

Human Injury on the farm:

Causes, Prevention, Implications

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An Australian perspective – the agriculture industry...

- Has the **fourth highest** rate of workers' **compensation claims** of all industries;
- Has a **fatality rate five times** that of Australian industry;
- Was **added**, in 2005, to the **priority industry list** in Australia's OH&S strategy.



Local data from three projects

- **South West Healthcare (SWH)**

- Review of cases presenting with farm injury over period 1996-2001 (n=997)

- **General Practice (GP)**

- Six months data collection (2006-07) with local practices willing to participate (n=26)

- **Dairy Farmer Survey (DFS)**

- Developed with dairy company participation; distributed in May 2007 (n=132)



Characteristics of patients (SWH; n=997)

Gender

- Male 798 (80%)
- Female 199 (20%)

Activity at time of injury

- Working 732 (WorkCover 14.9%)
- Sport/Leisure 204

Injury frequency

- SWH - average 166 p.a.
- GP - (by extrapolation) – similar to SWH



Some indications of injury severity (SWH; n=997)

Injury severity (SWH)

- Admission rate 2X that of all other injuries
 - (27.1% V 13.8%)

Particularly vulnerable groups

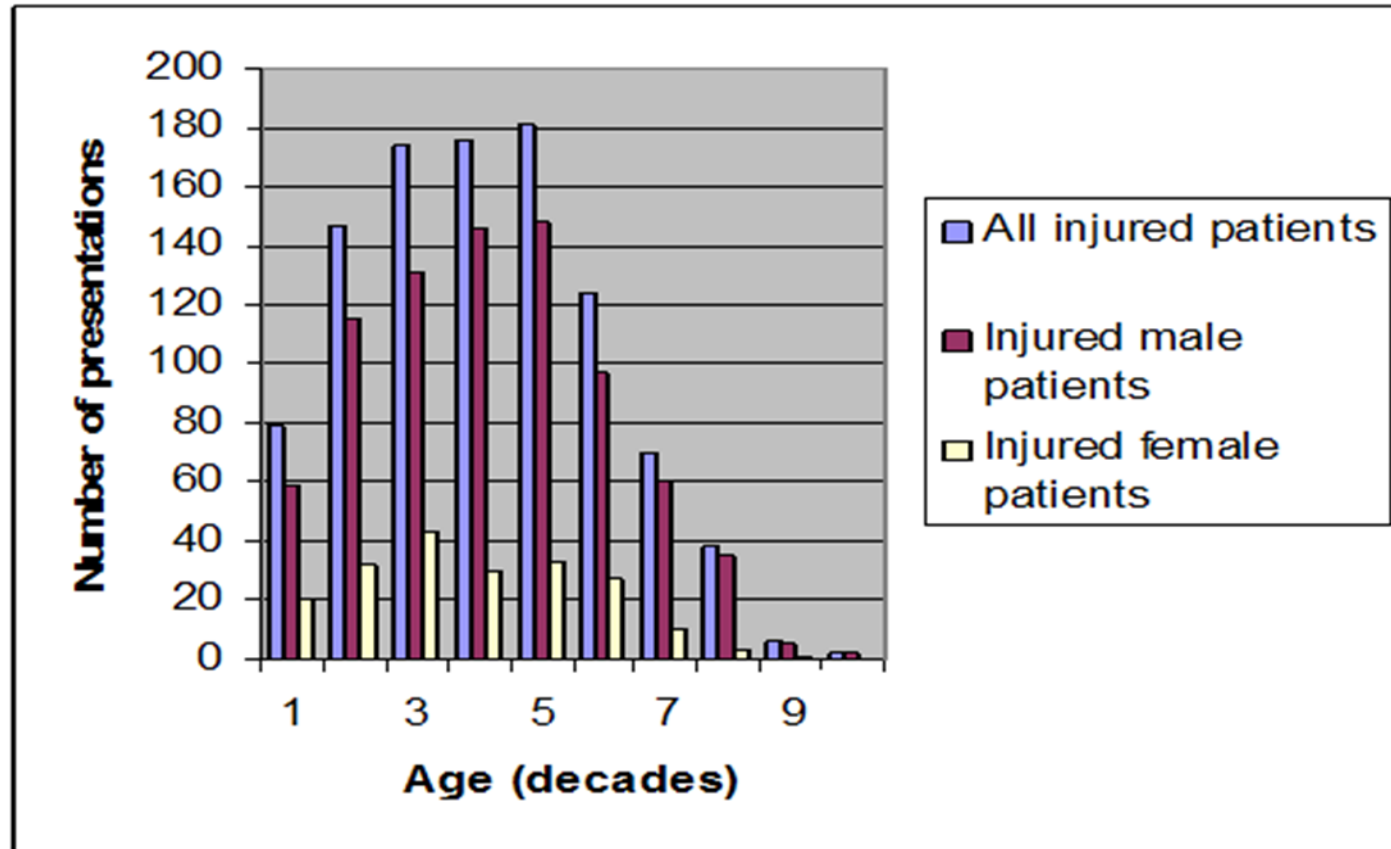
- Young (< 15 years) = 37% admitted
- Older (> 60 years) = 36% admitted

Highest admission rates

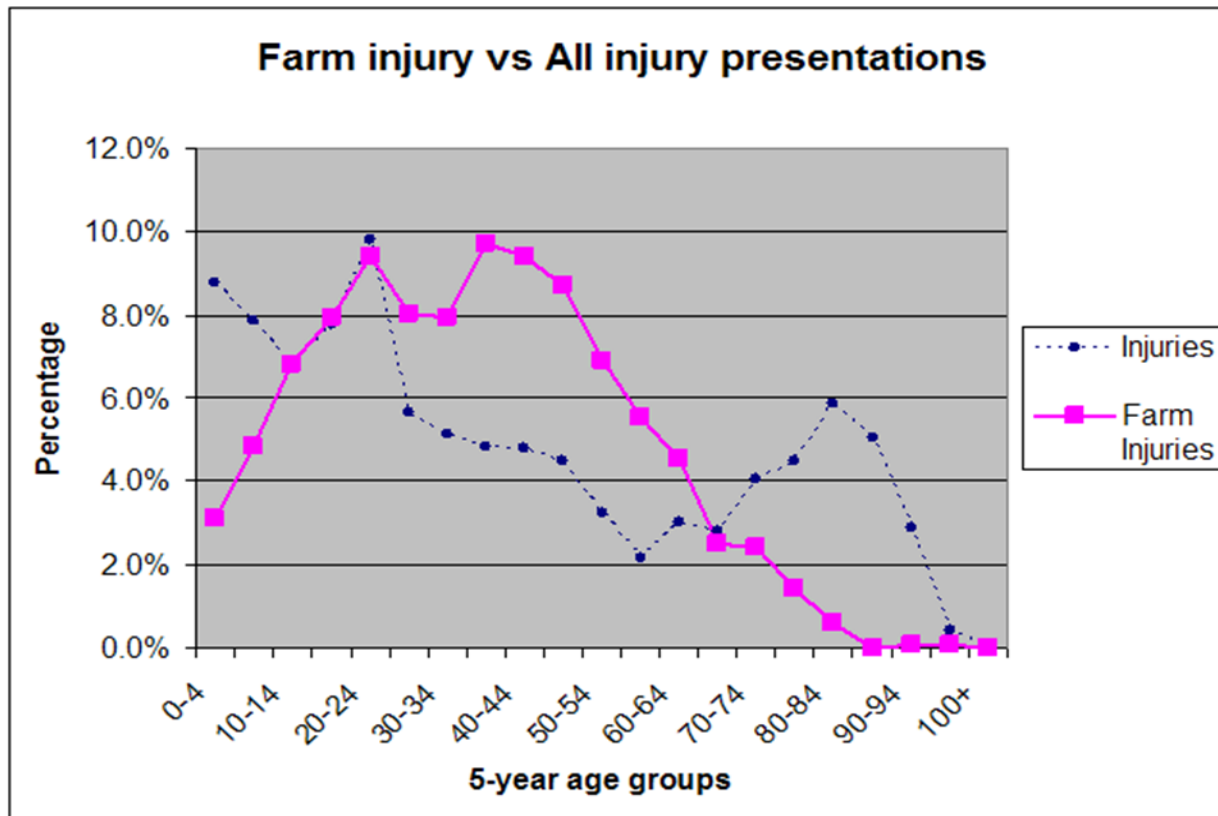
- Multiple injuries 64%
- Intracranial injuries 58%
- Fractures 47%



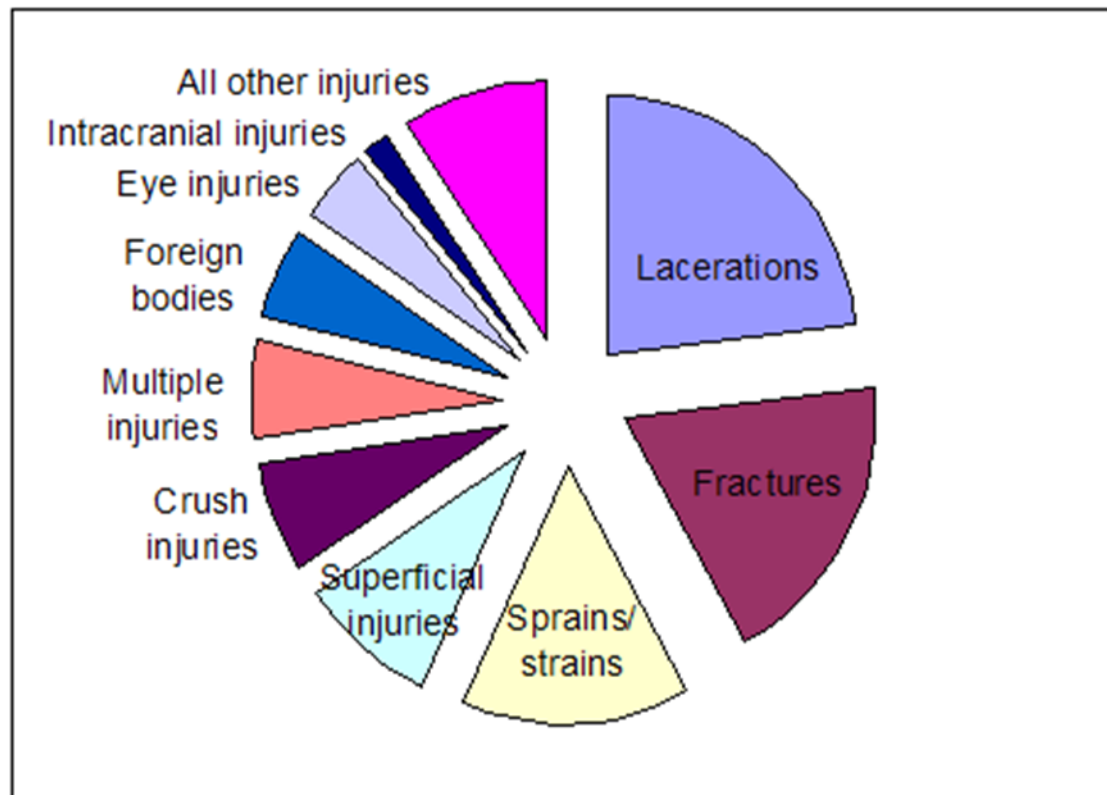
Age and gender distribution of farm injuries (SWH; n=997)



Farm injury has different age profile to usual ED presentations (SWH)



Most common injuries (SWH; n=997)



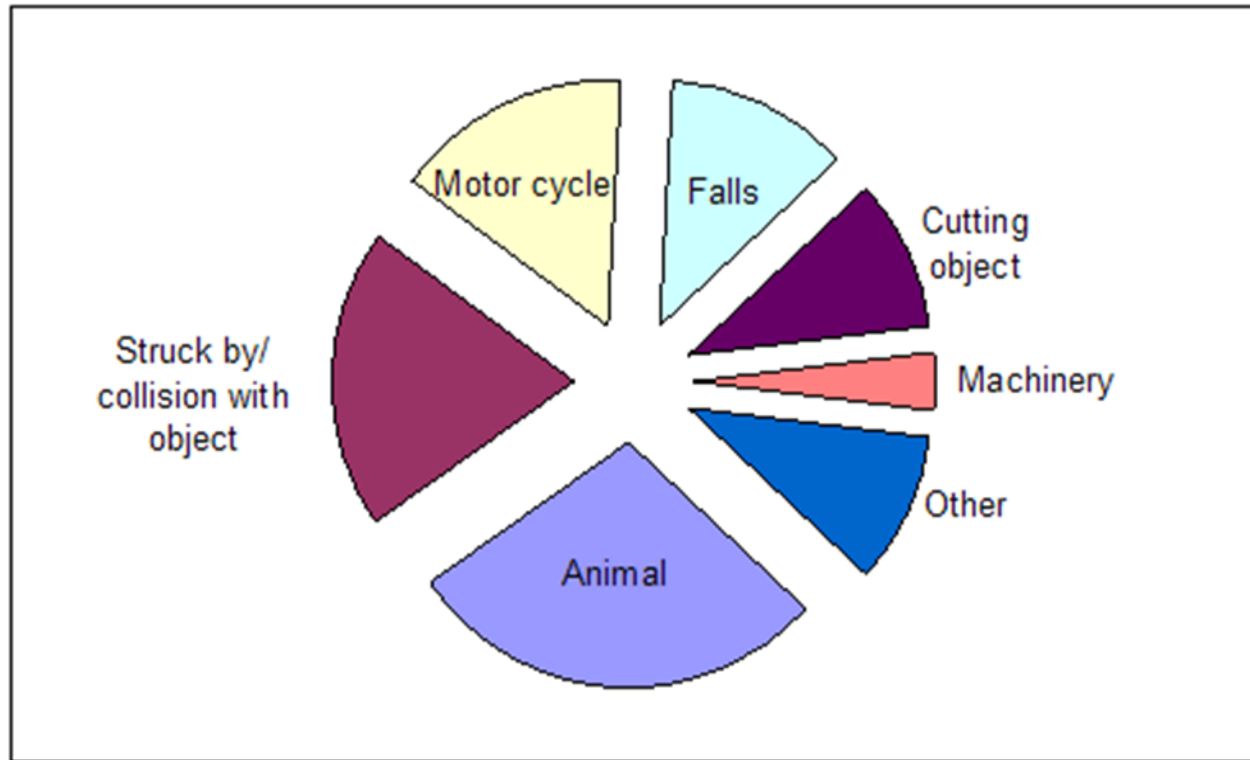
Body site of injury

(SWH; n= 997)

Upper limb	377 (incl. hands 220)
Lower limb	247
Head/face/neck	91
Trunk	77
Multiple	74
Other	131 (incl. foreign bodies, eyes, intracranial, poisoning)



Most common injury causes (SWH; n=997)



Admission after farm injury (SWH; n=270)

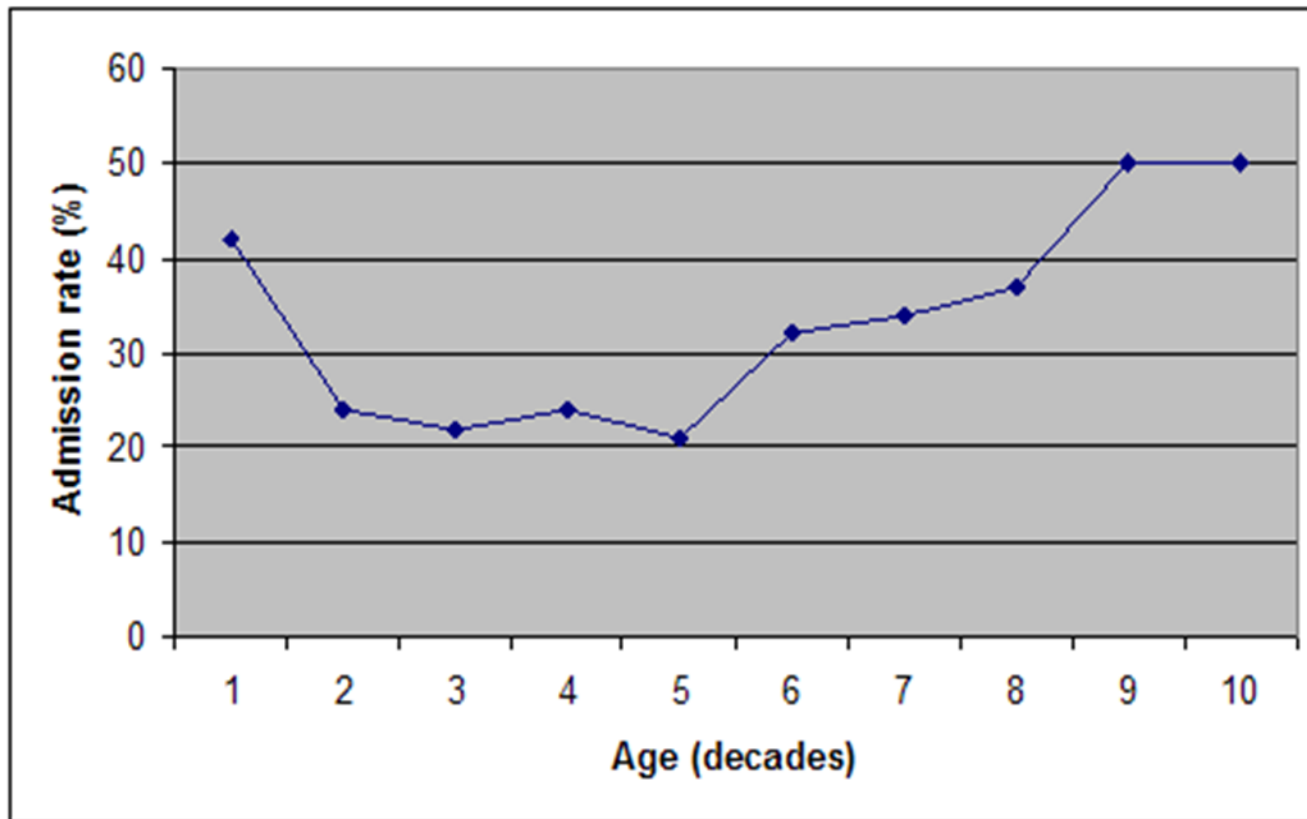
- 270 admissions (78% male)
- Average length of stay (LOS) = 4 days
- Longest LOS (> one week [n=32])
 - Mean LOS 12.8 days
 - 15/32 had fractures
 - Half > 50 years



Features of admissions after farm injury (SWH; n=270)

Commonest types of injury	Fractures 88 Multiple injuries 40 Lacerations 39 Crush Injuries 21
Commonest region of body injured	Upper limb 88 Lower limb 57 Multiple regions 44 Trunk 33
Most frequent causes of injury	Animal, other than horse or dog, 45 Struck by object 45 Motorcycle driver 45 'Low fall' 23

Relationship age v admission rate (SWH)



Costings of injuries

- **No agreement on costing method**
 - **Cost of treating injury only OR**
 - **Include other costs**
 - Replacement damaged plant/equipment
 - Lost production time
 - Replacement labour
- ***“The cost of injuries and fatalities that occur on Victorian farms is broader than the financial cost of recovery and lost production”. (Victorian Parliamentary Inquiry, 2005)***



Possible cost of farm injuries in Warrnambool district (estimated p.a.)

- By analysing injury as serious/ non-serious:
cost of injury:
 - \$147,264.50 (in 1993 \$) (Low & Griffith)
- By considering average costs of injury
involving dairy cattle:
 - \$367,560 (Ferguson, 1996)
- By considering 'all' cost implications:
 - \$1,039,968 (1992 \$) Watson & Ozanne-Smith



The dairy farm workforce (DFS; n= 132)

- **(Generally) very experienced**
 - Part-time workforce younger
- **Small workforce (3.04 people/farm)**
- **Mainly (79.8%) farm family members**
 - (and family = 87% of full-time workforce)
- **Located around 10-15 minutes travel from health assistance**



Factors affecting use of injury preventive approach by dairy farmers (DFS)

Factors most likely to cause adoption of preventive practices	Frequency of response (n=285)	Factors least likely to cause adoption of preventive practices	Frequency of response (n=273)
Showing someone else	82	I am in a hurry	67
Working with others	53	I am tired	57
Know of others injured doing this activity	45	I am angry	52
Previously injured doing this activity	39	My last task of day/ before a break	42
Undertaking activity for first time	33	My first task of day/ after a break	28



Selected descriptions of injury events & injuries sustained (DFS)

Injury events	Injuries sustained	Preventive Strategies
Handling wild bull in cattle crush	Crushed finger, required surgery	Better design of cattle crush
Chasing cows in dairy	Laceration to head	Removal of protruding object
Milking cows, slipped on frozen concrete	Dislocated shoulder	Better lighting
Chainsaw through kneecap	Laceration	More careful attention to detail
Fencing wire in eye	Lost sight in eye	Wearing safety glasses
Jammed finger in irrigator	Amputated digit at first knuckle	Wearing gloves
Fall from ladder	Broken ankle	Paying more attention
Dropped a container of chemical	Severe burns to eye	Wearing goggles or face guard
Stepped off silo	Torn ligaments in left ankle	Taking more care
Motor bike rolled onto leg	Knee swelling	Allow motor bike to stop before getting off

Categorisation of farmers' assessment of preventive strategies (DFS)

Haddon strategy number	Description of strategy and examples from farmers' responses
<u>1.</u>	<u>To prevent the creation of the hazard in the first place</u> <ul style="list-style-type: none"> - Chemicals are not necessary on this farm - Remove low tree branches - Remove protruding object from dairy pit
<u>3.</u>	<u>To prevent the release of the hazard that already exists</u> <ul style="list-style-type: none"> - The person turning on the hot water tap should have remained with it to ensure it was turned off - Using ropes and pulleys (for suspension of object that fell while being worked on) - Allow motor bike to stop before getting off
<u>6.</u>	<u>To separate, in time and space, the hazard and that which is to be protected by interposition of a material barrier</u> <ul style="list-style-type: none"> - Personal Protective Equipment (13 examples of gloves, glasses, boots) <ul style="list-style-type: none"> - Improve design of cattle crush - Improve fencing around cattle yard - Install cabin on tractor (post crushing incident with falling hay bale)
<u>7.</u>	<u>To modify relevant basic qualities of the hazard</u> <ul style="list-style-type: none"> - Improve lighting in dairy - Reduce length of wire being pulled
<u>8.</u>	<u>To make what is to be protected more resistant to damage from the hazard</u> <ul style="list-style-type: none"> - Doing back stretches prior to using the chainsaw



Some factors influencing farm injury prevention

- **L. Fragar – farmers are influenced by:**
 - **Community ‘culture of safety’**
 - **Opinions of farm family & business contacts**
 - **Economic impact of hazards on business**
 - **Evidence of a problem**
 - **Opinions of others**



Specific roles of farm women in farm safety

Research from WA & NZ identifies:

- **Educating role**
 - Imparting a 'common sense attitude'
- **Supervisory role**
 - Oversight of 'safe performance' (Zone of Influence)
- **Role in 'managing risk'**
 - Identify risks, develop less risky solutions
- **Engaging in safe practices**
 - 'Setting an example'



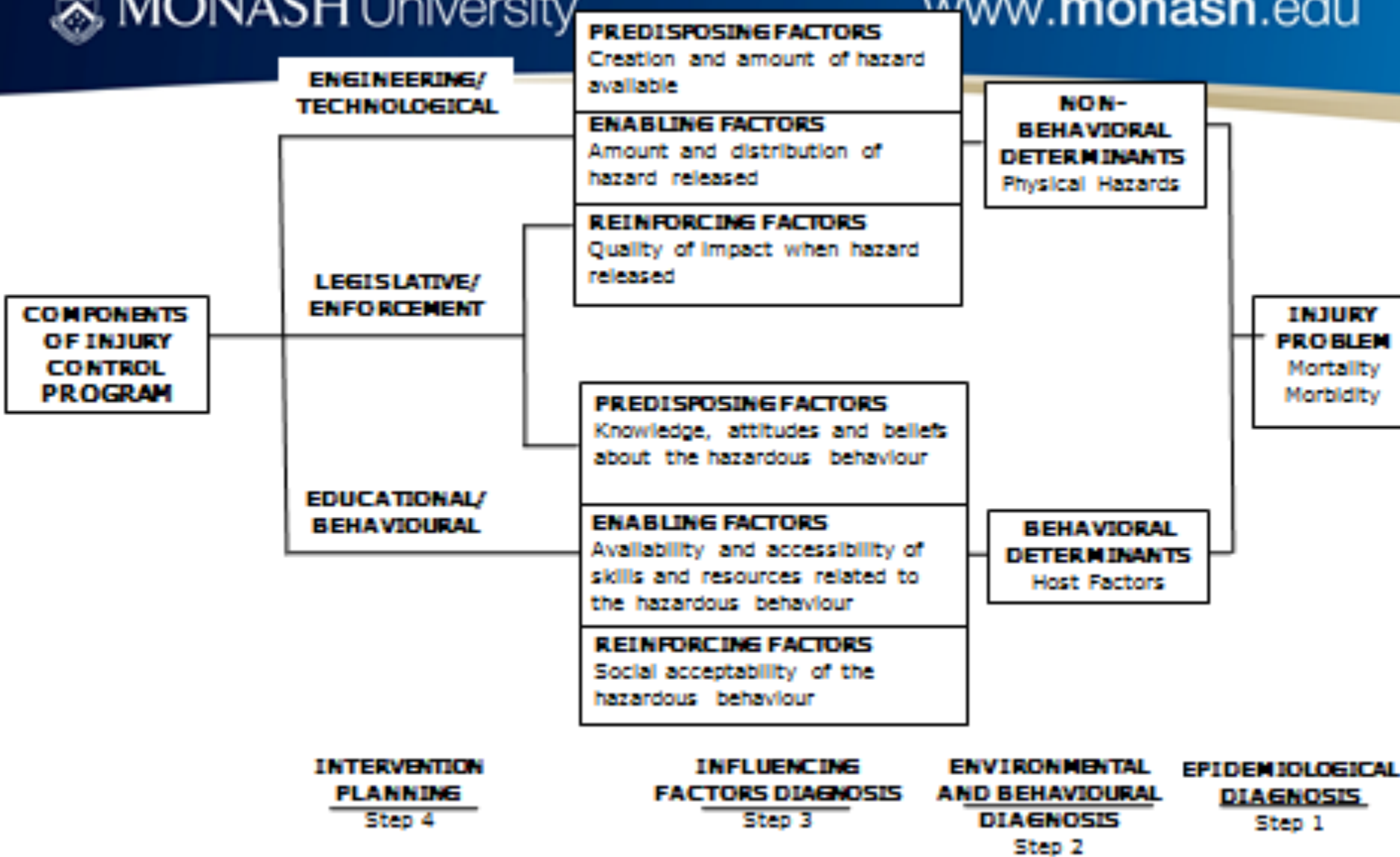
An approach to injury

prevention . . .

- Gielen (1992) – combination of:
health education and injury control approaches
for
effective and efficient action
to
reduce injury incidence and severity
- PRECEDE + Countermeasures
(Green) (Haddon)

(Gielen AC. Health Education and Injury Control: Integrating Approaches. Health Education Quarterly 19 (2): 203-218.)

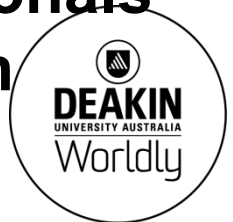




An integrative planning framework for injury prevention programs (from Gielen)

Where to from here – how do we improve the preventive effort?

- **Differing beliefs among farmers**
- **Different perceptions between male and female farmers**
- **Current initiatives**
- **‘Culture of farm safety’**
- **Economic issues**
- **Legislative issues**
- **Cooperative involvement with health professionals**
- **Relationship between injury events and health**



THE **KEY** MESSAGE!!!!

Farm injury prevention requires an **integrated**, **multi-faceted** approach involving:

- Farmers (& farm families)
 - Clinicians
 - Industry
- Injury prevention experts



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