
Carrier Safety Management

Truck and Bus Safety Research Domain

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Overview

- Significance of Domain
 - Approach to Domain; contrasting....
 - Regulatory Framework
 - “Results” Framework
 - Practices/Requirements Proven Effective
 - Needs for Research
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Significance of Domain (Carrier Safety Management)

- Key to motor carrier safety (Moses and Savage, 1994)
 - Management makes the call!
 - Selects, trains, supervises, motivates, disciplines, and compensates drivers
 - Equipment purchase and maintenance
 - Loads management....delivery parameters
 - Sets the safety tone
 - Explicitly
 - “Wink and nod”
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Regulatory Framework

- Carrier Safety Fitness Standards (49 CFR)
 - Commercial Drivers License
 - Financial Responsibility
 - Unqualified Drivers
 - Improper operation of vehicles
 - Unsafe vehicles
 - Accident reports
 - Driver fatigue (HOS)
 - Vehicle Maintenance
 - Hazardous Materials
 - Comprehensive, but to what end?
 - Does the regulatory regime reflect what research tells us about effects of Safety Management Regimes?
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Effective Crash Reduction Strategies

- **Creation of corporate “Safety Culture”**
 - Effective recruitment of safe, qualified drivers
 - Frequent monitoring of driver safety records
 - Compensation practices that retain safe drivers
 - *Research indicates –*
 - Unsafe drivers tend to be employed by unsafe carriers
 - Financial condition of carriers is an indicator
 - Safest firms track accidents and act on driver causes
 - Frequent driver record checks pay off
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Effective Crash Reduction Strategies

- **Pro-active, safety-oriented equipment inspection, maintenance, and repair**
 - *Recent research (Michigan) indicates –*
 - Mechanical condition of trucks is an important safety issue
 - Truck defects contribute significantly to involvement of trucks in fatal accidents
 - However, exact role of vehicle defects in crashes is not well understood.
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Effective Crash Reduction Strategies

■ **Being Larger**

- Firm size may play a role in carrier safety fitness as large firms are generally more likely to employ safety management practices

■ *Recent research indicates –*

- Drivers at very large firms (1,000-4,999 employees) have statistically fewer involvements in crashes, fewer moving violations, and fewer logbook violations than those at small firms (less than 25 employees).
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Strategies Where More Research would be Helpful

- **Entry Level and Remedial Driver Training**
 - *Research indicates –*
 - Impact of driver training has not been widely quantified
 - More research needed to assure that remedial training is effective
 - **Driver Safety Awards and Incentives**
 - *Research indicates –*
 - *Effectiveness not documented*
 - *Not rated high by safety managers*
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Strategies Where More Research would be Helpful

■ Use of Aftermarket Safety Devices

- *Intelligent Vehicle Initiative Research could help identify relationship of OEM installed and aftermarket specing of safety devices to improved performance*

■ Driver wellness and Fatigue Programs

- *Research indicates –*
 - While allowing fatigued drivers to drive is clearly imprudent, documentation of effectiveness of fatigue and wellness programs is “light”, and more research is under way to prove effectiveness
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Additional Research Needs

- Training Regimes – Can training yield statistically significant reductions in commercial vehicle driver crashes?
 - Equipment Specing -- Will safety devices make a difference?
 - Hours of Service -- Will FMCSA requirements affect CVO safety performance?
 - New Entrants. While it is clear that new entrants have higher crash rates, will the new requirements improve new entrant performance?
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Additional Research Needs

- Driver Medical Qualifications. What changes in driver medical qualifications and driver physicals are needed to ally requirements with current medical research?
 - Intervention Techniques. What forms of incentives, punishments or rewards will positively affect driver safety performance
 - Behavior-Based Techniques. Can behavior-based activities be applied effectively in a semi-autonomous operating environment like trucking?
 - Driver Wellness and Fatigue Management. What is the safety effectiveness of these programs?
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Conclusions

- The current body of research suggests that the Regulatory Framework covering commercial vehicle operations is a necessary, but possibly insufficient mix of activities to ensure safe motor carrier operations.
 - An ongoing research agenda as suggested here will help agencies and carriers target actions to yield improved performance.
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