

### Citation

Smitha, M., Kirk, K., Oestenstad, K., Brown, K., & Lee, S. (2001). Effect of state workplace safety laws on occupational injury rates. *Journal of Occupational and Environmental Medicine*, 43(12), 1001–1010.

### Highlights

- The study's objective was to examine the effect of four types of mandatory state workplace safety interventions on occupational injury rates in manufacturing industries.
- The study used a regression model to compare differences in injury rates for industries in which higher or lower percentages of the workforce were affected by the four mandatory safety requirements.
- The study found that the mandatory safety committee requirements were associated with statistically significant decreases in injury rates; the other three initiatives were not.
- The quality of the causal evidence presented in this study is low. This means we are not confident that the differences in injury rates between industries in states with the mandatory safety laws and industries in states without these laws are attributable solely to the laws.

### OSHA Enforcement Activities and Outcomes

The study examined the effect of four types of mandatory state workplace safety interventions on occupational injury rates in manufacturing industries: (1) employer health and safety program requirements (that is, implementation of written accident prevention programs); (2) employee safety committee requirements; (3) targeted enforcement initiatives directed toward high-accident or high WC claim frequency employers, through either an approved state OSHA department or the state's WC administrative agency; and (4) state regulation of WC insurance carrier accident prevention services. The study provided estimates for the effect of industry-level OSHA inspections, visits, and fines per 1,000 workers.

### Features of the Study

The study used a regression model with industry fixed effects to compare differences in injury rates for industries in which higher percentages of the workforce were affected by the four mandatory safety requirements (because they were in states that had implemented the mandatory safety laws) and industries in which lower percentages of the workplace were affected (because they were in states that had not implemented these laws). The model included controls for average firm size, unionization, whether the state had a state OSHA plan, the maximum WC payment, the WC waiting period, the state high school graduation rate, the state unemployment rate, and the percentages of different age groups in the state that were employed.

The authors obtained data on the safety interventions of states and state/federal OSHA by contacting state agencies, reviewing state websites and regulations, and reviewing available literature. They also used data from the OSHA Fines, Inspections, and Consultations Database; the Bureau of Labor Statistics State Occupational Injury and Illness Data; Census of Manufactures; Statistical Abstract of the United States; Office of Workers' Compensation Programs; and Geographic Profiles of Employment and Unemployment. The sample included 3,286 industry-state-year observations from manufacturing industries in 42 states between 1992 and 1997.

## Findings

- Mandatory safety committee requirements were associated with statistically significant decreases in injury rates.
- There was no statistically significant relationship between injury rates and the mandatory loss control, safety program, or targeting requirements.

## Considerations for Interpreting the Findings

In this study, the estimated differences in occupational injury rates between industries in states with the mandatory safety laws and industries in states without these laws may reflect underlying differences in safety levels or other factors across states, rather than the impact of the mandatory safety requirements. States chose whether to implement these laws; therefore, states that implemented the laws might have had different injury rates and worker safety levels than states that did not implement the laws.

## Causal Evidence Rating

The quality of the causal evidence presented in this study is low. This means we are not confident that the differences in injury rates between industries in states with the mandatory safety laws and industries in states without these laws are attributable to the laws. To provide more convincing causal evidence that meets CLEAR criteria, the study could have demonstrated that the comparison group—industries in states without mandatory safety laws—and treated group—the same industries in states where mandatory safety laws were implemented—were experiencing similar trends in injury rates before the laws went into place. This would give us confidence that the post-inspection outcomes of the comparison group were a valid representation of what would have occurred in the treatment group in the absence of the law changes.