Analysis of forestry work accidents in five Australian forest companies for the period of 2004 to 2014

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Background

- More than 75000 people working in forest/timber sector.
- Current research focus on trees/machines/products.
- Little known about workers/operators health and wellbeing.
• Objectives: Analyse the frequency, type and root causes of work accidents.

• Questionnaire sent to five industry partners of AFORA. The period from 2004 to 2014.

• Root causes: Personal errors (lack of PPE, poor position/technique,...), Environment and System.

• Body parts: Upper body (including hands/fingers), Lower body and head/neck.

• Injury types:
  Skin damages (cut, abrasion, scratch, rash, burnt and laceration)
  Contusion (bruise/struck, fracture, dislocation, struck and broken bone)
  Muscular damage (strain, sprain and soft tissue)
  Others (object in eye, bitten by insect/snake, blood nose, infection and dehydration).
Results

- Total accidents: 470 (=43 a./year)
- 14.4 accidents per million m³ of wood
Harvesting operations

- Severity rate: 2.85 accidents/ million m³ of harvested wood.
- Lower than 6.03-12.00 accidents/ million m³ for harvesting in Austria!
Silviculture

• 18% of total accidents.
• Only 3% of total accidents in Sweden.

- Personal error: 38.6%
- Environment: 3.6%
- System: 3.6%
- Others: 1.2%
- n/r: 54.2%

- Skin damage: 31.3%
- Muscles damage: 26.5%
- Contusion: 18.1%
- n/r: 22.9%

- Head/neck: 20.5%
- Upper body: 41.0%
- Lower body: 35.0%
- n/r: 3.6%
Forest firefighting

USA case study (2010) on federal wildland fire fighting

- Head/neck injuries: 9.3%
  - Lower body: 35%
  - Upper body: 25%

- Skin damage (burn, wound...): 27.9%
- Muscular damage: 29.4%

- System, 2.6%
- Enviroment, 2.6%
- Personal error, 18.4%
- Others, 31.6%
- n/r, 10.5%
- Lower body, 26.3%
- Upper body, 44.7%
- Skin damage, 42.1%
- Contusion, 10.5%
- Muscle damage, 15.8%
Outcomes

• Need to improve incidents reporting system (near miss, lost time, evaluate recovery cost...).

• A short industry bulletin and a journal paper.

Improve safety/health.

Potential saving on medical costs ($0.5 million per year).

• Personal error is main root cause ... improve work safety training.

• Upper body (back/shoulders) is most injured part with muscular and skin damages... provide more ergonomic training and use safety cloths/equipment.
Potential future researches

Forest workers health/ergonomics/nutrition.

Mental stress and physical strain for harvester operators.

Reduce fatigue level for truck and machine drivers.
Thank you!

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