



# INJURY BULLETIN

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## Workplace injury

Injuries in the workplace are a major source of ill health and disability in Queensland. During 1996-97 there were 36,449 compensated workplace injuries in Queensland with 644,471 work days lost.<sup>1</sup> Of these injuries 2,622 or 7.2% were classified as severe. The direct and indirect cost of workplace injuries to the Australian community has been conservatively estimated as being between \$15 billion and \$37 billion per year.<sup>2</sup> Workplace injuries not only incur significant costs to health services in Australia but they also make up a substantial proportion of labour costs through workers compensation premiums. This cost has been estimated to be more than 8% of labour costs other than payments for time worked.

During 1998 the Queensland Injury Surveillance Unit recorded 6004 injuries presenting at participating hospital Emergency Departments\* where the stated activity when injured was *working for income*. This represented 22% of all injuries recorded for persons aged 15 to 64 years.

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- 22% of all injury presentations to hospital Emergency Departments amongst 15 to 64 year olds are work-related.
- 85% of workplace injuries are to males
- Almost half of workplace injuries are to young people aged 15 to 29 years
- More than a quarter of workplace injuries are open wounds
- 21% of workplace injuries are to the eye
- Almost one-third of workplace injuries are to the hand
- Almost a quarter of workplace injuries are from the construction industry
- More than a quarter of workplace injuries involve tools of some sort
- Grinders contribute to more than 1 in 20 of workplace injuries

\* QISU data is based on emergency department presentations to the following hospitals: Mater Children's Hospital, Mater Adult Hospital, Mater Private Emergency Care Centre, Queen Elizabeth II Jubilee Hospital, Redland Hospital, Logan Hospital, Royal Children's Hospital, Mt Isa Hospital, Mackay Base Hospital, Proserpine Hospital, Sarina Hospital, Clermont Hospital, Dysart Hospital and Moranbah Hospital



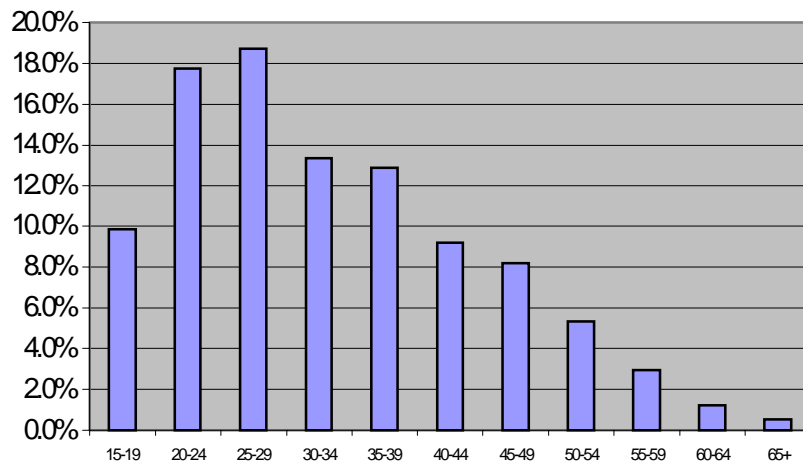


Figure 1. QISU work-related injury, 1998, by age of worker.

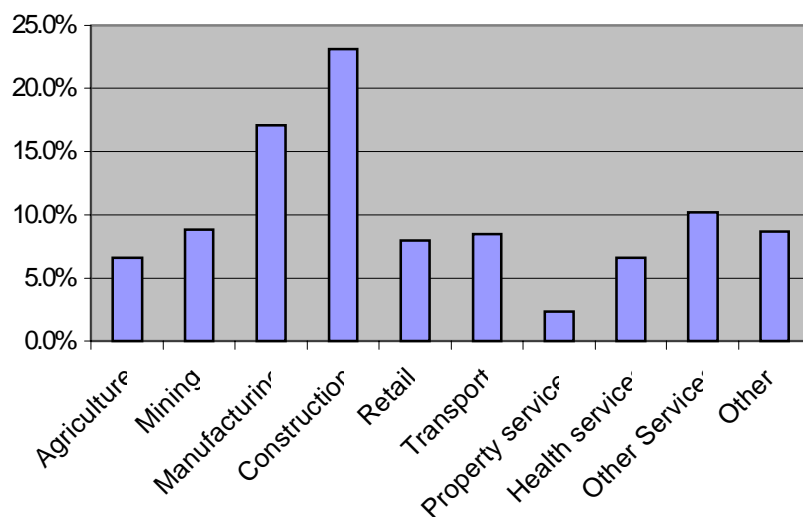


Figure 2. QISU work-related injury, 1998, by industry.

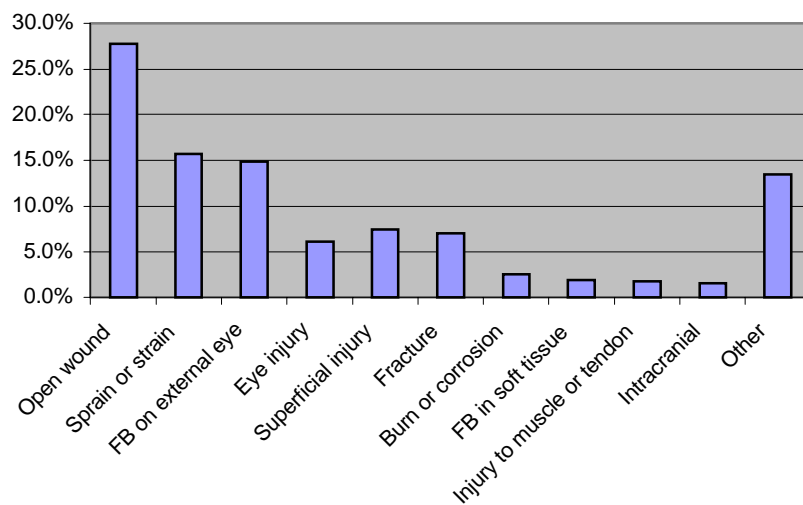


Figure 3. QISU work-related injury, 1998, by nature of injury.

More than 85% of the victims of workplace injury are male with almost half being aged between 15 and 29 years of age (Figure 1). Only 8% of work-related injuries presenting at ED's were subsequently admitted to hospital compared with 13% for all injury presentations.

### Industry

The industry group that contributed the greatest proportion of workplace injuries was construction and construction related trades (24%) followed by manufacturing (17%), other services (12%), transport (9%) and retail (8%) (Figure 2)

### External cause

Almost a quarter of workplace injuries had an external cause of *cutting or piercing object* followed by *struck by or collision with object* (20%) and *machinery related* (12%). The struck injuries were diverse and frequently occurred when objects were dropped or fell on the person. Examples include: "load collapsed while unloading a truck"; "dropped a carton of scotch on left foot"; "hit knee on corner of desk while pulling chair in", "hit in the head by a beef carcass at meat-works". 38% of the struck by or collision with object involved materials (not part of a structure), chiefly metal and a further 18% involved tools.

### Major injury factor

An examination of the major injury factors for workplace injuries revealed more than a quarter involved the following tools and equipment: grinders



(5%), knives (4%), welding equipment (4%), other power tools (4%), hand tools (3%), other tools (4%) and fixed plant and machinery (2%).

### Nature & Body location

Open wounds made up nearly 30% of all workplace injuries while eye related injuries contributed more than 20%. Sprains or strains, the largest group of compensated injuries, made up only 16% of injuries (Figure 3). The hand was the most common site for injuries (29%) and excluding eye injuries no other part of the body exceeded 5% as a proportion of all injuries.

### Eye Injuries

Foreign body on the external eye accounted for 71% of the eye injuries while 2% were burns. Grinders and welding equipment were each implicated in 14% of cases while chemical sprays or splashes caused 6% of the injuries.

### Mining injuries

The recent expansion of the QISU data collection to the Mackay region and Mt Isa has meant that a significant number of mining related workplace injuries have been recorded. During 1998 QISU recorded 576 workplace injuries presenting at hospital ED's which were related to the mining industry. The types of mining activity represented by these injuries included coal and metal ore mining as well as services to mining and for both underground and open cut mining (Table 1).

More than a quarter of mining related injuries had an external cause of struck by or collision with object of which 24% involved metal pieces, sheets or fragments and 22% involved tools. A further 10% of the struck injuries resulted from falling rock or coal and 6% involved high pressure hoses. Cutting or tearing (15%) followed as the next most frequent external cause, then machinery (13%) and low falls (11%).

The nature of injury was dominated by eye related injuries (21%) followed closely by open wounds (18%). Fractures and crushing injuries made up 9% and 7% of mining related injuries.

A greater proportion of mining related injuries were admitted to hospital (16%) compared with all workplace injuries (8%) indicating that these injuries tend to be more severe.

When the major injury factor is examined for mining injuries the most commonly reported factors were, other tool (11%), structure (7%), rock, stone, gravel, etc (7%) and chemical substance (5%). Inhalation of smoke, fumes or vapours was the most frequent mechanism of injury relating to chemicals. Grinders were still a prominent major injury factor in many mine-related injuries being recorded in 4.5% of cases.



	Underground	Open	Other or un-	Other place	Total
Coal mining	76	35	12	14	137
Metal ore	84	7	7	10	108
Other mining	10	12	15	12	49
Services to	166	7	13	51	237
Other	10	23	12	-	45
<b>Total</b>	<b>346</b>	<b>84</b>	<b>59</b>	<b>87</b>	<b>576</b>

Table 1 QISU mining injuries, 1998, by activity and location.

## Discussion

An examination of the characteristics of compensated workplace injuries in Queensland reveals systematic differences from those presenting at hospital emergency departments. In 1996-97 around 30% of all compensated injuries were in the manufacturing industry followed by health and community services (18%), retail & wholesale trade, finance & personal services (18%) and other services (14%). The construction industry made up only 7% of compensated injuries but represented almost a quarter of the ED work-related injuries. This may be explained in part by a possible higher proportion of self-employment in the construction industry and construction trade services.

When nature of compensated injury is examined it is found that nearly 60% of injuries are classified as sprains & strains while open wounds made up only 15% of the cases. This contrasts with the ED presentations which recorded only 16% of injuries as sprains and strains but 28% as open wounds. These differences between compensated injuries and those presenting at EDs may not be surprising in terms of the role of emergency departments in providing acute care for injuries such as cuts and lacerations which demand immediate and possibly extensive treatment, while workers suffering sprains or strains may more likely present at a doctors surgery. However even allowing for this it would appear that compensated injury data provides a biased perspective of workplace injury.

One item which is consistently associated with injuries in the workplace is the grinder, in particular the angle grinder. This tool has also been implicated in a significant proportion of "do it yourself" home maintenance (DIY) injuries recorded by QISU and has been highlighted in previous bulletins.<sup>3</sup>

Most angle grinder injuries involve metal particles lodging in the operator's eye, however the most severe injuries result from kick-back or when discs shatter or explode. These latter types of injuries have resulted in death and dismemberment. Angle grinders are well known to OH&S organisations across Australia as being one of the

most dangerous tools in the workplace (and in the home workshop).<sup>4</sup> The main problem is that these tools are designed for grinding and not cutting; the activity when most serious grinder injuries occur.



Although the type of injuries discussed above are relatively severe most grinder related injuries involve the eyes (66%). An examination of grinder related eye injuries recorded by QISU shows that a significant number of cases stated that eye protection was being used at the time of the injury. This indicates that often the type of eye protection being worn is not appropriate for the task.

## Conclusion

Considerable differences exist between compensated injury data and ED data in terms of industry representation and injury type. The evidence of the QISU ED data suggests that compensated injury data provides a biased perspective of workplace injury. Therefore where it has formed the basis of OH&S policy, priorities may need to be reassessed and reoriented.

Grinders, particularly angle grinders are consistently implicated in workplace injuries. Angle grinders are not designed for use as a cutting tool. Attention needs to be paid to the provision of training in the safe use of tools in the workplace, especially grinders and other power tools.

Eye injuries represent a significant proportion of workplace injuries. Further research into the usage patterns, appropriate selection and effectiveness of protective eye wear would be of benefit.

1. Division of Workplace Health and Safety, DETIR. 1998. *Queensland Employee Injury Data base, Summary Report No. 8 1996-97. Health & Safety of Workers in All Industries.* Brisbane:DETIR.
2. National Occupational Health & Safety Commission, 1995. *The Cost of Work-related Injury and Disease. Statistics Summaries Issue 95007.* Canberra: NOHSC.
3. Queensland Injury Surveillance Unit, 1998. *Home maintenance injuries, DIY -lawn mowers tools line trimmers, Injury Bulletin No. 50.* Brisbane:QISU.
4. WorkSafe Western Australia, 1996. *Angle grinders, Safety and Health Solutions.* Perth:WorkSafe.

