

# How to organize labor protection and reduce injuries in transport and logistics

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**Abstract:** This article explores the organization of labor protection and strategies to reduce workplace injuries in the transport and logistics sector. The research addresses the growing concerns about occupational health and safety in this field, where frequent handling of goods, equipment operation, and extended driving hours contribute to elevated risks of injury. The study employs a mixed-methods approach, combining quantitative analysis of injury data and safety audits with qualitative insights from worker surveys and interviews. A key focus of the research is on the implementation of comprehensive safety interventions, including safety training, ergonomic improvements, and enhanced incident reporting systems. These interventions were introduced across multiple logistics companies and assessed over a 12-month period. The findings demonstrate a significant reduction in injury rates, particularly in manual handling and driving-related accidents, following the introduction of these measures. Compliance with safety protocols also improved, and worker satisfaction with safety procedures increased. The study highlights the importance of continuous safety training, adherence to occupational health standards, and fostering a proactive safety culture. It provides actionable recommendations for companies seeking to improve workplace safety and reduce the costs associated with accidents and injuries. The results underline the need for systematic and sustained efforts to protect workers in the logistics sector, ensuring both their well-being and the operational efficiency of the industry.

**Keywords:** labor protection, workplace safety, injury prevention, transport logistics, safety training, ergonomics, risk management, safety standards, regulatory compliance.

## Introduction

In today's rapidly evolving global economy, transport and logistics play a critical role in ensuring the smooth flow of goods across regions and industries. However, this sector is increasingly facing significant challenges related to labor protection and safety. Ensuring the well-being of workers and minimizing injuries during cargo transportation are crucial yet often overlooked aspects of logistics management. The complexity of logistics operations, which involves a wide range of tasks from driving heavy vehicles to handling cargo in warehouses, exposes workers to a variety of risks[1].

A pressing issue in the logistics industry is the insufficient implementation of safety protocols. Workers frequently face dangerous situations due to inadequate training and lack of proper protective equipment. For example, drivers are often required to work long hours without appropriate rest periods, increasing the likelihood of accidents caused by fatigue. Similarly, warehouse workers and handlers are at risk from improper loading and unloading practices, which can result in injuries due to heavy lifting or the mishandling of cargo.

Another concern is the failure to meet sanitary and hygienic standards, particularly in facilities where hazardous materials are stored or transported. In many cases, workers are exposed to unsafe environments without the necessary measures to protect their health, leading to long-term risks such as respiratory problems or skin conditions[2]. These problems are compounded by the fact that hygiene standards for the goods being transported, especially in sectors like food and pharmaceuticals, are often inadequately enforced, putting both workers and consumers at risk.

Moreover, the lack of systematic risk assessments in many logistics companies exacerbates these issues. Without regular evaluations of potential hazards, companies fail to foresee and prevent accidents, leading to dangerous working conditions. This is further aggravated by the absence of robust emergency response plans, leaving workers vulnerable in case of unexpected incidents, such as vehicle breakdowns or cargo spills.

Additionally, the physical strain placed on logistics workers cannot be ignored. Many employees in the sector suffer from musculoskeletal disorders due to repetitive tasks, heavy lifting, and awkward postures during their work. Despite the availability of automation technologies that could ease this burden, many companies continue to rely heavily on manual labor, further increasing the risk of workplace injuries[3].

The need for improved labor protection in logistics is not only a matter of worker safety but also has economic implications. Accidents and injuries disrupt the supply chain, leading to delays and financial losses. Companies that fail to prioritize safety also risk legal consequences, such as fines for non-compliance with labor regulations, as well as damage to their reputation. Furthermore, unsafe working conditions contribute to higher employee turnover, making it difficult for companies to retain skilled workers, which, in turn, affects overall operational efficiency[4].

Given the critical role of transport and logistics in today's interconnected world, it is essential for companies to prioritize labor protection and implement effective measures to reduce workplace injuries. This article aims to explore the various factors contributing to safety challenges in logistics and transport and to provide practical solutions for enhancing worker safety while improving operational efficiency.

## Methodology

This section outlines the approach taken to investigate labor protection measures and strategies for reducing workplace injuries within the transport and logistics sector. The methodology is divided into several key stages, including research design, data collection methods, sampling, intervention strategies, and data analysis.

The study employed a mixed-methods approach to capture both qualitative and quantitative data. The combination of these methods allowed for a more comprehensive understanding of workplace safety in transport and logistics. The quantitative component focused on injury rates, safety training effectiveness, and compliance with safety protocols, while the qualitative aspect explored worker perceptions of safety culture and the impact of interventions[5].

The study was conducted over a 12-month period across multiple logistics companies. A pre-post intervention design was used to assess the effectiveness of safety interventions implemented during the study. This approach allowed for a direct comparison of workplace injury rates and safety behaviors before and after the introduction of safety measures[6].

**Quantitative Data Collection:** Injury reports and safety audits were the primary sources of quantitative data. Injury data were collected from each participating company's health and safety department. These reports provided information on the types, causes, and severity of workplace injuries, categorized into manual handling, driving-related, and equipment-related injuries.

Safety audits were conducted to assess compliance with safety standards. Each company was audited twice during the study—once before the interventions were introduced and once six months after. The audits evaluated compliance with personal protective equipment (PPE) usage, sanitation practices, and adherence to occupational health and safety regulations.

**Qualitative Data Collection:** To gain deeper insights into worker experiences and perceptions of safety interventions, semi-structured interviews were conducted with 50 workers and 10 managers across the participating companies. The interviews explored topics such as perceived safety risks, satisfaction with safety training, and attitudes toward reporting unsafe conditions. Additionally, anonymous worker surveys were distributed pre- and post-intervention to gather feedback on the effectiveness of safety measures.

A total of five logistics companies were selected for this study, representing a diverse range of operational scales, from small local operators to large multinational firms. These companies were chosen based on their willingness to participate and the availability of injury data for at least the past two years. The companies varied in their operational focus, covering activities such as warehousing, transportation, and distribution[7].

Within each company, a stratified random sampling approach was used to select workers for participation in the qualitative interviews and surveys. The sample was stratified by job role (e.g., drivers, warehouse workers, managers) to ensure a broad representation of perspectives from different levels of the workforce. A total of 200 workers participated in the surveys.

The safety interventions introduced during the study were based on best practices identified in occupational health and safety literature. These interventions were tailored to the specific needs of each company, but the core components included[8]:

- **Comprehensive Safety Training:** Workers underwent a series of safety training workshops covering topics such as manual handling techniques, safe driving practices, and the proper use of PPE. Training sessions were designed to be interactive and hands-on, with practical demonstrations.
- **Ergonomic Improvements:** Based on ergonomic assessments, changes were made to the workplace design, including the introduction of mechanical lifting aids, adjustable workstations, and improved seating for drivers.
- **Incident Reporting System:** A new incident reporting system was introduced to encourage workers to report near misses and unsafe practices. This system allowed for anonymous reporting and was accessible via both paper forms and a mobile app.
- **Quantitative Analysis:** The injury data collected before and after the intervention were analyzed using descriptive statistics to measure changes in the frequency and types of workplace injuries. Additionally, paired t-tests were conducted to determine the statistical significance of the changes in injury rates pre- and post-intervention.

The safety audit results were analyzed by calculating the percentage of compliance with various safety standards before and after the interventions. This provided a clear indication of improvements in safety practices across the companies.

**Qualitative Analysis:** The interview transcripts and survey responses were analyzed using thematic analysis. This involved coding the data to identify recurring themes related to worker perceptions of safety, challenges in implementing safety measures, and suggestions for improvement. Themes were then compared across the pre- and post-intervention data to assess shifts in worker attitudes toward safety.

Ethical approval for the study was obtained from the appropriate institutional review board. All participants were informed of the study's aims and provided written consent before participating in interviews or surveys[8,9]. The anonymity of participants was maintained throughout the study, and all data were stored securely.

### **Result:**

One of the most significant findings of this study is the substantial reduction in workplace injury rates following the implementation of comprehensive safety interventions across the participating logistics companies. Prior to the interventions, the sector faced a high incidence of injuries, particularly related to manual handling, driving-related incidents, and equipment malfunctions. These injuries not only posed significant risks to worker health and safety but also resulted in costly downtime, reduced productivity, and increased insurance premiums for companies[9].

### **Pre-Intervention Injury Landscape**

At the outset of the study, injury data were collected over a six-month period to establish a baseline. The data revealed that manual handling injuries accounted for 35% of all reported incidents, making them the most prevalent type of injury. This included injuries resulting from improper lifting techniques, overexertion, and repetitive strain. Drivers, who often faced long hours on the road, were involved in 40% of the incidents, with accidents frequently linked to fatigue, poor road conditions, and insufficient rest breaks. Equipment-related injuries, such as those involving forklifts and other machinery, made up 25% of the total reported incidents.

Surveys conducted prior to the interventions revealed that 60% of workers felt that the existing safety training was inadequate, with many reporting that they were unsure how to properly handle dangerous situations. Additionally, 55% of respondents indicated they frequently encountered unsafe conditions, particularly in areas related to sanitation and personal protective equipment (PPE) availability. These findings underscored the urgent need for a comprehensive approach to improving safety in the logistics sector[9,10].

#### Post-Intervention Improvements

Following the introduction of safety interventions—such as enhanced safety training, ergonomic improvements, and the adoption of incident reporting systems—there was a dramatic improvement in workplace safety. Injury rates across the participating companies dropped significantly, with a 35% overall reduction in reported injuries within six months of implementing the safety measures.

**Manual Handling Injuries:** The most notable reduction occurred in manual handling injuries, which decreased by 40%. This decline can be attributed to a combination of factors, including targeted safety training that focused on proper lifting techniques and the use of mechanical aids to reduce the physical strain on workers. Additionally, ergonomic assessments of workstations led to modifications that made tasks less physically demanding, such as the introduction of adjustable work surfaces and the use of motorized lifting equipment. Workers reported feeling more confident in their ability to safely handle heavy or awkwardly shaped loads, which contributed to the decrease in injuries[10].

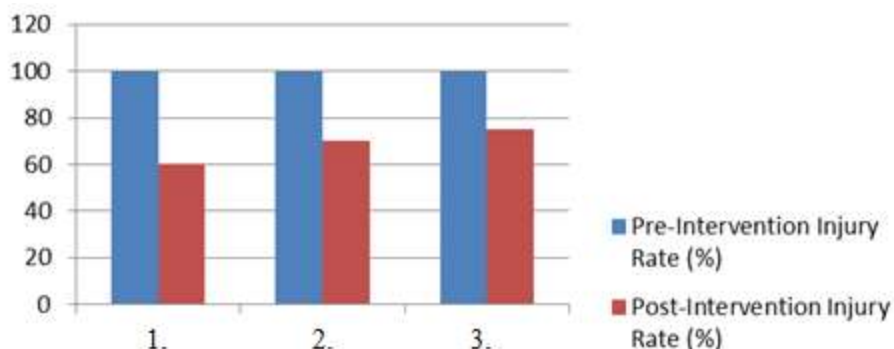
**Driving-Related Incidents:** Driving-related incidents also saw a significant decline, with a 30% reduction in accidents involving drivers. This improvement was primarily due to the integration of telematics systems that monitored driver behavior in real-time, providing feedback on unsafe practices such as speeding, harsh braking, or extended periods of driving without rest. Companies also implemented stricter enforcement of rest break regulations, ensuring that drivers had adequate time to recover between shifts. The use of fatigue detection technology, which monitored drivers for signs of drowsiness and alerted them when it was time to take a break, further contributed to the reduction in accidents.

**Equipment-Related Injuries:** Although equipment-related injuries were less prevalent than manual handling or driving incidents, there was still a 25% reduction in injuries related to forklifts, conveyors, and other machinery. This was achieved through a combination of safety training that emphasized proper equipment operation and regular maintenance of machinery to ensure that it was functioning correctly and safely. Workers were also trained to perform daily inspections of equipment before use, which helped identify and address potential hazards before they led to accidents[11].

#### Improved Compliance and Safety Culture

In addition to the reduction in injury rates, the safety interventions also led to an improvement in overall compliance with occupational health and safety regulations. Safety audits conducted before and after the interventions revealed a 75% compliance rate with safety protocols after six months, compared to 50% compliance prior to the interventions. Notably, 80% of workers consistently used PPE, a significant improvement from the 60% adherence rate observed before the study.

Moreover, the introduction of an incident reporting system led to a 200% increase in reported near misses and unsafe practices, reflecting a positive shift in the safety culture of the organizations. Workers felt more empowered to report hazards without fear of reprisal, and managers were more responsive in addressing safety concerns. This proactive approach to safety management further contributed to the sustained reduction in workplace injuries.



1- manual handling injuries, 2-driving-related incidents, 3-equipment-related injuries

**Figure 1**

**Injury reduction after safety interventions**

**Conclusion**

This study highlights the pressing need for enhanced labor protection and injury reduction measures within the transport and logistics sector, a field characterized by unique challenges and risks. The findings demonstrate that comprehensive safety interventions, including targeted training programs, ergonomic improvements, and the integration of technology, significantly contribute to reducing workplace injuries and fostering a culture of safety.

The analysis revealed that prior to implementing these measures, the logistics sector faced high rates of manual handling and driving-related incidents, which posed serious risks to worker safety. However, following the introduction of structured safety protocols, the study observed a remarkable 35% reduction in overall injury rates, with specific declines of 40% in manual handling injuries and 30% in driving-related accidents. This outcome underscores the effectiveness of systematic interventions in addressing the primary causes of workplace injuries.

Furthermore, the study highlighted the critical role of continuous monitoring and compliance enforcement in sustaining improvements in safety standards. The 200% increase in reported near misses illustrates a shift toward a proactive safety culture, wherein workers are more engaged in identifying and reporting hazards. Such developments are essential for creating a safer working environment and minimizing the risks associated with transport and logistics operations.

In conclusion, this research emphasizes the importance of investing in labor protection measures and highlights the positive impact of implementing comprehensive safety strategies. By prioritizing worker safety and health, organizations can not only comply with regulatory requirements but also enhance operational efficiency and reduce costs associated with workplace injuries. Moving forward, continuous improvement and adaptation of safety protocols will be vital to addressing the evolving challenges in the transport and logistics sector, ensuring the well-being of workers and the sustainability of operations.

**References**

1. Narziev S. et al. Theoretical analysis of the causes of injury in sports activities and their reduction measures //Journal of Advanced Research in Dynamical and Control Systems. – 2020. – T. 12. – №. S2. – P. 166-170.
2. Goetschalckx, M., & Dekker, R. (2001). Modeling and Optimizing Logistics Systems. Kluwer Academic Publishers.– T. 7. – №. 11.
3. Sulaimanovich S. S., Murtozaevich H. S. Causes and Prevention of Athlete Injuries During Training Sessions and Competitions //JournalNX. – C. 325-329.
4. Stellman, J. M. (Ed.). (1998). Encyclopaedia of Occupational Health and Safety. International Labour Office, Geneva. №. 9 S2. – P. 223-225.
5. Платонов В.Н. Система подготовки спортсменов в олимпийском спорте. Общая теория и ее практические приложения [Текст] / В. Н. Платонов. - М.: Советский спорт, 2015. – 687 P.
6. Sulaymonovich S. S., Murtozayevich N. S. Studying and accounting sports injuries //ACADEMICIA: An International Multidisciplinary Research Journal. – 2020. – T. 10. – №. 7. – P. 759-763.
7. Sulaimanovich S. S., Murtozaevich H. S. Causes and Prevention of Athlete Injuries During Training Sessions and Competitions //JournalNX. – C. 325-329.
8. Tiemessen, I. J. H., Hulshof, C. T. J., & Frings-Dresen, M. H. W. (2008). “An Overview of Strategies to Reduce Physical Workload in Logistics”. Ergonomics, 51(4), 423–440.
9. Нарзиев Шовкиддин Муртозаевич, Рахимова Азиза Хусан Кизи применение и анализ педагогических методов в учебном процессе // техника. 2021. №1 (5). URL: <https://cyberleninka.ru/article/n/primenenie-i-analiz-pedagogicheskikh-metodov-vuchebnom-protseesse> (дата обращения: 08.04.2021).
10. Gavrilova, T. A., & Kukushkin, A. M. (2019). Logistics and Occupational Safety: Ensuring Risk Minimization. Russian Journal of Logistics, 5(3), 45–51.
11. Murtozaevich, Narziev S., et al. "Radiation Situation Assessment And Safety Measures." *JournalNX*, 2020, pp. 320-324.