

DOSH Compliance and Consultation Visits and Compensable Claims Rates in Washington State, 2015-2016

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Executive Summary

Since 2002 the Safety & Health Assessment & Research for Prevention (SHARP) program of the Washington State Department of Labor and Industries (L&I) has conducted annual analyses of the association between enforcement and consultation activities of the Washington State Division of Occupational Safety & Health (DOSH) and compensable claims rates. Most of these annual reports have shown that DOSH enforcement inspections at 'fixed-site' industry workplaces were associated with a decline in claims rates relative to those businesses that had no DOSH visits (Foley et al, 2012; SHARP Technical Reports 2007, 2013, 2015, 2016). But due to the greater volatility of claims rates at 'non-fixed-site' businesses and the small numbers of consultation visits satisfying our study selection criteria, several annual analyses did not find statistically significant changes among 'non-fixed-site' businesses receiving enforcement visits or at business receiving only consultation visit(s) during the same evaluation periods.

In 2011, we pooled ten previous annual studies together covering inspections and consultations from 1999 through 2008. With much larger number of DOSH visits, we were able to estimate the impact of DOSH visits with greater statistical confidence. The results of the pooled analysis provide strong evidence that DOSH inspection and consultation activities make a significant contribution to reducing claims rates and costs in the period following the visit (Foley et al., 2012). They also suggest that while enforcement has a similar impact in both fixed and non-fixed-site industries, consultation has a particularly strong effect in the non-fixed establishments.

With this pooled analysis serving as a benchmark, this one-year analysis re-examines the question of whether a greater decline in compensable claims rates occurred among the set of business receiving DOSH inspection and consultation visits in 2015 than that at businesses not receiving any DOSH visits. The impact of DOSH activities on compensable claims rates during SFY 2015-2016 was evaluated separately for fixed and the non-fixed-site industries for all accounts and for just smaller-sized businesses (5-24 FTEs). Additional analyses were conducted for DOSH programmed or unprogrammed inspections, as well as for inspections with citation or without citation.

The methods used in this analysis mirror those used in the previous studies. The following inclusion criteria were used to select the group of accounts for this study:

1. Only companies reporting hours each quarter during State Fiscal Years (SFY) 2013-2016
2. State Fund companies.
3. Companies with a single business location.
4. Companies with at least 5 FTEs per year during SFY 2013-2016.
5. Companies with no DOSH activity during the two years prior to the year of the DOSH activity (SFY 2013-2014).

Descriptive analyses were conducted first for the changes in compensable claims rate by SFY. Because average account size and the account's prior history of compensable claims rates were important factors in evaluating the impact of DOSH activities, the changes in compensable claims rates were examined in multivariate analyses adjusting for these factors.

Accounts included (see Figure 1):

- The 18,136 accounts which satisfied all the study criteria represented 6.4% of the 281,441 identified accounts reporting hours in at least one quarter during SFY 2013-2016.
- 179 accounts had at least one DOSH consultation visit, and
- 456 accounts had at least one inspection,
- 19 accounts had at least one inspection AND one consultation visit during SFY 2015.
- Of the 456 accounts with DOSH enforcement inspections, 207 (45.4%) received at least one DOSH programmed inspection
- 376 (82.5%) of all inspections resulted in at least one citation during SFY 2015.

It should be noted that, as compared to last year's study, the number of accounts with inspections in the baseline year (SFY 2015) has decreased. This decrease continues a long-term decline in inspection activity overall which has seen a decline from an average of 6,005 total inspections in SFY 2009-2012 to 4,205 in SFY 2013-2016. The number of inspections which satisfied our selection criteria fell almost 20%, from 563 in SFY 2014 to 456 in SFY 2015. Most of this decrease came from a 27% decrease in the number of "programmed" inspections (285 in SFY 2014, decreasing to 207 in SFY 2015). The share of total inspections that were "programmed" fell from 56% in SFY 2014 to 40.3% in SFY 2015. In addition, there is an increasing share of non-fixed industry workplaces in this year's cohort as compared to previous years. In SFY 2012, for example, non-fixed industry inspections comprised 24% of the eligible inspections studied. In the SFY 2015 cohort in this year's study this cohort represents 42% of the total.

Impact of DOSH enforcement inspections and consultations on compensable claims rates:

DOSH enforcement activity was associated with a decrease in claims rates one year following the activity in fixed-site industries (see Figure 2), although the decrease was not statistically significantly greater than that for the non-DOSH activity accounts. For non-fixed-site industries inspections were associated with increases in claims rates, but this was also not statistically significant. In both fixed and non-fixed industries, workplaces that received a consultation visit had a greater decrease in claims rates than those workplaces receiving an enforcement visit. After adjusting for average size of the accounts and the compensable claims rates in the pre-study period:

- Fixed-site industries

- Workplaces without any DOSH activity experienced an average decrease in their compensable claims rate of 7.8% from SFY2015 to SFY2016.
- DOSH inspected workplaces had a decrease of 10.9% in their compensable claims rate, but this was not statistically significantly different from the NO DOSH rate change ($p=0.773$).
- DOSH consultations were associated with a 20.3% decline in compensable claims rates. This was also not statistically different from the NO DOSH cohort ($p=0.397$).

- Non-fixed-site industries
 - Workplaces without any DOSH activity experienced an average *increase* in their compensable claims rate of 6.3% from SFY2015 to SFY2016.
 - DOSH inspected workplaces had an *increase* of 6.9% in their compensable claims rate, but this was not statistically significantly different from the NO DOSH rate change ($p=0.952$).
 - DOSH consultations were associated with an 8.1% decrease in compensable claims rates. However, this was not statistically different from the NO DOSH cohort ($p=0.335$).

Impact of DOSH enforcement inspections and consultations on compensable claims rates in smaller businesses (5-24 FTEs):

Results of DOSH enforcement activity among smaller-sized establishments differ from those among workplaces of larger size. Inspections were associated with a more substantial decrease in claims rates one year following the activity in fixed-site industries (see Figure 3). For non-fixed-site industries inspections were also associated with decreases in claims rates, but the decrease was not quite

statistically significant. Claims rate changes in workplaces that received consultation visits also decreased by more than in the non-DOSH accounts, depending on industry type. After adjusting for average size of the accounts and the compensable claims rates in the pre-study period:

- Fixed-site industries
 - Workplaces under 25 FTEs without any DOSH activity experienced an average decrease in their compensable claims rate of 1.2% from SFY2015 to SFY2016.
 - DOSH inspected workplaces had a decrease of 43.6% in their compensable claims rate, and this was statistically significantly different from the NO DOSH rate change ($p=0.015$).
 - DOSH consultations were associated with a 30.0% decline in compensable claims rates. Because of the small numbers of such visits ($n=42$), this was not statistically different from the NO DOSH cohort ($p=0.443$).

- Non-fixed-site industries
 - Workplaces without any DOSH activity experienced an average *increase* in their compensable claims rate of 9.5% from SFY2015 to SFY2016.
 - DOSH inspected workplaces had a decrease of 15.8% in their compensable claims rate, but this was not quite statistically significantly different from the NO DOSH rate change ($p=0.149$).
 - DOSH consultations were associated with a 7.5% decrease in compensable claims rates. However, this was not statistically different from the NO DOSH cohort ($p=0.460$).

Impact of DOSH enforcement on non-musculoskeletal compensable claims rates:

Because there is no specific rule in Washington State covering the hazards which lead to musculoskeletal disorders (MSDs), such hazards may receive less emphasis during inspections than those for which rules do exist. In fact, when we examine the association of DOSH enforcement visits with changes in *non-MSD compensable claims rates* we find that the impact of DOSH inspections is strengthened (compare Figure 4 to Figure 2). This is consistent with the results found in the ten-year pooled study (1999-2008) and in previous one-year studies:

- Fixed-site industries
 - Workplaces without any DOSH activity experienced an average decrease in their non-MSD compensable claims rate of 6.2% from SFY2015 to SFY2016.
 - DOSH inspected workplaces had a decrease of 23.6% in their non-MSD compensable claims rate, although this was not statistically significantly different from the NO DOSH rate change ($p=0.166$).
 - DOSH consultations were associated with an 11.5% decline in non-MSD compensable claims rates. This was not statistically different from the NO DOSH cohort ($p=0.775$).

- Non-fixed-site industries
 - Workplaces without any DOSH activity experienced an average *increase* in their non-MSD compensable claims rate of 11.1% from SFY2015 to SFY2016.
 - DOSH inspected workplaces had a decrease of 9.6% in their non-MSD compensable claims rate. This was not significantly different from the NO DOSH rate change ($p=0.141$).

- DOSH consultations were associated with a 10.7% decrease in non-MSD compensable claims rates. However, this was not statistically different from the NO DOSH cohort (p=0.233).

Impact of DOSH “programmed” vs “unprogrammed” inspection visits

DOSH inspections are classified as being either “programmed” or “unprogrammed”. In the former case, a workplace may be scheduled for an inspection based upon the industry to which it belongs and the time elapsed since its last inspection. Such scheduling lists may be based upon the risk of fatal or non-fatal injuries in an industry, and upon the presence of health hazards which may lead to such diseases as cancers, which are not likely to be captured in workers’ compensation claims records. Unprogrammed inspections are largely composed of worker complaints, mandatory employer reporting of injuries resulting in inpatient hospitalization, follow-up inspections to check that hazard abatement agreements are being adhered to, and “drive-by” inspections of worksites in the construction industry. DOSH programmed inspections continued to decline as a share of the total number of inspections in the eligible accounts. In SFY 2015 about 45% of DOSH enforcement visits among the set of eligible accounts in this study were programmed visits. This is a decline from previous years when programmed inspections often accounted for about 60% of the total. In this year’s study, as before, unprogrammed inspections were much more likely than programmed inspections to result in a decrease in compensable claims rates (see Figure 5). This difference has appeared in previous annual studies, but the contrast in subsequent claims rate change between the two types of DOSH inspections has never been as striking. After adjusting for average size of the accounts and the compensable claims rates in the pre-study period:

- Fixed-site industries

- Workplaces without any DOSH activity experienced an average decrease in their compensable claims rate of 7.9% from SFY2015 to SFY2016.
- Workplaces receiving programmed DOSH inspections had an *increase* of 21.6% in their compensable claims rate, although this was not statistically significantly different from the NO DOSH rate change ($p=0.169$).
- Workplaces receiving unprogrammed DOSH inspections had a decrease of 17.5% in their compensable claims rates, which was also not statistically different from the NO DOSH cohort ($p=0.317$).
- Non-fixed-site industries
 - Workplaces without any DOSH activity experienced an average *increase* in their compensable claims rate of 6.3% from SFY2015 to SFY2016.
 - Workplaces receiving programmed DOSH inspections had an *increase* of 35.3% in their compensable claims rate, which was not quite significantly different from the NO DOSH rate change ($p=0.114$).
 - Workplaces receiving unprogrammed DOSH inspections had a decrease of 17.5% in compensable claims rates. This was marginally statistically different from the NO DOSH cohort ($p=0.089$).

When this analysis was repeated on the smaller-sized workplaces there was an even greater impact on the decrease in compensable claims rate for unprogrammed inspections, with the unprogrammed inspections' impact at 52% and 72% reduction at fixed and non-fixed-site industries, respectively.).

Impact of DOSH enforcement with and without citations on compensable claims rates:

In this year's cohort, when enforcement in fixed-site establishments uncovers violations that result in citations there is a somewhat *smaller* reduction in the following year's claims rates as compared to the case when inspections do NOT result in citations (see Figure

6). Among non-fixed-site industries, inspections with citations were associated with an *increase* in claims rates in the following year. This is contrary to results seen in most previous one-year studies, as well as in the ten-year compiled study (Foley et al., 2012).

- Fixed-site industries
 - Workplaces without any DOSH activity experienced an average decrease in their compensable claims rate of 7.9% from SFY2015 to SFY2016.
 - Workplaces receiving DOSH inspections with a citation had a decrease of 6.5% in their compensable claims rate. However, this was not statistically significantly different from the NO DOSH rate change ($p=0.906$).
 - Workplaces receiving DOSH inspections without citation had a decrease of 23.7% in their compensable claims rate. However, this was not statistically significantly different from the NO DOSH rate change ($p<0.473$).
- Non-fixed-site industries
 - Workplaces without any DOSH activity experienced an average *increase* in their compensable claims rate of 6.3% from SFY2015 to SFY2016.
 - Workplaces receiving DOSH inspections with a citation had an *increase* of 12.2% in their compensable claims rate. However, this was not statistically significantly different from the NO DOSH rate change ($p=0.667$).
 - Workplaces receiving DOSH inspections without citation had a decrease of 12.8% in their compensable claims rate. However, this was not statistically significantly different from the NO DOSH rate change ($p=0.282$).

Enforcement activity with citations had a *much greater* impact among the smaller fixed-site accounts, those with 5-24 FTEs: enforcement inspections with citations were associated with a 38.9% ($p=0.063$) decline in compensable claims rates. Among non-fixed workplaces, enforcement inspections with citations were associated with a decrease in compensable

claims rates of 1.8%, though this was not statistically significant ($p=0.584$). Again, inspections that did not result in citations had much greater decreases in compensable claims rates, of roughly 65% in both fixed and non-fixed industries ($p=0.011$ and $p=0.009$).

Impact of DOSH enforcement with and without citations on non-MSD compensable claims

When we remove compensable musculoskeletal claims and test the association of inspections with and without citations on the change in non-MSD claims rates we find a stronger effect of inspection regardless of whether or not citations are issued. Inspections without citations were associated with a greater decrease in claims rates across both industry types. However the disparity was greatest among non-fixed industries (see Figure 7).

- Fixed-site industries
 - Workplaces without any DOSH activity experienced an average decrease in their non-MSD compensable claims rate of 6.3% from SFY2015 to SFY2016.
 - Workplaces receiving DOSH inspections with a citation had a decrease of 22.7% in their non-MSD compensable claims rate. However, this was not statistically significantly different from the NO DOSH rate change ($p=0.238$).
 - Workplaces receiving DOSH inspections that did *not* result in any citation had a decrease of 27.0% in their non-MSD compensable claims rate. This was also not statistically significantly different from the NO DOSH rate change ($p<0.463$).
- Non-fixed-site industries

- Workplaces without any DOSH activity experienced an average *increase* in their non-MSD compensable claims rate of 11.1% from SFY2015 to SFY2016.
- Workplaces receiving DOSH inspections with a citation had a decrease of 4.0% in their non-MSD compensable claims rate. This was not statistically significantly different from the NO DOSH rate change ($p=0.353$).
- Workplaces receiving DOSH inspections that did *not* result in any citation had a decrease of 30.8% in their non-MSD compensable claims rate. This was marginally significantly different from the NO DOSH rate change ($p=0.091$).

As in the pooled ten-year study, the effect of removing MSD claims from the model was to substantially strengthen the association of a decrease in compensable claims rates following DOSH activity. This tends to support the hypothesis that the hazards that are more central to the DOSH inspection activity during site visits are those related to non-MSD claims and that, once hazards are abated, the impact on non-musculoskeletal injuries is more immediate than that for MSDs.

Conclusions

This one-year study fits within the range of the results found in the analysis of ten years of DOSH enforcement and consultation (see Figure 8). As this chart shows, the DOSH activity showing the greatest association with decreasing claims rates is enforcement activity in the fixed-site industries. Consultation activity in the non-fixed sector appears less reliably effective, although the small numbers of visits in this sector makes the results highly variable. In general, the magnitude of the decline in compensable claims rates following DOSH activity suggests that these interventions may trigger broad improvements in safety practices at

visited workplaces that result in preventing injuries. The effect was strongest when examining the impact of inspections on non-musculoskeletal compensable claims rates. This may be due both to a delayed impact on MSDs, the “shock” effect on management of receiving a citation and to the possibility that DOSH visits focus on hazards for which specific rules exist. As previously noted, the most substantial decreases were found among the smaller employers and in fixed-site industries.

This study suggests enforcement inspections continue to make substantial contributions to reaching the agency’s goal of reducing the workplace injury and illness rates in Washington State.

Figure 1. Extraction of eligible study accounts from Washington workers' compensation employer account database, SFY 2013-2016.

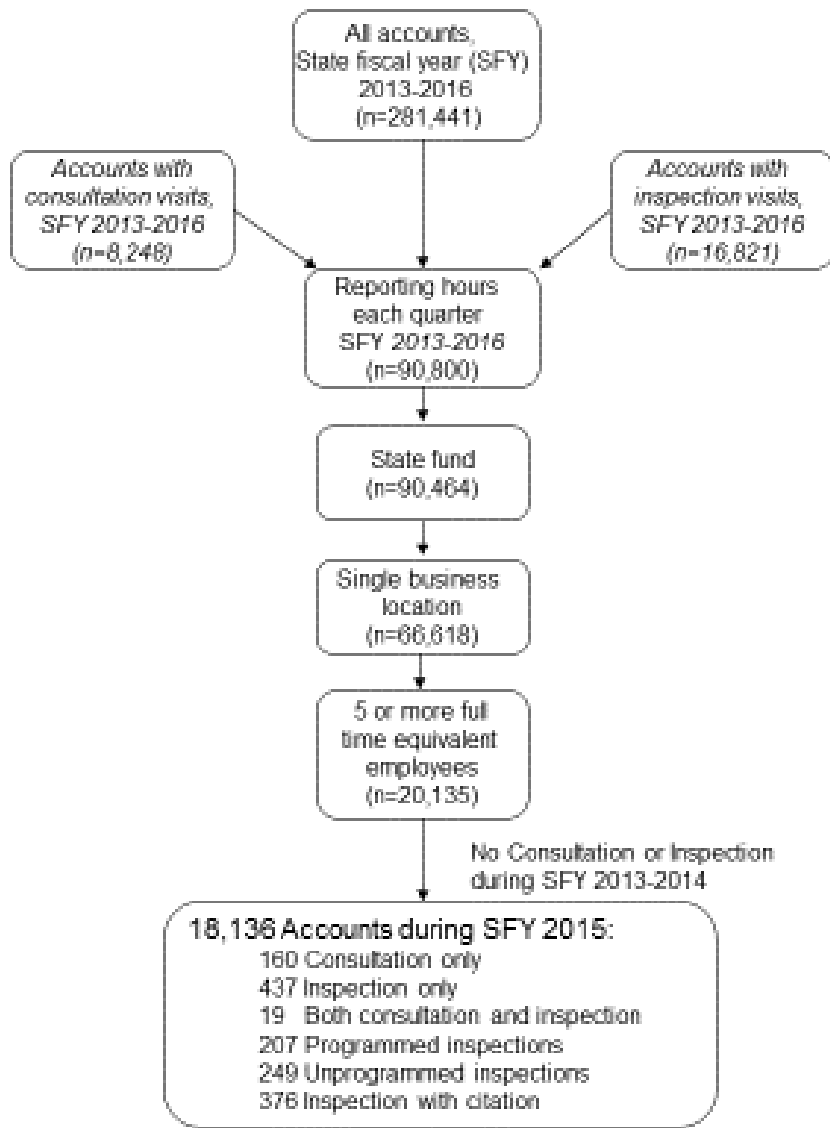


Figure 2: Percent Change in Compensable Claims Rate: No DOSH vs Enforcement vs Consultation by Industry Type, 2015-2016

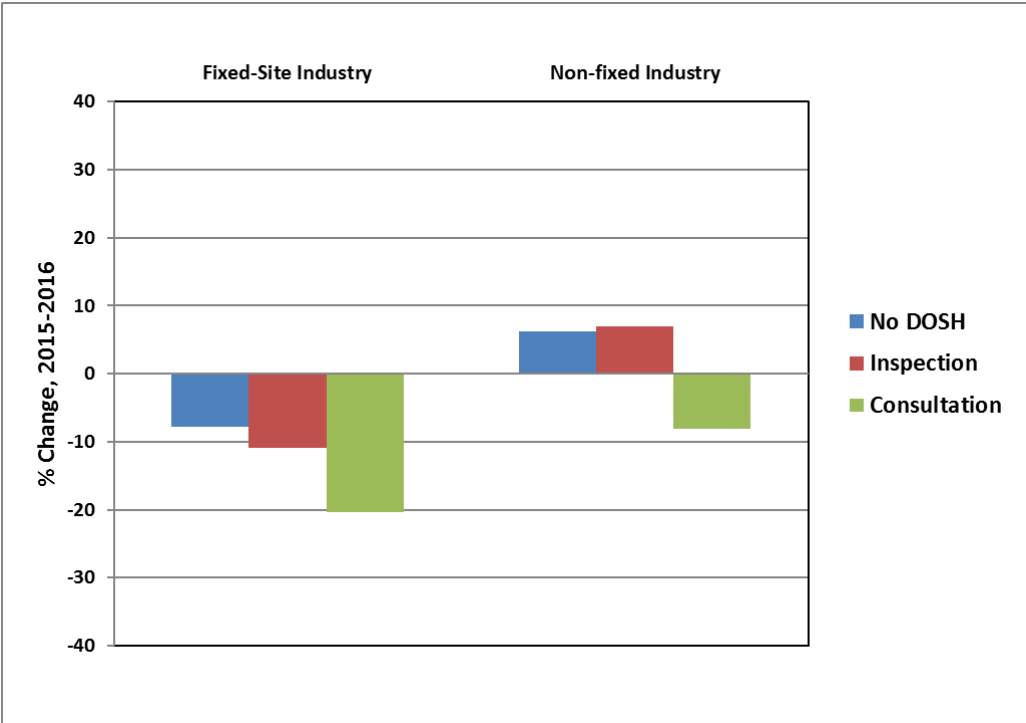


Figure 3: Percent Change in Compensable Claims Rate, FTE 5-24: No DOSH vs Enforcement vs Consultation by Industry Type, 2015-2016

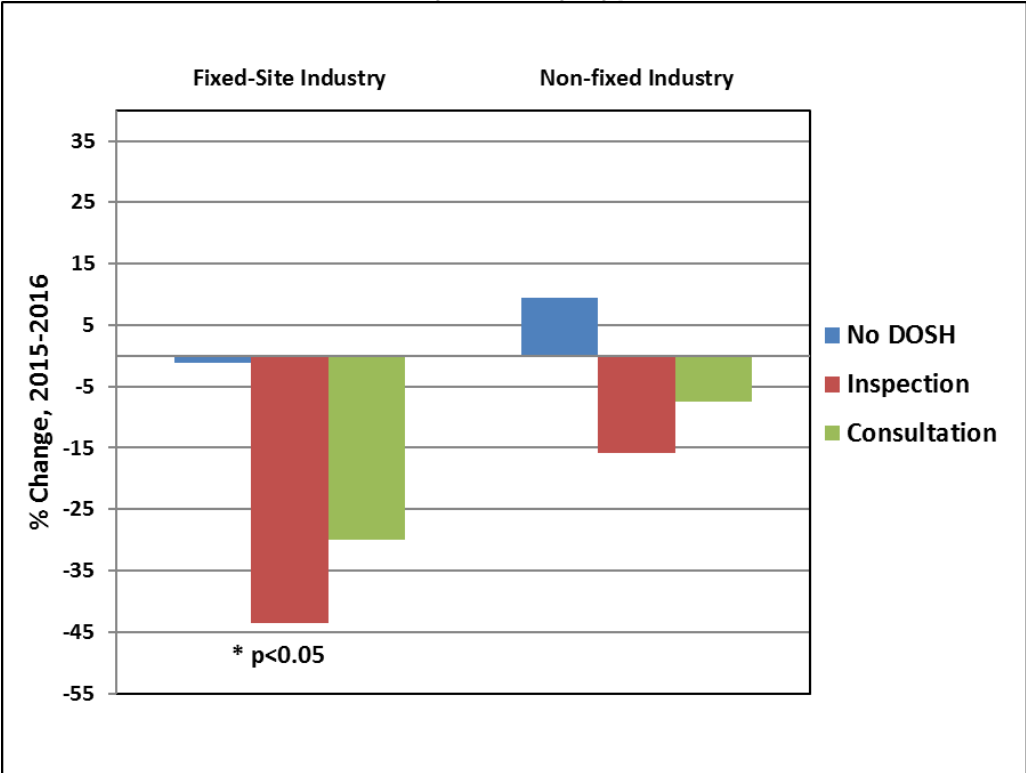


Figure 4: Percent Change in Non-MSD Compensable Claims Rate, No DOSH vs Enforcement vs Consultation, by Industry Type, 2015-2016

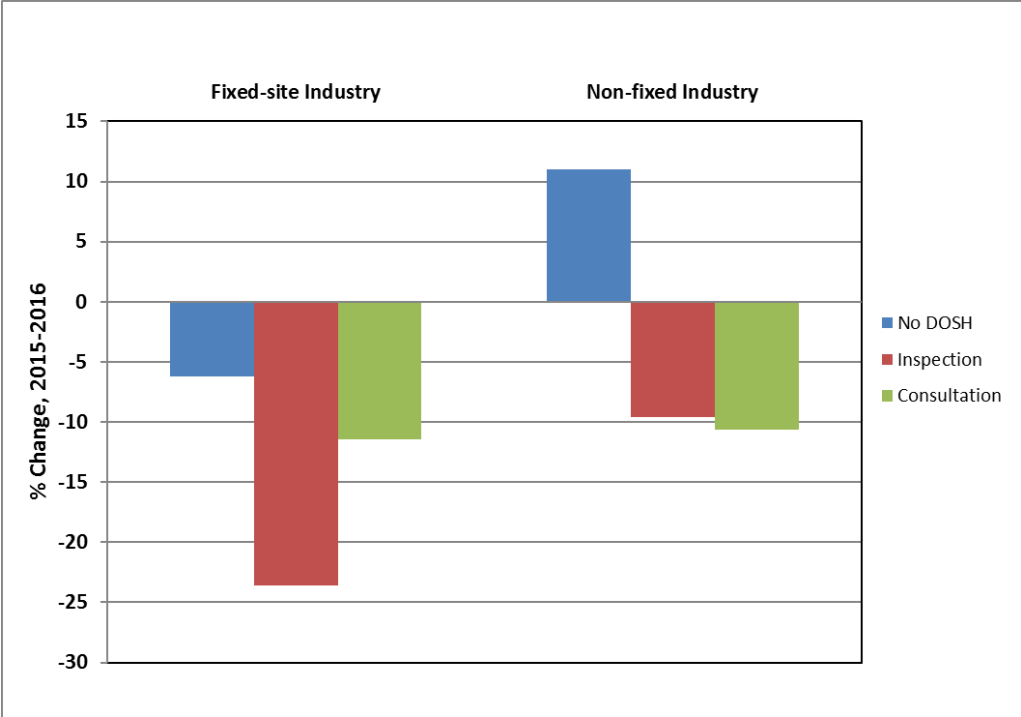


Figure 5: Percent change in Compensable Claims Rate, No DOSH vs DOSH/Programmed vs DOSH/Unprogrammed, by Industry Type, 2015-2016

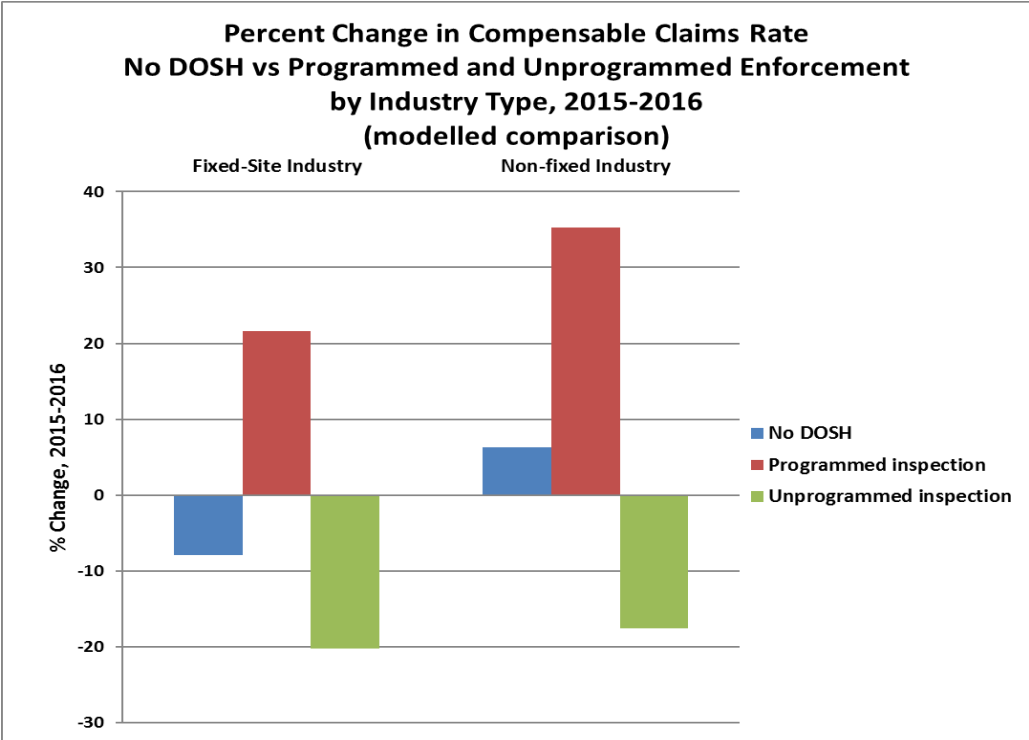


Figure 6: Percent change in Compensable Claims Rate, No DOSH vs DOSH/No Citation vs DOSH/Yes Citation, by Industry Type, 2015-2016

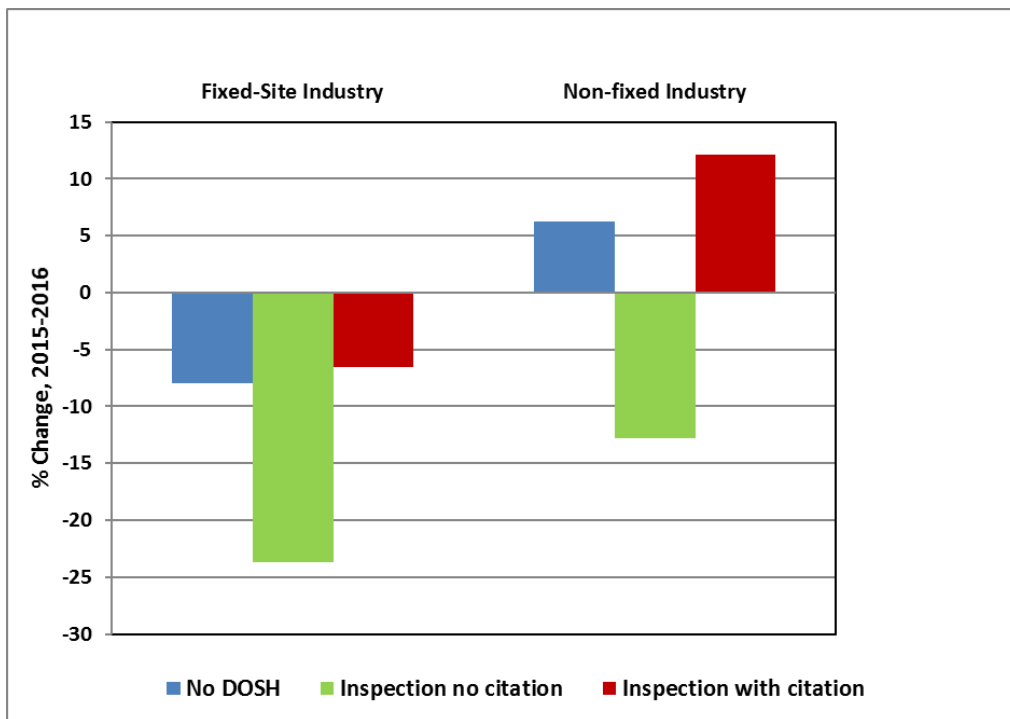


Figure 7: Percent change in Non-MSD Compensable Claims Rate, No DOSH vs DOSH/No Citation vs DOSH/Yes Citation, By Industry Type, 2015-2016



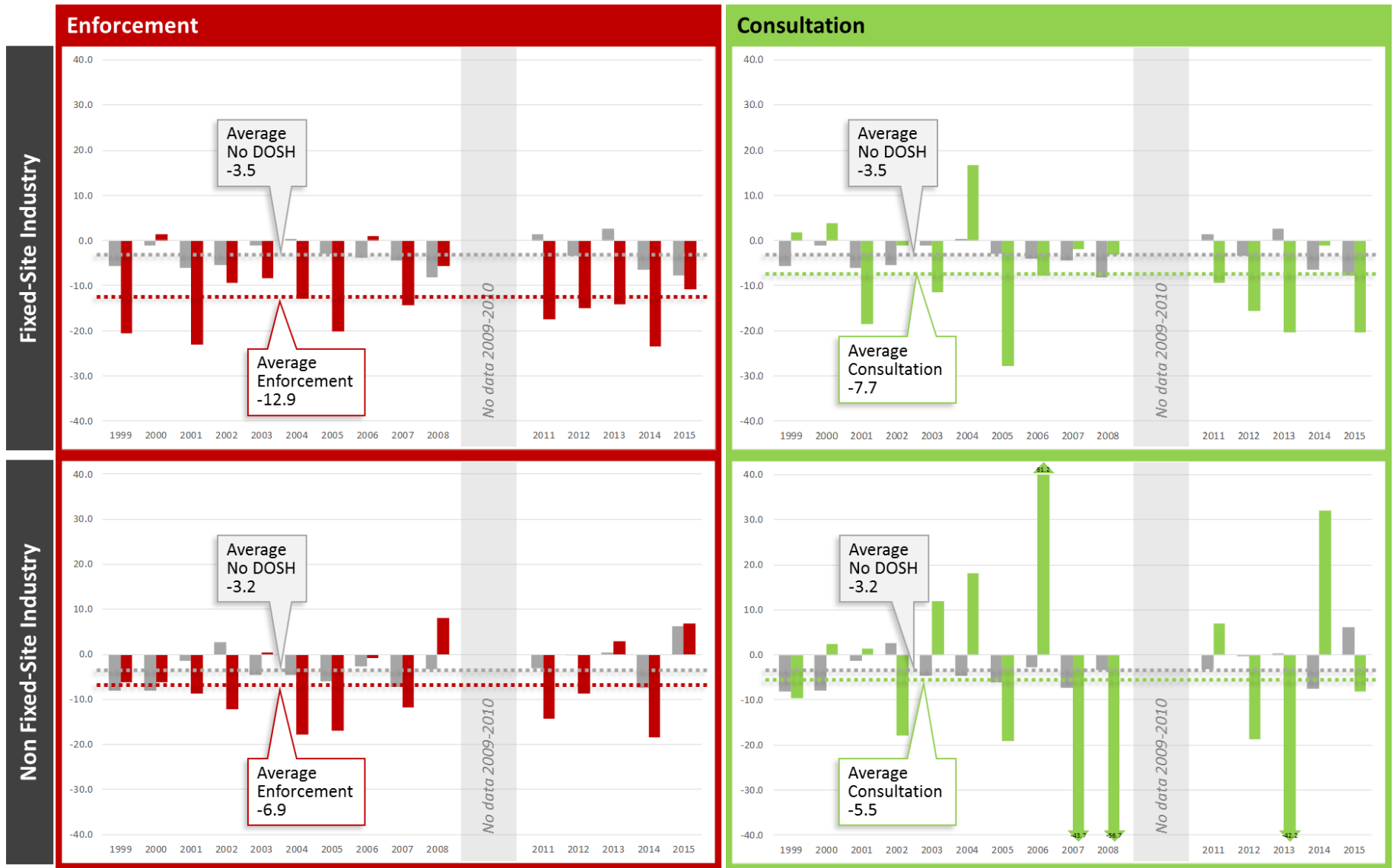


Figure 8: Results of Fifteen Annual Studies of DOSH Activity and Compensable Claim Rate Change, 1999-2015

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