of creating "*child safe areas*" on properties containing dams should be widely publicly promoted; and
- conducting Home Safety Parties in rural towns to determine whether they would be a successful forum for educating carers and disseminating information on appropriate safety measures for children.

3.3 Comprehensive responses

"A systematic and industry wide approach to farm injury prevention is highly likely to yield results, as in many other areas of injury prevention". VISAR 1997

As highlighted through the data "farm injury" represents a range of different types of injury each of which is associated with different risk factors. Broader social, cultural and

economic issues have to be considered to reflect the needs of farmers and farming communities.

Other areas of injury prevention highlight what can be achieved with comprehensive and multifaceted approaches.

- Reductions in drink driving has been achieved through comprehensive approaches involving high visibility of booze buses and random breath testing, mass media, drink-drive penalties, responsible serving of alcohol practices and local community initiatives.
- The Play it Safe by the Water has similarly contributed to reductions in drowning through a broad range of interventions targeting different water safety issues and working through a variety of organisations and settings. Importantly, it has focussed on changing culture about water safety as a contribution to behaviour change.

The adoption of these broader approaches is evident in programs such as Farmsafe Australia and Child Safety on Farms. They acknowledge and consider social, cultural and economic contexts while maintaining a focus on the needs and involvement of farmers and farming communities.

The Victorian FarmSafe Alliance highlights the importance of support from within the farming community and farmer organisation. Working at the community level through local liaison officers offers multiple benefits including local relevance and acceptability and increases the skills and capacity of local members. The Department of Human Services, the Victorian Workcover Authority and the Department of Primary Industries fund the FarmSafe Alliance. The involvement and contribution of these different parts of government reflect the different interest and perspectives in relation to farm injury.

In taking this broader approach to injury prevention forward attention is given to the Ottawa Charter for Health Promotion. This is an internationally adopted framework for health promotion action and can inform action for farm injury prevention. The Ottawa Charter identifies five inter-related areas for successful change including building healthy public policy, creating supportive environments, strengthening community action, developing personal skills and reorientating health services. This approach recognises the inter-relationship and influence of different classes of determinants. It provides for the development of the community networks and capacity needed to support injury prevention action.

These are relevant to rural / farm health and farm injury prevention issues specifically. Examples of the range of issues / actions that fit within the framework include:

- Build healthy public policy
 - Appropriate regulatory frameworks
- Create supportive environments
 - Availability and use of safety equipment
 - Support for development of child safe areas on farms
 - Reinforce and build a culture of safety among farmers and in local communities
 - Increase community involvement / dialogue about farm injury
 - Involve others sectors (that work with / support farmers)
- Strengthen community action
 - Support FarmSafe / other relevant community building groups
 - Involve other family members
 - Use of local media / communications
 - Advocacy groups
 - Highlight increased risk of injury at times of stress

- Develop personal skills
 - Linking injury prevention with other professional and personal development activities
 - Ongoing development and delivery of training
- Reorient health services
 - Support role of health services in preventative action
 - Health to reinforce injury prevention messages to farmers
 - Health services to advocate for increased community action for farm injury prevention.
 - Appropriate support for farmers / families at times of stress

The adoption of more comprehensive planning frameworks will add to the significant work and progress made to day.

SUMMARY

Why we should be concerned about farm injuries?

- People involved in farming experience a **disproportionate number of injuries** compared to the general population and other industrial sectors.
- Farm related injuries, as with most other types of injury, **are preventable**.
- The farm environment is a **hazardous environment** and potentially involves the use of heavy equipment, dangerous chemicals and other substances, handling of animals and environmental dangers.
- The farm environment often also includes a residence. **Family members and visitors are also at risk**.
- Farmers and farming communities are exposed to additional pressures and stressors beyond their control such as **droughts, fires, and floods and financial and market fluctuations**.
- Many farms are small family businesses with **limited support or backup** for family members.
- There is a trend to self-sufficiency among workers such as farmers with an associated likelihood of **downplaying risk**.

What should we do about farm injury?

- **Multifaceted approaches** that reflect the complex nature of agricultural work and the farm environment are required.
- Specific multifaceted approaches are needed to address:
 - **child injury on farms**
 - **work related injury on farms (for both men and women)**
 - **the needs and culture of farmers and farming communities**
 - **the need to shift the culture to one that values health as a priority**.

4 REFERENCES

Australian Institute of Health and Welfare 1998. AIHW Cat. No. PHE 6. Health in rural and remote Australia. Canberra: AIHW.

Ashby K, Stathakis V, and Day L 2001. A profile of injuries to Victorian residents by broad geographic region. *Hazard* Edition 46. Victorian Injury Surveillance and Applied Research (VISAR).

Day L, Ashby K, Stathakis V 1997. Unintentional Farm Injury. *Hazard* Edition 33. Victorian Injury Surveillance and Applied Research (VISAR).

Day L, Cassell E, Li L, & McGrath A 1999. Preventing Farm Injuries, Overcoming the Barriers. Rural Industries Research and Development Corporation.

Day L, Ferguson K 1999. *A Tale of Two States: Farm Injury Prevention in Queensland and Victoria*. Presentation to the Farm Injury Prevention 99 Conference (Cairns, August 1999)

Day L, McGrath A 1999. *Unintentional Machinery Injury on Farms in Victoria*. Monash University Accident Research Centre – Report #148
<http://www.general.monash.edu.au/MUARC/rptsum/es148.htm>

Donges I (2001). "Giving Farm Safety a Greater Priority" National Farmers' Federation President, Address to the Injury Prevention 2001 Conference, Warrnambool, Victoria.

Fragar L, Gray E, Franklin R and Petrauskas V 1997. *A Picture of Health? A Preliminary Report of the Health of Country Australians*. The Australian Agricultural Health Unit.

Fragar L & Franklin R 2000. *The Health and Safety of Australia's Farming Community: A report of the National Farm Injury Data Centre for the Farm Safety Joint Research Venture*. Rural Industries Research and Development Corporation and Australian Centre for Agricultural Health and Safety.

Franklin R, Chater AB, Fragar L, Ferusoin K 1999. *Rural Injury in Central Queensland: Injury data from eleven Emergency Departments and nine General Practice surgeries, 1995 – 1996*. National Farm Injury Data Centre. Moree

Lough J & Day L 2001. *Farm Injury Regular Surveillance Tools (FIRST), Annual Report 2000, Vol 3, No. 1, June*. Monash University Accident Research Centre.

Mitchell RJ, Franklin RC, Driscoll TR, Fragar LJ 2001. *Farm-related fatalities involving children in Australia, 1989-92*. Aust NZ J Public Health. 2001 Australia;25(4): 307-14

National Health and Medical Research Council, 1999. *Paradigm Shift – Injury: from problem to solutions — New research directions*. Commonwealth of Australia, Canberra

Public Health Division 1999. *Victorian Burden of Disease: Morbidity*. Department of Human Services, Victoria.

Public Health Division 1999. *Victorian Burden of Disease: Mortality*. Department of Human Services, Victoria.

Southern NSW Public Health Unit <http://www.snswhu.webcentral.com.au/injoview.pdf>

Tanewski A, Romano C, & Smyrnios K 2000. *Determinants of Australian Family Farm Growth: The role of owner characteristics and strategic planning. A report for the Rural Industries Research and Development Corporation.* Rural Industries Research and Development Corporation.

Watson W, & Ozanne-Smith J 1997. *The Cost of Injury to Victoria.* Monash University Accident Research Centre.

VISAR 1997. *Hazard Edition 33: Unintentional Farm Injury.* Victorian Injury Surveillance System, Monash University Accident Research Centre.

VISAR 2001. *Hazard Edition 49: Socio-Economic Status and Injury.* Victorian Injury Surveillance and Applied Research, Monash University Accident Research Centre.