Prevention of work-related deaths from traumatic injury

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Injury prevention

- Study of serious occupational injury

- Gun RT. The role of regulations in the prevention of occupational injury. Safety Science, 1993; 16: 47-66.

Series of 98 serious traumatic injuries

- Investigated to determine whether the injury was caused by failure to comply with a regulation.
- 53/98 were found to be caused by non-compliance with a regulation.

Study of 98 workplace injuries.

- After investigating each workplace injury, we visited a similar workplace but where no accident had occurred – the matching workplace (the “non-accident site”.

Was the non-accident worksite in compliance with the same regulation?

- There was compliance in 70% of cases.

- Of 78 non-accident worksites, measures had been taken in 25 (32%) which would make the accident unlikely.

Conclusions

- Do not just investigate workplaces where injury occurred. Conduct industry-wide investigation

- Where an effective safety mechanism is identified, it should be embodied in a standard or a regulation

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Australian standard for air compressors for diving

- Compressor intake fitted with extension pipe
- Pipe positioned away from source of combustion gas
- Any section of pipe which could be melted or crushed must be made of metal

Most common mechanism of fatal occupational injury (Australia)

- Vehicle incidents
- Of 1787 occupational fatalities in the period 1989-92, 543 (30.3%) were from motor vehicle crashes on public roads, and a further 626 occurred in 626 travelling to or from work.
- Other deaths from tractors, forklifts etc

Energy of moving car (1500Kg)

- 20 km/hour 23KJ
- 40km/hour 92KJ
- 80km/hour 363KJ
- Energy = $0.5mv^2$

Safety strategies

- Safety rating for vehicles
  - Anti-lock braking
  - Design to prevent injury if crash occurs

Behavioural causes of road deaths

- Speed
- Alcohol
- Fatigue
- Non-use of restraint (seat belt)

Strategies for vehicle safety

- Structure driver’s pay to reduce need to speed or drive for too long
- Learn defensive driving
- Medical checks eg for diabetes

The most dangerous industry (Australia)

- Agriculture (including fishing and forestry)
- Agriculture 16.85 deaths/100 000 person-years
- All industries 2.35 deaths/100 000 person-years

Commonest farm fatalities

- Vehicle accidents
  - Tractors
  - Light vehicles
  - Quadbikes
  - Aircraft
- Injuries caused by animals

- The University of Adelaide and the Department of Occupational Health and Safety in the University of Indonesia are entering a collaboration, including postgraduate teaching, internships and research.

Recommended text for injury prevention

- **On the escape of tigers: an ecologic note.**
- by William Haddon
- American Journal of Public Health
- 1970 Dec; 60(12): 2229–2234.

Control of energy release – the key to injury prevention

- Prevent generation of energy
- Reduce amount of energy generated
- Reduce rate of energy release
- Separate the energy source from the operator
- Prompt and efficient management if injury occurs