Mining and Road Safety

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Overview

- 1. Introductions
- 2. Road safety principles and practice
- 3. Data collection and analysis
- 4. Vehicle technology
- 5. Mining safety issues and needs
The Transport System

- People
- Vehicles
- Infrastructure
- Land use

- Enforcement
- Education
- Technology
- Environment
- Government policy
- Community response
- Research & innovation
- Leadership

- Systems
- Data & information
- Regulation
- Industry practice
- Funding

Transport Safety Regulation & Responsibility

➤ Transport as a specific element of OSH

Transport Safety

Transport outside the workplace

Transport in the workplace

Occupational Safety

Transport outside the workplace, which affects workplaces
Deaths in Australia

tens of people

Road  Rail  Marine  Air

Workplace (reported)
Workplace (unreported)

Sources: Australian Transport Statistics Yearbook, BITRE (2009)
Compendium of Workers’ Compensation Statistics Australia 2007-08
Safe Work Australia, (2009)

Safe Systems

- Recognise that users make mistakes
- Set targets
- Recognise the limits of the human body to withstand energy
- Integration and collaboration between contributing parties and authorities
Workplace Transport Issues

- Safe vehicles
- Safe speeds
- Driver competency
- Safe loads
- Fatigue and alcohol
- Unusual events
- Unsealed road safety
- Long distance driving

43% had not received any occupational health and safety training in the job where their injury or illness occurred.


Benefits of Workplace Transport Safety

- Reduced stress and trauma to staff and their families
- Increased morale and improved productivity
- Increasing staff availability for work
- Reduced vehicle damage and work rescheduling
- Reduced administration and HSE/OHS management
- Increased vehicle availability
- Reduced business and customer interruptions
- Reductions in vehicle and workers’ compensation insurance premiums
- Lower repair, maintenance and running costs
- Increased resale value from improved care of vehicles by drivers
Data collection and analysis

- Qualitative
  - Interviews
  - Focus groups
  - In-depth crash investigation
  - Individual, qualitative case studies
- Quantitative
  - Cohort longitudinal
    - to follow over time to assess outcomes related to issue of interest
  - Data linkage
    - assess at a population level longitudinal, cross-sectional and case-control studies
  - Case control
    - identify risk factors for rare events such as crash or injury between groups with and without the outcome of interest
  - Cross sectional descriptive studies
    - one point in time, certain chain of events

Individual, qualitative case studies
- In-depth incident analysis

Background and context analysis
- by type of industry
- by type of activity
- relevant to countermeasures

Policy development, analysis and evaluation
- Intervention studies
  - to assess effectiveness of interventions such as road treatments, vehicle improvements, operational changes, corporate policies, etc. on an outcome of interest
Cataract Surgery & Road Safety

➢ Issue

▪ Cataract is the leading cause of vision impairment in the older population. By 60 years of age, half of the population will have developed some cataract.

➢ Purpose:

▪ To evaluate the effectiveness of first eye cataract surgery on drivers aged 60 years and over at a population level.

Cataract Surgery & Road Safety (2)

➢ Methods:

▪ Retrospective before and after comparison of all police reported crashes for patients who had undergone first eye cataract surgery
▪ Using linked Western Australia data for 1997-2006
▪ Economic analysis by type of crash for cost savings from cataract surgery

➢ Results

▪ 27,827 cataract surgery patients in 1715 crashes
  ▪ 941 crashes one year before or
  ▪ 821 crashes one year after surgery.
▪ Significant reduction of 12.7% in crashes.
Cost savings amounted to $4.3 million.
Vehicle Technology

• 3 Categories
  (emerging and developed technologies)

1. Driver monitoring (fatigue management)

2. External Monitoring
   - Lane change warning
   - Collision/pedestrian/animal avoidance
   - Curve-speed warning

3. Full Vehicle Control

1. Driver monitoring

- ~50% of (HV&LV) accidents outside cities primarily due to fatigue (MUARC 1998).

- Need to identify onset of fatigue and act.

- Driver alertness/drowsiness detection (video)
2. External monitoring

- Collision/Pedestrian avoidance (Volvo video).

- Lane change/deviation warning (Nissan/Infinity video).

3. Full vehicle control

- Emerging Technology.

- Videos:
  - BMW
  - Oxford Uni.
5. Mining safety issues, needs and opportunities

➢ Discussion
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