

The **Clearinghouse for Labor Evaluation and Research (CLEAR)** worked with content experts to develop a review protocol, search the literature, and review 27 studies that tried to understand the impact of OSHA activities on injuries and other outcomes. Using standards developed by statistical and policy experts, we systematically assessed two different aspects of each study:

Causal Evidence: Do the estimated effects reflect the true causal impact of OSHA activities on outcomes or could they be the result of some other factor? *High causal evidence* means we are confident that the effects estimated in the study are caused by OSHA inspections. *Moderate causal evidence* means we have some confidence that the estimated effects are caused by OSHA inspections, but other factors might also be at work. *Low causal evidence* means we do not have confidence that the estimated effects are caused by OSHA inspections. A study's causal evidence rating was determined by the methods it used to estimate impacts.

Current Relevance: How relevant are the study's findings to the current policy environment and how useful is the descriptive evidence in the study? Based on the data used and OSHA activities examined, studies were classified as having *strong, some, or little current relevance*. Studies with strong current relevance are highly relevant to current decision making, even though they might not provide causal evidence. A study's current relevance was determined based on the characteristics of the data it used (for example, the time period examined) and the questions it asked (specific or general).

No study provided high causal evidence, but five provided moderate causal evidence. Although most studies do not estimate the causal impact of OSHA activities, they nonetheless contain valuable descriptive information. CLEAR determined that four studies had strong current relevance and seven had some current relevance.

The **Occupational Safety & Health Administration (OSHA)** strives to improve the safety of working conditions in the United States by providing technical assistance to employers and setting and enforcing workplace safety and health standards. OSHA conducts inspections, gives citations, levies penalties, provides consultations, and offers a wide variety of programs designed to help employers improve working conditions and reduce on-the-job hazards.

According to the research, there is some evidence that OSHA inspections reduce injury rates, on average.

Levine et al. (2012) provides moderate causal evidence of OSHA's impact on injuries and was strongly relevant. The study demonstrated that random OSHA inspections led to a 9 percent decrease in injuries and a 26 percent decrease in injury-related costs among inspected firms. It also showed that OSHA inspections did not adversely affect firms' financial performance. Further, the study used administrative injury data from Workers' Compensation records, which can capture actual injury rates better than the firm-reported injury data used in other analyses (though still might not completely capture on-the-job injuries).

Four other studies, using two different research methods, provided moderate causal evidence that OSHA inspections reduced injury rates, but these studies were published before 1995. Because OSHA operations have changed in important ways since then, these findings might have low current relevance.

Some recent research has strong current relevance and provides valuable descriptive information, but low causal evidence on the impact of inspections.

ERG (2004) found that firms that received notice that they might be inspected but were not subsequently inspected experienced a 5 percent decline in injuries in the three years following the notice. Firms that received notice *and* a subsequent inspection experienced a 14 percent decline in injuries in the same period.

Gray and Mendeloff (2005) found that OSHA inspections that resulted in penalties were associated with a 19 percent decline in lost-workday injuries in 1979–1985, an 11 percent decline in 1987–1991, but no large or significant decline in injuries in 1992–1998. Inspections with penalties and inspections to smaller or non-unionized plants were associated with larger changes in injuries than other inspections.

Haviland et al. (2012) found that inspections with penalties were associated with a 19 to 24 percent decline in injuries during the two years after the inspection. They did not find this association for inspections without penalties or inspections at very small or very large plants. This study is particularly valuable because it uses administrative data on injury rates (as in Levine et al. 2012).

OSHA conducts inspections for various reasons, prioritizing *targeted inspections* to firms when there is either evidence of relatively dangerous conditions, a catastrophe or fatal accident has occurred, or there has been a complaint or referral (OSHA 2002). The above studies compared firms that had received an inspection, including those that received targeted inspections, to firms that were not inspected at all. But firms in the latter group do not provide a good comparison with the former, because targeted inspections are not random events. That is, there is no reason to believe that firms receiving targeted inspections are comparable to firms that were not inspected. Indeed, we might suspect that these firms were less safe because some inspections are triggered by adverse events. Thus, although these studies provide valuable and relevant information, we cannot be confident that the estimated changes in injuries are caused by OSHA activities per se.

Alternate methods could provide stronger causal evidence on the impacts of OSHA inspections. For example, the above studies could have examined only those firms that received *programmed inspections*, which are aimed at high-hazard industries, plants, or occupations. Based on observable characteristics, some firms receive programmed inspections with certainty but others are selected at random for these visits (OSHA 2002). Thus, firms that received programmed inspections could credibly be compared to firms with similar characteristics that did not receive an inspection.

There is little information on the characteristics of OSHA inspections and other OSHA activities.

In particular, our systematic review found few studies that explored the following:

- The relationship between size of OSHA penalty and change in injury rates
- What type of firms are mostly likely to respond to the threat of OSHA inspections and fines

- Impacts of changes in OSHA policies, practices, and procedures
- Impacts of OSHA consultations
- Whether impacts vary by characteristics of the inspector or of the inspection itself
- How the use of administrative or self-reported data affect the interpretation of the estimated impact of OSHA inspections

See Mendeloff (2012) for further discussion of areas for future research.

References

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See the Technical Note for further details on CLEAR's systematic review of the effectiveness of OSHA activities.

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