

April 2012

WORKPLACE
SAFETY AND
HEALTH

Better OSHA
Guidance Needed on
Safety Incentive
Programs



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Why GAO Did This Study

OSHA relies on employer injury and illness records to target its enforcement efforts. Questions have been raised as to whether some safety incentive programs and other workplace safety policies may discourage workers' reporting of injuries and illnesses. GAO examined (1) what is known about the effect of workplace safety incentive programs and other workplace safety policies on injury and illness reporting, (2) the prevalence of safety incentive programs as well as other policies that may affect reporting, and (3) actions OSHA has taken to address how safety incentive programs and other policies may affect injury and illness reporting. GAO reviewed academic literature, federal laws, regulations, and OSHA guidance; surveyed a nationally representative sample of manufacturing worksites; and interviewed federal and state occupational safety and health officials, union and employer representatives, and researchers.

What GAO Recommends

GAO recommends that OSHA provide guidance about safety incentive programs and other workplace safety policies consistently across the agency's cooperative programs, and add language about safety incentive programs and other workplace safety policies to the guidance provided to inspectors in its field operations manual. OSHA agreed with the recommendations, and noted its plans to address them.

WORKPLACE SAFETY AND HEALTH

Better OSHA Guidance Needed on Safety Incentive Programs

What GAO Found

Little research exists on the effect of workplace safety incentive programs and other workplace safety policies on workers' reporting of injuries and illnesses, but several experts identified a link between certain types of programs and policies and reporting. Researchers distinguish between rate-based safety incentive programs, which reward workers for achieving low rates of reported injuries or illnesses, and behavior-based programs, which reward workers for certain behaviors, such as recommending safety improvements. Of the six studies GAO identified that assessed the effect of safety incentive programs, two analyzed the potential effect on workers' reporting of injuries or illnesses, but they concluded that there was no relationship between the programs and injury and illness reporting. Experts and industry officials, however, suggest that rate-based programs may discourage reporting of injuries and illnesses. Experts and industry officials also reported that certain workplace policies, such as post-incident drug and alcohol testing, may discourage workers from reporting injuries and illnesses. Researchers and workplace safety experts also noted that how safety is managed in the workplace, including employer practices such as fostering open communication about safety issues, may encourage reporting of injuries and illnesses.

The Two Types of Safety Incentive Programs

Rate-based programs

Reward workers who had few or no reported injuries or illnesses during a set time period

Behavior-based programs

Reward workers for behaviors such as reporting near-miss incidents or recommending safety improvements

Source: GAO analysis of workplace safety literature.

In 2010, from its survey, GAO estimated that 25 percent of U.S. manufacturers had safety incentive programs, and most had other workplace safety policies that, according to experts and industry officials, may affect injury and illness reporting. GAO estimated that 22 percent of manufacturers had rate-based safety incentive programs, and 14 percent had behavior-based programs. Almost 70 percent of manufacturers also had demerit systems, which discipline workers for unsafe behaviors, and 56 percent had post-incident drug and alcohol testing policies according to GAO's estimates. Most manufacturers had more than one safety incentive program or other workplace safety policy and more than 20 percent had several. Such programs and policies were more common among larger manufacturers.

Although the Occupational Safety and Health Administration (OSHA) is not required to regulate safety incentive programs, it has taken limited action to address the potential effect of such programs and other workplace safety policies on injury and illness reporting. These programs and policies, however, are not addressed in key guidance such as OSHA's field operations manual for inspectors. OSHA has cooperative programs that exempt employers with exemplary safety and health management systems from routine inspections. One such program prohibits participants from having rate-based safety incentive programs, but guidance on OSHA's other cooperative programs does not address safety incentive programs. Similarly, OSHA inspectors and outreach specialists provide information to employers about the potential benefits and risks of safety incentive programs, but the guidance provided to inspectors in its field operations manual does not address these programs.

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Abbreviations

BLS	Bureau of Labor Statistics
Labor	Department of Labor
OSH Act	Occupational Safety and Health Act of 1970
OSHA	Occupational Safety and Health Administration
SHARP	Safety & Health Achievement Recognition Program
VPP	Voluntary Protection Programs

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Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

April 9, 2012

Congressional Requesters

In March 2005, 15 workers died and 180 others were injured during an explosion at the BP Texas City refinery. The refinery had a safety incentive program that tied workers' bonuses to achieving low rates of injuries and illnesses. A January 2007 study conducted by an independent panel after the explosion found, among other issues, that workers feared reprisals for reporting potentially risky conditions at the refinery.¹ In October 2009, we reported that safety incentive programs can provide disincentives for workers to report injuries and illnesses to their employers.²

The Department of Labor's (Labor) Occupational Safety and Health Administration (OSHA) uses employer data on occupational injuries and illnesses to, among other purposes, target its efforts in enforcing workplace safety and health regulations, including selecting worksites for inspection. OSHA relies on workers to report work-related injuries and illnesses to their employers, and on employers to accurately record and report this information to OSHA. Accurate injury and illness data also help employers and others identify patterns of work-related injuries and illnesses and try to prevent them. For example, many insurance companies use employers' injury and illness rates among other factors to set their workers' compensation insurance premium rates.

According to some workplace safety and health experts, certain safety incentive programs and other workplace safety policies may discourage workers from reporting workplace injuries and illnesses. Because of ongoing concerns that injuries and illnesses are not always reported, you asked us to examine the following questions: (1) What is known about the effect of workplace safety incentive programs and other workplace safety policies on injury and illness reporting? (2) How prevalent are workplace safety incentive programs, as well as other workplace safety policies that may affect injury and illness reporting? (3) What actions has OSHA taken

¹The BP U.S. Refineries Independent Safety Review Panel, *The Report of the BP U.S. Refineries Independent Safety Review Panel* (January 2007).

²GAO, *Workplace Safety and Health: Enhancing OSHA's Records Audit Process Could Improve the Accuracy of Worker Injury and Illness Data*, [GAO-10-10](#) (Washington, D.C.: Oct. 15, 2009).

to address how workplace safety incentive programs and other policies may affect injury and illness reporting?

To learn what is known about the effect of safety incentive programs and other workplace safety policies on injury and illness reporting,³ we interviewed OSHA and state occupational safety and health agency officials, union and employer representatives, and researchers; and identified and analyzed 26 studies that appeared in peer-reviewed journals from 2001 to 2011. To describe the prevalence of workplace safety incentive programs and other policies, we surveyed a nationally representative sample of manufacturing worksites about their safety incentive programs and workplace safety policies and analyzed the results.⁴ To identify the actions OSHA has taken to address safety incentive programs and policies that may affect injury and illness reporting, we reviewed relevant federal laws, regulations, and OSHA program guidance; analyzed OSHA inspection data; and interviewed OSHA and state occupational safety and health agency officials and experts.

We conducted this performance audit from September 2010 to April 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. For more information on our scope and methodology, see appendix I.

Background

OSHA administers the Occupational Safety and Health Act of 1970 (OSH Act), which was enacted to assure so far as possible safe and healthful working conditions for the nation's workers.⁵ OSHA helps ensure the safety and health of 106 million private sector workers at approximately 8.7 million worksites in the United States by operating over 80 area offices that report to 1 of 10 regional offices. OSHA sets occupational safety and health standards

³In this report, we use the term "injury and illness reporting" to refer to the reporting of occupational injuries and illnesses by workers to their employers.

⁴Manufacturing accounted for over 11 million workers or about 10 percent of total U.S. employment in 2009.

⁵Pub. L. No. 91-596, 84 Stat. 1590, codified as amended at 29 U.S.C. §§ 553, 651-78.

and is responsible for enforcing them. The agency directly enforces these standards in about half the states; the remaining states have been granted authority by OSHA to set and enforce their own workplace safety and health standards under a state plan approved by OSHA.⁶

OSHA's Recordkeeping Requirements

The OSH Act and OSHA's regulations generally require employers to prepare and maintain records of work-related injuries and illnesses sustained by their workers and make them available to OSHA upon request.⁷ These requirements are referred to as OSHA's recordkeeping requirements. OSHA has established definitions and guidelines to assist employers in determining which injuries and illnesses must be recorded.⁸ Employers are required to maintain a log of recordable injuries and illnesses incurred at each worksite. OSHA requires employers to post summaries of these injury and illness logs annually at each worksite and provide them to OSHA if requested. In addition, under a section of the OSH Act referred to as the whistleblower protection provision, employers are prohibited from retaliating against employees for taking certain protected actions, including reporting work-related injuries or illnesses, and OSHA is responsible for investigating workers' complaints of retaliation.⁹

To help ensure compliance with federal occupational safety and health standards and OSHA's recordkeeping requirements, OSHA conducts enforcement activities such as on-site inspections of worksites. OSHA conducts these inspections in response to fatalities, serious injuries,

⁶In these states, the state standards and their enforcement must be at least as effective as the federal standards. 29 U.S.C. § 667(c)(2). Most of these state plans cover both public and private sector worksites. However, the state plan in five states (Connecticut, Illinois, New Jersey, New York, and the Virgin Islands) only covers public sector (state and local government) worksites; private sector worksites are covered by federal OSHA. Under the OSH Act, "state" is defined to include the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, and Guam. 29 U.S.C. § 652(7).

⁷Employers that are generally exempt from OSHA's recordkeeping requirements include employers with 10 or fewer employees, and those in specific low-hazard retail, service, finance, insurance, or real estate industries. 29 C.F.R. §§ 1904.1-1904.2. However, all employers must report to OSHA any work-related incident that results in a fatality or the hospitalization of three or more employees. 29 U.S.C. § 1904.39.

⁸See generally 29 C.F.R. §§ 1904.4 -1904.29. Work-related injuries and illnesses that must be recorded include, among others, those that result in days away from work, restricted work or transfer to another job, medical treatment beyond first aid, and loss of consciousness.

⁹29 U.S.C. § 660(c), 29 C.F.R. § 1904.36.

complaints from workers, and referrals. In addition, OSHA targets industries and employers with a high number of workplace injuries and illnesses for inspection. When inspecting worksites, OSHA inspectors identify hazards that could lead to workers' injuries or illnesses, review worksites' injury and illness records, evaluate employers' safety and health management systems, and meet with employers and worker representatives to discuss their findings and possible courses of action to correct hazards and improve their systems. Employers that fail to comply with the safety and health standards may face sanctions, such as paying penalties for violations. In its field operations manual, OSHA provides guidance to inspectors, employers, and workers on compliance with safety and health standards, inspections, and penalty assessments.

OSHA Cooperative Programs, Outreach, and Training

To help employers comply with safety and health standards and recordkeeping requirements, OSHA supplements its enforcement efforts with voluntary cooperative programs, outreach, and training in which OSHA invites employers to collaborate with the agency and uses a variety of methods to encourage employers to adopt practices designed to foster safer and healthier working conditions. For example, OSHA's Voluntary Protection Programs (VPP) recognize employers with exemplary safety and health systems and relatively low injury and illness rates, and exempts them from routine inspections.¹⁰ Small employers that request on-site consultation services may be recognized through OSHA's Safety & Health Achievement Recognition Program (SHARP), which exempts those with exemplary safety and health management systems from routine inspections for up to 3 years.¹¹

OSHA also trains employers and workers on how to comply with its standards and other regulations by, for example, providing online materials and reaching out directly to employer and worker groups. For example, each OSHA area office typically has one outreach specialist who serves as a resource to a variety of groups including businesses, trade associations,

¹⁰VPP worksites are reevaluated every 3 to 5 years to determine whether they merit staying in the program. To maintain VPP status, worksites must maintain an average injury and illness rate that is below the average rate published by the Bureau of Labor Statistics (BLS) for their industry for 1 of the most recent 3 years. VPP worksites are required to report their injury and illness rates to OSHA annually.

¹¹OSHA may inspect VPP and SHARP worksites with fatalities or other serious injuries or complaints about safety or health hazards.

unions, and community groups.¹² Outreach specialists provide information on OSHA's cooperative programs, training resources, and tools available on the agency's website. In addition, during inspections, OSHA's inspectors provide information to employers on the strengths and weaknesses of their safety and health management systems.

Workplace Safety and Health Management Systems

OSHA encourages employers to take a multifaceted approach to preventing and controlling hazards and creating an effective safety and health management system or a positive safety culture.¹³ According to OSHA, the four elements of an effective safety and health management system are as follows:

(1) Management commitment and employee involvement

Employers should develop a safety and health policy, communicate it to all employees, and demonstrate commitment to it by, for example, instilling accountability for safety and health and ensuring an open exchange of information about safety issues. Employees should be involved in safety- and health-related activities such as accident investigations.

(2) Worksite analysis

Employers should have a thorough understanding of all hazardous situations to which employees may be exposed, as well as the ability to recognize and correct these hazards. Accurate injury and illness records can be used to identify and prevent work-related injuries and illnesses.

(3) Hazard prevention and control

Employers should have clear procedures for preventing and controlling hazards identified through worksite analysis, such as a hazard tracking system and a written system for monitoring and maintaining workplace equipment.

(4) Safety and health training

Training is necessary to reinforce and complement management's commitment to safety and health and to ensure that all employees understand how to avoid exposure to hazards.

¹²OSHA refers to these individuals as compliance assistance specialists.

¹³In this report, we use the term "safety culture," which is used by industry officials to refer to "safety climate," a term commonly used by researchers. We use the terms "safety culture" and "workplace safety and health management system" interchangeably in this report.

Safety Incentive Programs

As part of their safety and health management systems, many employers use safety incentive programs to encourage safety in the workplace. These programs provide workers with rewards for achieving certain safety goals. Examples of these rewards include cash, meals, tangible goods, and public recognition. Employers can provide such rewards on the basis of individual or group performance depending on the program's design.

There are two types of safety incentive programs: rate-based programs, which reward workers for achieving low rates of reported injuries or illnesses, and behavior-based programs, which reward workers for certain behaviors such as recommending safety improvements (see fig. 1). Rate-based programs provide workers or groups of workers with rewards such as bonuses and prizes for having no or a low number of work-related injuries and illnesses during a specified period. For example, an employer's rate-based program may reward workers with \$100 bonuses for having no reported work-related injuries or illnesses in a given year. Behavior-based programs provide workers or groups of workers with rewards for demonstrating safe behaviors but are not tied to low injury and illness rates. For example, an employer's behavior-based program may reward workers with gift cards for identifying hazardous conditions and suggesting safety improvements. Some experts we interviewed used the term behavior-based safety programs to describe an approach to workplace safety that focuses on worker behavior as the cause of work-related injuries and illnesses. However, in this report, we use the term behavior-based program to define a type of safety incentive program that is a component of an employer's safety and health management system. These systems may include other workplace safety policies such as demerit systems that discipline workers for failing to follow safety procedures.

Figure 1: The Two Types of Safety Incentive Programs



Source: GAO analysis of workplace safety literature.

Other Workplace Safety Policies

Employers' safety and health management systems often include other workplace safety policies. For example, some employers require the participation of frontline workers and management in safety committees to help foster communication and address safety-related issues and encourage workers to promptly report injuries or illnesses and address safety hazards. Other workplace safety policies are designed to prevent injuries and illnesses by holding workers accountable for using safe work practices. Demerit systems discipline workers for unsafe work practices such as failing to follow safety procedures. For example, some employers have policies that discipline workers for not wearing protective gear or for other unsafe practices linked to reported injuries. In addition, some employers have drug and alcohol testing policies, which provide for the testing of workers (1) prior to employment, (2) at random intervals for some or all workers, (3) at scheduled times for all workers, (4) when there is evidence that suggests a worker may have used drugs or alcohol, or (5) after a workplace incident, such as an injury, occurs.

Safety Incentive Programs and Policies May Affect Injury and Illness Reporting

Research on the Effect of Safety Incentive Programs Is Inconclusive, but Several Experts Agree Certain Programs and Policies May Discourage Reporting

Little conclusive academic research exists on whether safety incentive programs and other workplace safety policies affect workers' injury and illness reporting, but several experts stated that rate-based programs may discourage injury and illness reporting. Of the 26 studies of workplace safety we reviewed, we identified 6 that evaluated the effect of safety incentive programs on workplace safety, but only 2 of these studies specifically evaluated the programs' effect on reporting of injuries.¹⁴ Each of the six studies, however, had methodological limitations that prevent

¹⁴We reviewed studies from peer-reviewed journals published from January 2001 to October 2011. We included studies that evaluated the effect of safety incentive programs, workplace safety policies, or safety culture on workers' injury and illness rates, reporting of injuries or illnesses, or use of safe behaviors. We excluded studies that were reviews of other studies or in which the primary research was not conducted in the United States. For more information on our methodology, see appendix I.

generalizing the effects of these programs on injury and illness reporting for all workers.¹⁵

The six studies that evaluated safety incentive programs reached different conclusions about their effect on workplace safety. Three studies—including the two that specifically evaluated the programs’ effect on reporting of injuries—focused on one type of safety incentive program and found that their effect on workplace safety was inconclusive or that the programs had no effect. For example, one study in which nurses were surveyed to determine how often injuries and illnesses were reported in their workplaces found that rate-based safety incentive programs had no effect on injury reporting.¹⁶ This study relied on perceptions about injury reporting which may differ from actual reporting due to, for example, faulty memories, and thus its results are not definitive.¹⁷ The three studies that did not focus on only one type of safety incentive program found that the programs reduced injuries; however, these studies did not quantify the programs’ effect on injury and illness reporting. The authors of these studies acknowledged that, when the programs provide incentives for not reporting an injury—such as providing a monetary reward for having a low injury and illness rate—workers may underreport injuries. For example, the authors of one study noted that workers may “intentionally fail to report injuries in an effort to preserve potential bonuses for their work groups.”¹⁸ Information on the six studies is summarized in table 1.

¹⁵Each of the six studies focused on a profession, industry, or geographic region, so the results may not apply to other professions, industries, or regions. For example, two of the studies focused on the construction industry and the results cannot be generalized to workers in other industries or to all construction workers because of their sample designs.

¹⁶Jean Geiger Brown, Alison Trinkoff, Kenneth Rempher, Kathleen McPhaul, Barbara Brady, Jane Lipscomb, and Charles Muntaner, “Nurses Inclination to Report Work-Related Injuries: Organizational, Work-Group, and Individual Factors Associated with Reporting,” *AAOHN Journal*, vol. 53, no. 5 (2005): 213-217.

¹⁷In addition, this study focused on nurses in two states, so the results may not apply to all nurses or other workers.

¹⁸Kristy J. Lauer and Scott W. Lester, “Get Safety Problems to the Surface: Using Human Resource Practices to Improve Injury Reporting,” *Journal of Leadership and Organizational Studies*, vol. 14, no. 2 (2007): 168-179.

Table 1: Studies on the Effect of Safety Incentive Programs on Workplace Safety

Study author(s) (publication year)	Dependent measure(s)	Effect of rate- based programs	Effect of behavior- based programs	Acknowledgment of potential for underreporting
Brown et. al. (2005) ^a	Reporting of injuries	No effect	Not studied	Yes
Lauver and Lester (2007) ^a	Reported and unreported injuries and near misses	Not studied	No effect	Yes
Ludwig et. al. (2001)	Use of safe practices	Not studied	Inconclusive	Not applicable
Alavosius et. al. (2009)	Injury rate	Injury rate reduction ^b		Yes
Gangwar and Goodrum (2005)	Injury rate	Injury rate reduction ^{b,c}		Yes
Hinze (2002)	Injury rate	No effect	Injury rate reduction	Yes

Source: GAO analysis.

^aThe study analyzed workers' perceptions of reporting behavior which may differ from actual reporting behavior; therefore, the results are not definitive.

^bThe authors combined rate-based and behavior-based safety incentive programs in their analysis; therefore, the effect of each type of program on workplace safety could not be determined.

^cInjury rate reductions were short-term and occurred a few years after the safety programs were implemented.

In addition to reviewing existing studies, we interviewed over 50 experts and industry officials from academia, employer associations, a law firm, a consulting firm, unions, and state and federal safety and health agencies to obtain their opinions about the effect of safety incentive programs and other workplace safety policies on injury and illness reporting. Several of them told us that an unintended consequence of rate-based programs may be discouraging workers from reporting injuries and illnesses. For example, when workers' injuries are relatively minor or easy to hide, and if the rewards provided under the program are relatively large, workers may not report their injuries to preserve their rewards. Potential underreporting of injuries and illnesses is even greater when an incentive creates peer pressure on workers to not report injuries. For example, when all workers on a team get a reward only if no one on the team has an injury, there may be pressure on all members of the team to not report injuries. According to some experts we interviewed, it is difficult to quantify the effect safety incentive programs may have on injury and illness reporting partly because researchers do not have access to workers' medical records. Without such access, workers who do not report their injuries cannot be identified and this information cannot be used to explore whether workers' decisions to not report their injuries were linked to their employers' safety incentive programs.

Several experts and industry officials we interviewed also mentioned that, along with safety incentive programs, some workplace safety policies may discourage workers from reporting injuries and illnesses. For example, policies that punish workers for unsafe practices that are linked to injuries may—depending on the nature of the injury and the policy—inhibit them from reporting injuries. Such policies include demerit systems that have consequences for workers who report injuries or illnesses, such as giving workers warnings, demotions, or terminating them for recurrences. However, some employers use demerit systems to discipline workers who engage in unsafe practices such as not wearing protective gear, and such demerit systems may have no effect on workers’ reporting of injuries and illnesses. According to officials from a union, workplace safety policies that single out workers who report injuries or illnesses by, for example, requiring them to wear identifying clothes such as an orange vest, may also discourage them from reporting. In addition, according to several experts, policies that require drug and alcohol testing after an injury is reported—compared to those that are applied on a routine basis to all workers—may deter workers from reporting injuries.¹⁹ We found only one study that evaluated the effect of these other workplace safety policies mentioned by experts and industry officials as having a potentially adverse effect on injury and illness reporting. This study evaluated the effect of post-incident drug testing on injury and illness reporting and found evidence that such testing may discourage reporting of relatively minor injuries that are easy to hide.²⁰

How Employers Manage Safety Can Affect Injury and Illness Reporting

While some safety incentive programs and other workplace safety policies may discourage injury and illness reporting, research we reviewed indicated that how employers manage safety has a greater influence on workers’ actions, including whether they are likely to report injuries and illnesses, than any one program or policy. Among the 26

¹⁹In some industries, such as transportation, post-incident drug or alcohol testing may be required. For example, regulations issued by the Department of Transportation’s Federal Motor Carrier Safety Administration require employers to test drivers of commercial motor vehicles for alcohol and controlled substances after certain types of accidents. 49 C.F.R. § 382.303.

²⁰The study was based on research at a large retail chain. See A. Morantz and A. Mas, “Does Post-Accident Drug Testing Reduce Injuries? Evidence from a Large Retail Chain,” *American Law and Economics Review*, vol. 10, no. 2, (2008): 246-302. In our review of the literature, we did not identify any studies of the effect of demerit systems that punish workers for unsafe work practices.

studies we reviewed, most found that employers that promote a positive safety culture may encourage workers to use safe behaviors, report injuries and illnesses, or reduce the incidence of injuries and illnesses. We identified 21 studies that evaluated the effect of an employer's safety culture on workplace safety.²¹ Of these studies, 16 indicated that having a good safety culture has a positive effect on workers' use of safe behaviors, injury and illness rates, or reporting of injuries and illnesses, and 5 indicated that a good safety culture had a mixed or inconclusive effect.

According to the studies we reviewed, workplaces with a positive safety culture placed a strong emphasis on safety by, for example, encouraging open communication about safety issues, placing a high priority on safety training, and having procedures that prevented breakdowns in workplace safety. Some researchers concluded that in such environments, workers felt that they could report injuries and illnesses without fear of reprisal or blame from management or fellow workers. Of the four studies we reviewed that evaluated the effect of a positive safety culture on reporting of work-related injuries or accidents,²² three found that having a positive safety culture increased the likelihood of injury and illness reporting.²³ Policies that help employers create a positive safety culture and keep workers safe and healthy were generally perceived as being proactive versus reactive. For example, employers with proactive policies that require workers to report near-miss incidents to help identify hazards and other safety concerns before an injury takes place were more likely to have a positive effect on injury and illness reporting.

²¹Several of these studies relied on nongeneralizable surveys of workers to measure safety culture. In addition, many relied on workers' memories to measure the incidence of injuries and illnesses, whereas others used documentation, such as employers' OSHA-required injury and illness logs or records of workers' compensation claims.

²²Each of the studies had a methodological issue that may limit the generalizability of the findings. For example, three of the four studies included nonrandom samples and the results may be affected by selection bias.

²³Two of the three studies share an author.

In contrast, according to the studies we reviewed, workplaces with a negative safety culture do not place a strong emphasis on safety. These employers do not encourage open communication about safety issues or prioritize safety training. According to two experts we interviewed, some employer safety programs focus on workers' behaviors as the cause of work-related injuries and illnesses, and have policies that discipline workers for failing to follow safety procedures. As a result, workers in these environments may be less likely to report injuries or illnesses because, if they lack safety training, communication is poor, or they are not encouraged to report injuries and illness, they may not know how to report them, or may fear being disciplined.

Three-Quarters of U.S. Manufacturers Had Safety Incentive Programs or Other Workplace Safety Policies

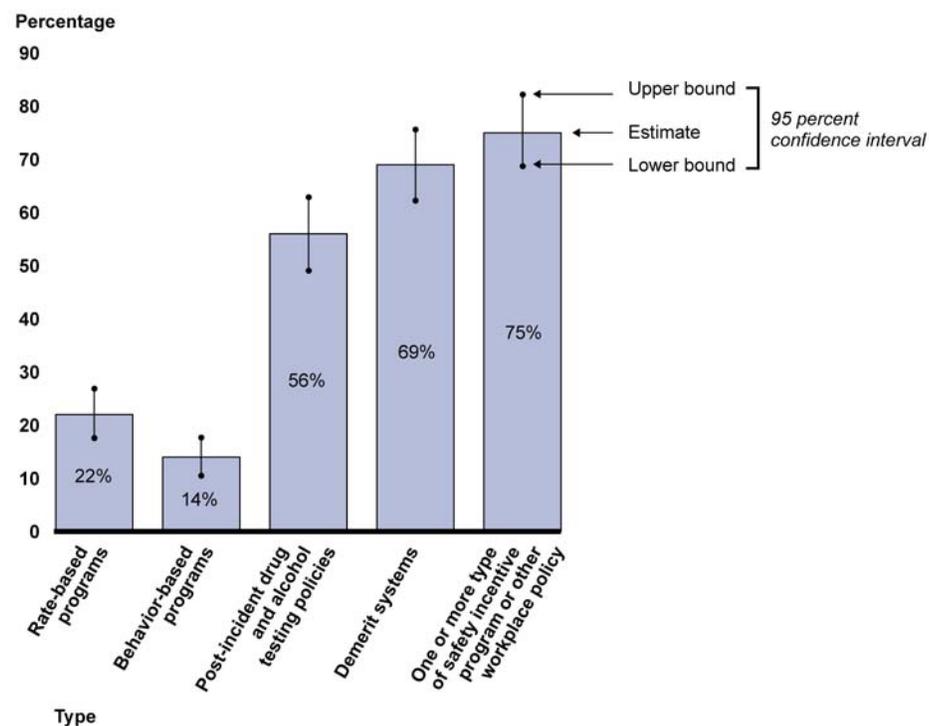
According to our survey, in 2010, an estimated 116,000 of about 153,000 manufacturers in the United States (75 percent) had safety incentive programs or had other workplace safety policies that, according to several experts, may affect workers' reporting of injuries and illnesses.²⁴ However, we estimated that safety incentive programs were less prevalent than other workplace safety policies, such as demerit systems, that discipline workers for unsafe work practices.²⁵ We also estimated that a quarter of manufacturers had some type of safety incentive program and most had a demerit system or post-incident drug and alcohol testing

²⁴The manufacturers included in our survey sample were private sector workplaces with 11 or more employees. According to BLS, there are roughly 153,000 manufacturers nationwide in this population. This estimate includes manufacturers with one or more of the following types of safety incentive programs and other workplace safety policies: rate-based programs, behavior-based programs, demerit systems and post-incident drug and alcohol testing. The 95 percent confidence interval for the estimate of 75.5 percent is (68.7, 82.2). Our survey excluded post-incident drug and alcohol testing required by law for driving accidents. Post-incident drug and alcohol testing may be limited or prohibited by law in some states; for example, according to an official from the Vermont Occupational Safety and Health Administration, it is generally against the law for employers in Vermont to conduct post-incident drug and alcohol testing. GAO did not independently evaluate state laws or policies on post-incident drug and alcohol testing.

²⁵The estimate for safety incentive programs includes manufacturers with one or more of the following types of safety programs: rate-based and behavior-based. The estimate for workplace safety policies includes manufacturers with one or more of the following types of policies: demerit systems and post-incident drug and alcohol testing. The 95 percent confidence interval for the safety incentive programs estimate of 25.4 percent is (20.6, 30.1), and for the other workplace safety policies estimate of 74.9 percent is (68.2, 81.6).

policy. Demerit systems were the most common policy reported, followed by post-incident drug and alcohol testing policies (see fig. 2).²⁶

Figure 2: Manufacturers with Safety Incentive Programs and Other Policies, by Type, 2010



Source: GAO analysis of survey data.

²⁶The 95 percent confidence interval for the demerit systems estimate of 68.9 percent is (62.2, 75.6), and for the post-incident drug and alcohol testing estimate of 55.9 percent is (49.0, 62.8).

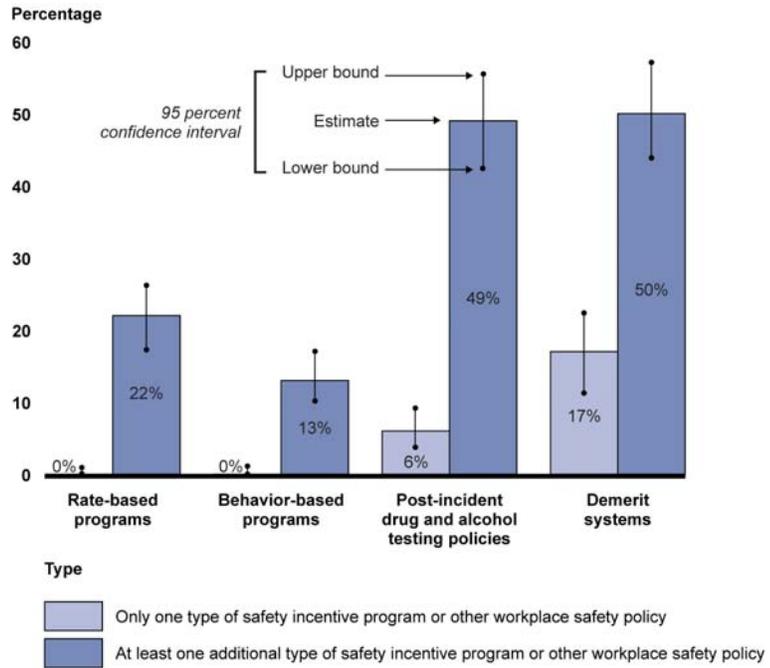
Very few manufacturers had only one type of safety incentive program, and few had only one type of other workplace safety policy.²⁷ Most manufacturers had more than one safety incentive program or other workplace safety policy, and more than 20 percent had several, according to our estimates.²⁸ For example, one manufacturer who participated in our survey had a program that rewarded workers with a luncheon for having no injuries that resulted in lost time on the job, and provided a separate reward to the worker who submitted the best safety suggestion during the month. Manufacturers with multiple types of programs or policies were more than twice as likely to have a demerit system or conduct post-incident drug and alcohol testing than they were to have a rate-based or behavior-based program (see fig. 3).²⁹

²⁷The 95 percent confidence intervals for these data are as follows: manufacturers that had only a rate-based program estimate of 0.3 percent is (0.0, 1.0), manufacturers that had only a behavior-based program estimate of 0.3 percent is (0.0, 1.0), manufacturers that had only a post-incident drug and alcohol testing estimate of 6.0 percent is (3.7, 9.2), and manufacturers that had only a demerit system estimate of 16.6 percent is (11.6, 22.7).

²⁸The estimate for manufacturers with multiple safety incentive programs or other workplace safety policies includes manufacturers with two or more of the following types of programs and policies: rate-based programs, behavior-based programs, demerit systems, and post-incident drug and alcohol testing policies. The 95 percent confidence interval for the estimate of 55.2 percent is (48.4, 62.0). The estimate for manufacturers with several safety incentive programs or other workplace safety policies includes manufacturers with three or more of the same types of safety incentive programs and policies. The 95 percent confidence interval for the estimate of 21.5 percent is (17.0, 25.9).

²⁹The 95 percent confidence intervals for these data include manufacturers that had the following: demerit systems and at least one other program or policy estimate of 50.5 percent is (43.9, 57.1), post-incident drug and alcohol policies and at least one other program or policy estimate of 49.0 percent is (42.4, 55.5), rate-based programs and at least one other program or policy estimate of 21.7 percent is (17.3, 26.2), and behavior-based and at least one other program or policy estimate of 13.3 percent is (10.1, 17.0).

Figure 3: U.S. Manufacturers with Only One Program or Other Workplace Safety Policy, Compared with Manufacturers with Multiple Programs or Other Policies, 2010



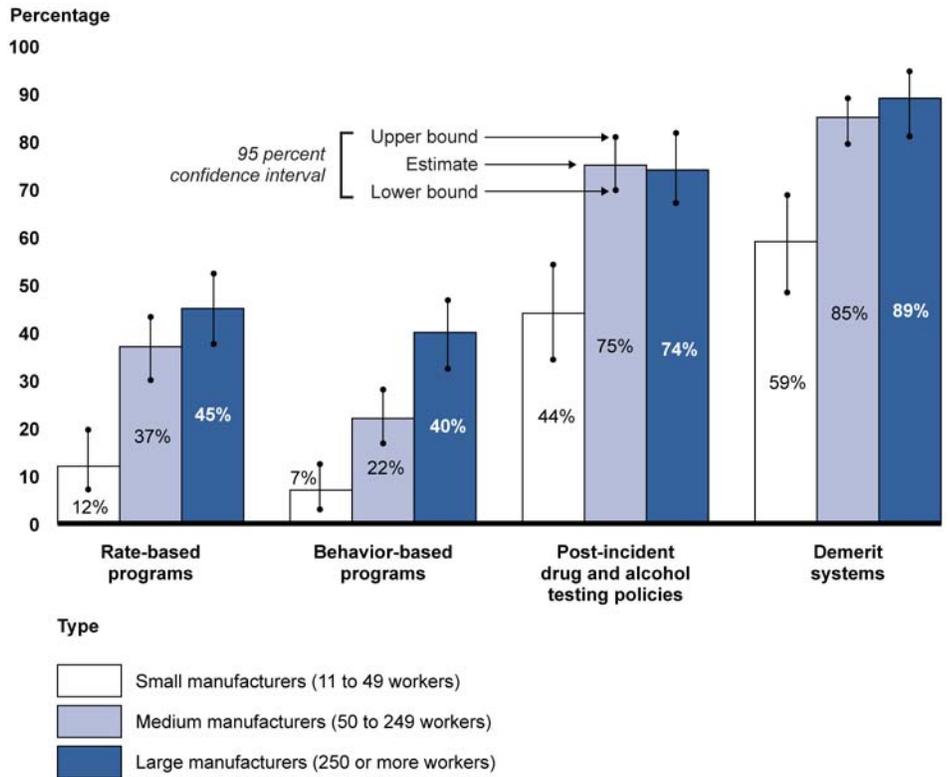
Source: GAO analysis of survey data.

Large manufacturers were more likely to have safety incentive programs and demerit systems than smaller manufacturers.³⁰ We estimated that large manufacturers were more than three times as likely to have safety incentive programs compared with small manufacturers. Although safety incentive programs and other workplace safety policies were less common among small manufacturers, most small manufacturers had demerit systems and many had post-incident drug and alcohol testing policies (see fig. 4).³¹

³⁰We defined large manufacturers as those with 250 or more workers, medium manufacturers as those with 50 to 249 workers, and small manufacturers as those with 11 to 49 workers. The 95 percent confidence interval for large manufacturers which had the estimate of 89.1 percent for demerit systems is (81.0, 94.6), 45.0 percent for rate-based programs is (37.6, 52.3), and 39.5 percent for behavior-based programs is (32.3, 46.7). The 95 percent confidence interval for medium manufacturers which had the estimate of 84.9 percent for demerit systems is (79.4, 89.4), 36.5 percent for rate-based programs is (29.9, 43.1), and 22.3 percent for behavior-based programs is (16.7, 27.9). The 95 percent confidence interval for small manufacturers which had the estimate of 58.5 percent for demerit systems is (48.3, 68.7), 12.5 percent for rate-based programs is (7.2, 19.6), and 6.6 percent for behavior-based programs is (3.0, 12.3).

³¹The 95 percent confidence interval for the post-incident drug alcohol testing estimate of 44.2 percent for small manufacturers is (34.3, 54.1).

Figure 4: Manufacturers with Safety Incentive Programs and Other Workplace Safety Policies, by Size, 2010



Source: GAO analysis of survey data.

Companies sometimes request information on manufacturers' injury and illness rates before signing a contract with them to manufacture goods. According to some workplace safety experts, such contractors may feel pressure to lower injury and illness rates to avoid the risk of losing bids for contracted work. Manufacturers whose injury and illness rates were requested by potential contracting companies were more than twice as likely to have rate-based safety incentive programs than manufacturers whose rates were not requested.³² We estimated that 31 percent of U.S.

³²The 95 percent confidence interval for the 38.3 percent estimate of manufacturing contractors that had rate-based programs whose injury and illness rates had been requested of is (24.1, 54.8), and for the 12.6 percent estimate of manufacturing contractors whose injury and illness rates had not been requested of is (6.5, 23.1).

manufacturers performed contractual work in 2010.³³ Contracting companies requested injury and illness rate data from nearly a third of these manufacturers prior to signing a contract with them.³⁴ Thirty-eight percent of these manufacturers that had their injury and illness rates requested reported having rate-based programs in 2010. In contrast, 13 percent of the manufacturers that had did not have their injury and illness data requested by potential contracting companies prior to signing a contract reported having rate-based programs in 2010.

U.S. manufacturers provided incentives to workers for a variety of safety goals and behaviors. Nearly three-quarters of manufacturers with rate-based programs, according to our estimates, rewarded workers for having no reported injuries and illnesses.³⁵ Forty percent rewarded workers for having a low number or rate of injuries and illnesses during a specific time period, and 23 percent of them rewarded workers for reducing the number or rate of reported injuries and illnesses.³⁶ Nearly 70 percent of manufacturers with behavior-based programs rewarded workers for recommending workplace safety improvements and 37 percent rewarded them for wearing protective gear.³⁷

The criteria for providing rewards differed between rate-based and behavior-based programs, but the types of rewards manufacturers provided and the types of workers targeted by both of these safety incentive programs were similar. For both types of programs, monetary awards, meals, and other non-monetary awards, such as gift cards, were more commonly offered than time

³³The 95 percent confidence interval for the estimate of 30.8 percent is (24.6, 37.0).

³⁴The 95 percent confidence interval for the estimate of 33.2 percent is (22.7, 43.7).

³⁵The 95 percent confidence interval for the estimate of 73.7 percent is (62.7, 82.8).

³⁶The 95 percent confidence intervals for the estimates of 39.5 percent is (28.8, 50.2), and 23.0 percent is (13.6, 34.9).

³⁷The 95 percent confidence intervals for the estimates of 68.8 percent is (56.0, 79.8), and 36.6 percent is (24.6, 48.5).

off work or a token of recognition, such as a plaque.³⁸ Manufacturers used safety incentive programs to target various levels of workers and worker groups, including entire workplaces, work teams such as department or shifts, supervisors, and frontline workers. However, the percentage of manufacturers that rewarded individual frontline workers through either rate-based or behavior-based safety incentive programs was twice as high as those that rewarded supervisors.³⁹

OSHA Has Taken Limited Actions to Address Safety Incentive Programs and Other Workplace Safety Policies

OSHA's Enforcement Efforts Address Safety Incentive Programs and Other Workplace Safety Policies to a Limited Extent

OSHA can use its enforcement authority to address certain aspects of safety incentive programs and other workplace safety policies, but the effectiveness of these activities is limited. Although the OSH Act does not mandate that OSHA regulate safety incentive programs, OSHA officials told us the agency could potentially issue a regulation to address safety incentive programs and other workplace safety policies. However, OSHA

³⁸The 95 percent confidence interval for the rate-based program monetary rewards estimate of 53.2 percent is (42.7, 63.7), the behavior-based program monetary rewards estimate of 43.6 percent is (30.8, 56.3), the rate-based program meals reward estimate of 56.8 percent is (46.2, 67.3), the behavior-based program meals rewards estimate of 46.6 percent is (33.9, 59.3), the rate-based program non-monetary rewards estimate of 40.5 percent is (30.5, 50.5), the behavior-based program non-monetary rewards estimate of 44.5 percent is (32.3, 56.6), the rate-based program time off work rewards estimate of 4.5 percent is (2.1, 8.3), the behavior-based program time off work rewards estimate of 5.5 percent is (0.8, 17.5), the rate-based program token of recognition rewards estimate of 24.8 percent is (15.3, 36.5), and the behavior-based program token of recognition rewards estimate of 21.4 percent is (13.8, 30.7).

³⁹The 95 percent confidence interval for the rate-based program individual frontline worker estimate of 43.1 percent is (32.7, 53.5), the behavior-based program individual frontline worker estimate of 52.8 percent is (40.0, 65.5), the rate-based program supervisor estimate of 20.0 percent is (12.3, 29.8), and the behavior-based program supervisor estimate of 26.4 percent is (15.0, 40.7).

has not done so because, according to OSHA officials, it has focused its regulatory resources on other priorities such as projects that address exposure to serious safety and health hazards.⁴⁰ Some of OSHA's enforcement tools can be used to address certain aspects of safety incentive programs and other workplace safety policies, but these tools are not designed to systematically address these programs. For example, a worker may file a whistleblower protection complaint if the worker reports an injury and, under the rules of the employer's safety incentive program, is subsequently excluded from receiving a reward, such as a bonus. However, such claims may only address the adverse action experienced by an individual worker and not address the potential overall negative impact a safety incentive program may have on the workplace.⁴¹

Under its recordkeeping regulations, OSHA can address recordkeeping violations that occur as a result of safety incentive programs and other workplace safety policies, but it cannot address potential disincentives to injury and illness reporting associated with the policies. For example, OSHA can cite employers for failing to properly record injuries or illnesses under its recordkeeping regulations,⁴² but the relationship between a safety incentive program and potential underreporting of injuries and illnesses is not directly addressed in these requirements. To find evidence of underreporting, inspectors must interview workers, review their medical records, and compare these records to employers' injury and illness logs to determine whether an injury or illness occurred but was not reflected on the log.

OSHA has explored the potential effect of safety incentive programs and other workplace safety policies on injury and illness reporting through its recordkeeping enforcement initiative, which was established to determine

⁴⁰One provision of OSHA's ergonomics standard from 2000 required employers to ensure that their policies and practices did not discourage reporting of ergonomics injuries. However, the ergonomics standard was invalidated by Congress in 2001 under the Congressional Review Act. Pub. L. No. 107-5, 115 Stat. 7 (2001).

⁴¹The whistleblower protection provision is limited because affected employees must file a complaint within 30 days of the adverse action, see 29 U.S.C. § 660(c)(2) and, according to OSHA officials, they are not guaranteed anonymity during OSHA's investigation. In addition, in some cases OSHA may decide pursuing a claim in court is not an appropriate use of resources, particularly when the monetary value of the reward is relatively small.

⁴²29 U.S.C. §§ 657(c), 658(a). For OSHA's recordkeeping regulations, see generally 29 C.F.R. part 1904.

the accuracy of employers' injury and illness logs and identify and correct any mistakes or omissions. OSHA began this program in September 2009, and in February 2010 established a goal of auditing injury and illness records at approximately 350 worksites nationwide over a 2-year period. Inspectors compared employers' injury and illness logs to workers' medical records, and interviewed workers, managers, recordkeepers, and first-aid providers. As part of these audits, OSHA directed inspectors to consider the effect of safety incentive programs or other workplace safety policies on injury and illness reporting, and when recordkeeping violations were found, in assessing the severity of the violation. For example, according to OSHA officials, if inspectors found underreporting of injuries and illnesses and concluded that a safety incentive program was a contributing factor, the inspector could classify the violation as willful, which carries an increased penalty.⁴³ However, the guidance provided to inspectors did not specify how this assessment should be done and, in our interviews with OSHA area office officials we found that OSHA inspectors inconsistently considered safety incentive programs when reviewing employers' injury and illness records. For example, one area office official said that the penalty assessment for a recordkeeping violation would be the same regardless of the existence of a safety incentive program. In addition, because OSHA did not select a nationally representative sample of worksites for these inspections, OSHA cannot use the results to determine the effect of safety incentive programs and other workplace safety policies on injury and illness reporting nationwide.⁴⁴

⁴³29 U.S.C. § 666(a).

⁴⁴We analyzed the preliminary results of OSHA's recordkeeping enforcement initiative as of October 21, 2011, and found that 75 percent of inspected worksites had some type of safety incentive program, disciplinary workplace policy, or post-injury drug or alcohol testing. Of the 264 worksites inspected as of then, almost half of the worksites inspected had recordkeeping errors that would have affected the injury and illness rate used by OSHA to target worksites for inspection. However, the most common mistakes were relatively minor. For example, many worksites listed an employee's injury or illness on the log but made a mistake in the number of days the employee was not at work or on restricted duty. The recordkeeping enforcement initiative yielded a total of 882 violations of OSHA's recordkeeping requirements as of October 21, 2011.

OSHA Has Guidance on Safety Incentive Programs for One of Its Cooperative Programs but Has Not Adopted Similar Guidance for Other Efforts

OSHA has developed policy guidance on safety incentive programs for the VPP, but the guidance for its other cooperative programs and for its enforcement efforts does not address safety incentive programs or other workplace safety policies. For example, OSHA's guidance on its SHARP program, a voluntary cooperative program that focuses on smaller employers, does not address safety incentive programs. Similarly, OSHA's field operations manual does not provide guidance to its inspectors for addressing safety incentive programs during inspections.

In June 2011, OSHA issued a policy memorandum for the VPP program that contains specific criteria for safety incentive programs, including the types of programs that are encouraged for VPP sites and those that are prohibited. Programs that promote accurate injury and illness reporting are encouraged, while participants in the VPP are now prohibited from having safety incentive programs that focus on the number of injuries and illnesses, such as rate-based programs that reward workers for achieving low injury and illness rates. This policy memorandum does not address other workplace safety policies that might impact injury and illness reporting. OSHA officials are required to ensure current VPP participants are in compliance with this policy when participants are reevaluated to determine whether they will be allowed to continue to participate in the program, but the new policy is not included in the VPP manual. Officials from one regional office estimated that almost 20 percent of its VPP participants have safety incentive programs that are not in compliance with this new policy.

In addition to providing guidance on its voluntary cooperative programs, OSHA often provides safety information to employers during its on-site inspections. In its guidance on conducting inspections, OSHA's field operations manual outlines the educational duties that inspectors have as part of the inspection process. For example, inspectors are expected to discuss the strengths and weaknesses of the employers' safety and health management system and advise the employer of the benefits of effective systems during the closing conference of the inspection. However, the field operations manual does not make any references to safety incentive programs or other workplace safety policies.

Other OSHA resources lack guidance about safety incentive programs and other workplace safety policies. Outreach specialists and materials available on OSHA's website are additional sources of information that can educate employers and workers about how safety incentive programs and other workplace safety policies may affect a workplace's safety and health management system. Although outreach specialists each develop

materials and approaches for addressing the needs of employers in their particular geographic area, each has an opportunity to discuss the potential risks and benefits of safety incentive programs and the potential impact of workplace safety policies on injury and illness reporting during discussions about recordkeeping, safety and health management systems, and OSHA's cooperative programs, among other topics. In addition, many resources are available to employers through OSHA's website, including fact sheets about recordkeeping and best practices, such as the *Effective Workplace Safety and Health Management Systems* fact sheet. This fact sheet and several others do not discuss safety incentive programs or other workplace safety policies, although some do address aspects of a positive safety culture.

Conclusions

Safety incentive programs exist in the context of a workplace's safety culture. Some types of programs, particularly those that are tied to low injury and illness rates, may discourage injury or illness reporting. However, the same programs in workplaces with positive safety cultures may have no effect with regard to reporting. Similarly, some workplace safety policies, such as those that punish workers in some way for reporting injuries or illnesses, may discourage workers from reporting injuries and illnesses, especially when implemented in a workplace with a negative safety culture.

Because OSHA relies heavily on accurate injury and illness reporting in tailoring its programs and allocating its finite enforcement resources, it is important for the agency to assess the impact of safety incentive programs and certain workplace safety policies on injury and illness reporting, particularly given their prevalence. Without accurate data, employers engaged in hazardous activities can avoid inspections and may be allowed to participate in voluntary programs that reward employers with exemplary safety and health management systems by exempting them from routine inspections.

OSHA can encourage employers to create positive safety cultures and avoid safety incentive programs and workplace safety policies that may have a negative effect on injury and illness reporting. However, because safety incentive programs and certain workplace safety policies are not addressed in OSHA guidance, including its field operations manual, OSHA inspectors may not consider these programs and policies during worksite inspections, even as they observe key aspects of the workplace's safety culture. As a result, inspectors may miss opportunities to educate employers about the benefits of promoting a positive safety

culture and avoiding prevalent programs and policies that can discourage accurate reporting of injuries and illnesses. In addition, in the absence of consistent guidance on the potential benefits and risks of some safety incentive programs and workplace safety policies, OSHA may recognize some employers as having exemplary safety and health management systems without considering the potentially negative effects of some of their programs and policies.

Recommendations for Executive Action

To increase consistency across OSHA's cooperative programs, the Secretary of Labor should direct the Assistant Secretary of OSHA to implement criteria on safety incentive programs and other workplace safety policies across all of its cooperative programs such as VPP and SHARP. The criteria should be consistent with the most recent VPP guidance memorandum that prohibits employers with safety incentive programs that focus on injury and illness rates from participating in the program.

To help OSHA inspectors consistently educate employers about the importance of safety culture, the Secretary of Labor should direct the Assistant Secretary of OSHA to add language about key elements of a positive safety culture—and the potential effect of different types of safety incentive programs and other workplace safety policies—to its field operations manual.

Agency Comments

We provided a draft of this report to Labor for review and comment. Labor's Assistant Secretary for OSHA provided written comments, which are reproduced in appendix IV. OSHA agreed with our recommendations and emphasized the agency's concern about workplace programs that appear to encourage safe work practices but actually discourage workers from reporting injuries. OSHA also provided technical comments, which we incorporated as appropriate.

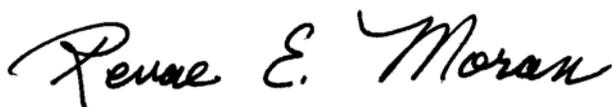
In response to our recommendation that OSHA implement criteria on safety incentive programs and other workplace safety policies across all of its cooperative programs such as VPP and SHARP, OSHA stated that it will provide policy guidance about safety incentive programs across the agency's cooperative programs. According to OSHA, this guidance will be similar to the VPP policy prohibiting participants from using safety incentive programs that have the potential to discourage workers from reporting injuries. Establishing such criteria across all of its cooperative

programs will help OSHA accurately recognize employers with exemplary safety and health management systems.

In response to our recommendation that OSHA add language about key elements of a positive safety culture—and the potential effect of different types of safety incentive programs and other workplace safety policies—to its field operations manual, OSHA stated that it has issued guidance for its inspectors about safety incentive programs that underscores the agency's position that programs that discourage workers from reporting injuries may violate whistleblower protection statutes and OSHA's recordkeeping regulations. OSHA issued this guidance to regional and whistleblower program officials in March 2012 and published it on the agency's website, but it has not yet been incorporated into the agency's field operations manual.

As agreed with your offices, unless you publically announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to the Secretary of Labor, relevant congressional committees, and other interested parties. In addition, the report will also be available at no charge on GAO's website at <http://www.gao.gov>.

If you or your staff have questions about this report, please contact me at (202) 512-7215 or moranr@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix V.



Revae E. Moran
Director, Education, Workforce, and Income Security Issues

List of Congressional Requesters

The Honorable Tom Harkin
Chairman
Committee on Health, Education,
Labor and Pensions
United States Senate

The Honorable Patty Murray
Chairman
Subcommittee on Employment
and Workplace Safety
Committee on Health, Education,
Labor and Pensions
United States Senate

The Honorable George Miller
Ranking Member
Committee on Education and the Workforce
House of Representatives

The Honorable Lynn Woolsey
Ranking Member
Subcommittee on Workforce Protections
Committee on Education and the Workforce
House of Representatives

Appendix I: Scope and Methodology

Literature Review and Expert Input on Safety Incentive Programs and Other Workplace Safety Policies That May Affect Injury and Illness Reporting

To determine what is known about the effect of workplace safety incentive programs and other workplace safety policies on injury and illness reporting, we conducted a literature search for relevant studies. We sought studies that analyzed the effect of workplace safety incentive programs; other workplace safety policies, such as post-incident drug testing; or safety culture on workers' use of safe practices; injury and illness rates; or reporting of injuries and illnesses. To identify the studies, we searched bibliographic databases covering scientific, safety, medical, and economic literature, including ArticleFirst, CINAHL, EconLit, Electronic Collections Online, EMBASE, MEDLINE, ProQuest, PsycINFO, SciSearch, and Social SciSearch for relevant search terms and citations of studies. We limited the searches to materials published in 2001 or after. We performed these searches from August 2011 to October 2011, and identified over 600 abstracts of studies. Among these studies, we excluded those that did not satisfy our criteria that each study (1) be published in a peer-reviewed journal and (2) contain relevant, primary research conducted in the United States. We also excluded studies that seemed duplicative or did not meet GAO's methodological standards. To assess the methodological quality of the studies, two GAO research methodologists independently reviewed each study that satisfied our criteria and excluded those that did not contain original research or lacked rigor. Using this approach, we identified 26 methodologically sound studies (see app. II for a list of the 26 studies).

To supplement our understanding of what is known about the effect of safety incentive programs and other workplace safety policies on injury and illness reporting, we interviewed experts and industry officials from academia, employer associations, a law firm, a consulting firm, unions, and state and federal occupational safety and health agencies. We spoke with individuals from the University of Connecticut, Boston University, Institute for Work and Health, United Steel Workers, United Mine Workers of America, American Federation of Labor and Congress of Industrial Organizations, National Association of Manufacturers, Mercer, Voluntary Protection Programs Participants' Association, Gibson, Dunn & Crutcher, Occupational Safety and Health Administration (OSHA), Bureau of Labor Statistics (BLS), National Institute for Occupational Safety and Health, Chemical Safety Board, and state occupational safety and health agencies in California, North Carolina, South Carolina, and Vermont. To identify these experts and industry officials, we reviewed relevant trade press and congressional transcripts and sought referrals from interviewees. To ensure balance, we spoke with an array of experts and industry officials with varying backgrounds and perspectives.

Survey of Manufacturing Worksites

To study the prevalence of workplace safety incentive programs as well as other workplace safety policies that may affect injury and illness reporting, we surveyed a nationally representative sample of manufacturing worksites. We selected a systematic random sample of 1,000 manufacturers from a total of 26,552 included in our sample frame of data. Our sample frame consisted of the set of manufacturers with 11 or more employees contained in a nationally representative BLS establishment survey fielded in 2010. This list was a relatively complete, current source of business names and addresses that had undergone a strict refinement process to remove establishments that were out of business, duplicates, or miscoded. We sorted the manufacturers by the sample weight for the BLS survey prior to the systematic random selection in order to ensure that a range of manufacturers was obtained.

We designed and implemented a dual mode survey (mail and web-based) to obtain information from manufacturers on the types and characteristics of safety incentive programs and policies used at their workplaces, and the extent to which they performed contractual work for other companies. To develop our survey questions, we drew on information we gathered from interviews with occupational safety and health stakeholders and from scholarly studies on occupational safety and health. We pretested the survey with nine manufacturers that represented the three size populations of manufacturers studied (small, medium, and large) and submitted the questionnaire for an additional independent review by two survey specialists within GAO and experts in OSHA and BLS. We then made revisions based on their feedback prior to finalizing the survey. We conducted the survey using a self-administered questionnaire, and offered prospective respondents the option of completing and mailing a hard copy questionnaire or completing the questionnaire online (see app. III for a copy of the survey). To encourage participation, we mailed a reminder postcard, a second questionnaire, and made follow-up phone calls to all those who had not yet responded in regular intervals prior to closing the survey. A total of 663 manufacturers responded, resulting in a final weighted response rate of 62.4 percent.

Because we surveyed a sample of manufacturers, the survey results are weighted estimates for a population of manufacturers and thus are subject to sampling errors associated with samples of this size and type. Our sample is only one of a large number of samples we might have drawn. As each sample could have provided different estimates, we expressed our confidence in the precision of our particular sample's results as a 95 percent confidence interval (e.g., plus or minus 10 percentage points). We excluded 29 of the sampled manufacturers

because we were able to determine that they were out of business at the time of our survey or they indicated that they did not engage in manufacturing. Therefore, all 29 of the manufacturers we excluded were considered out of scope. All estimates produced from the sample and presented in this report are representative of the in-scope population.

The practical difficulties of conducting any survey may introduce errors resulting from the data collection procedures, commonly referred to as nonsampling errors, which can introduce unwanted variability into the survey results. There are four primary sources of nonsampling error:

1. Measurement—error in responses recorded on the survey instruments resulting from poorly worded, biased, or sensitive questions; ambiguous instructions; or lack of information available to respondents.
2. Nonresponse—bias from failing to get responses from establishments whose answers would have differed significantly from those that did participate.
3. Coverage—bias from failing to include all eligible establishments or from including ineligible establishments in the list from which we sampled.
4. Data processing—error arising from faulty handling or processing of the data.

We took extensive steps in developing the questionnaire, collecting the data and analyzing the results to address the potential sources of nonsampling error. To minimize measurement error, GAO staff with subject-matter expertise collaborated with a survey design specialist to develop the questionnaire. We pretested the instrument using cognitive interviewing techniques and interviewed the pretest respondents to ensure that (1) the questions and instructions were clear, unambiguous, and in the correct order; (2) the terms we used were precise; (3) the survey did not place an undue burden on the respondents completing it; and (4) the survey was unbiased. To assess the risk of nonresponse bias, we obtained answers over the phone to three survey questions from 19 nonrespondents. We statistically compared the answers from the nonrespondents with those of our respondents on these three questions and found no statistically significant differences. Our sample frame minimized the risk of coverage error by drawing on a nationally representative list of manufacturers that was thoroughly reviewed and

cleaned to remove ineligible establishments. Finally, we took several steps to reduce processing errors: (1) Quality control measures were implemented during preparation and mailout of survey packages to ensure that the respondents would receive the package with the proper login identification number and that the packages contained the correct contents. (2) We contracted with an outside company to enter the data from the paper questionnaires into a database, and we checked a 10 percent sample of the database as a quality control measure. (3) Respondents who completed questionnaires online entered their answers directly which eliminated the errors associated with a manual data entry process. (4) After we analyzed the data, a second independent data analyst checked all of the computer programs for accuracy.

Examination of OSHA's Efforts to Address Safety Incentive Programs and Workplace Policies

To examine OSHA's efforts to address safety incentive programs, we reviewed relevant federal laws and regulations, OSHA's policies and procedures, and interviewed OSHA officials regarding the agency's activities. We interviewed selected OSHA officials from the agency's national office as well as several regional and area offices to learn about (1) their efforts to address the potential impact of safety incentive programs and workplace policies on injury and illness reporting, (2) the recordkeeping enforcement initiative, and (3) their views on safety incentive programs and the potential relationship between these programs and injury and illness reporting. We interviewed officials from three regional offices and five area offices representing 5 of the 10 different OSHA regions. In all of these interviews we attempted to meet with regional and area office officials with experience in the recordkeeping enforcement initiative and those that oversee cooperative programs and other outreach and training efforts. We visited five OSHA offices and spoke with officials from four state occupational safety and health agencies. We selected these offices based on their geographic dispersal and representation of OSHA regions.

To assess the results of OSHA's recordkeeping enforcement initiative, we analyzed data from the OSHA Recordkeeping Inspection Assistant database, which contains records of the inspections OSHA conducted in 2009, 2010, and 2011. Prior to our analysis, we assessed the reliability of the OSHA Recordkeeping Inspection Assistant database by reviewing information obtained from OSHA about the database, and interviewing a knowledgeable agency official. Where there were discrepancies in the data, we worked with this official to clarify and, in some cases, correct the data. For example, we found two records that were missing key identifying information about the OSHA region in which the inspections

occurred. On the basis of our assessment, we concluded that the updated data were sufficiently reliable for our reporting purposes.

We conducted this performance audit from September 2010 to April 2012 in accordance with generally accepted government auditing standards. These standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Studies on the Effect of Safety Incentive Programs, Workplace Safety Policies, and Safety Culture on Workplace Safety

Alavosius, Mark, Jim Getting, Joseph Dagen, William Newsome, and Bill Hopkins. "Use of a Cooperative to Interlock Contingencies and Balance the Commonwealth." *Journal of Organizational Behavior Management*, vol. 29, no. 2 (2009): 193-211.

Brown, Jean Geiger, Alison Trinkoff, Kenneth Rempher, Kathleen McPhaul, Barbara Brady, Jane Lipscomb, and Charles Muntaner. "Nurses Inclination to Report Work-Related Injuries: Organizational, Work-Group, and Individual Factors Associated with Reporting." *AAOHN Journal*, vol. 53, no. 5 (2005): 213-217.

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DeJoy, David M., Lindsay J. Della, Robert J. Vandenberg, Mark G. Wilson. "Making Work Safer: Testing a Model of Social Exchange and Safety Management." *Journal of Safety Research*, vol. 41, no.2 (2010): 163-171.

Evans, Demetrice D., Judd H. Michael, Janice K. Wiedenbeck, and Charles D. Ray. "Relationships Between Organizational Climates and Safety-Related Events at Four Wood Manufacturers." *Forest Products Journal*, vol. 55, no. 6 (2005): 23-28.

Fugas, Carla S., José L. Meliá, and Silvia A. Silva. "The "Is" and the "Ought": How Do Perceived Social Norms Influence Safety Behaviors at Work?" *Journal of Occupational Health Psychology*, vol. 16, no. 1 (2011): 67-79.

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Appendix III: Questionnaire Used for GAO's Survey of Manufacturing Worksites



Survey of Workplace Safety Incentive Programs and Practices

INTRODUCTION

The U.S. Congress has requested that the Government Accountability Office (GAO) provide information about workplace safety incentive programs and practices aimed at reducing work-related injuries and illnesses. We are surveying a representative sample of U.S. manufacturing-related establishments to better understand existing safety incentive programs and practices, as well as basic injury and illness recordkeeping practices. Your establishment was randomly selected from a national listing of manufacturing-related establishments based on size. Because your establishment is part of a statistical sample, your cooperation is critical to providing the Congress complete and balanced information on the types of safety incentive programs and practices typically found in manufacturing-related establishments. This questionnaire should take about 10 minutes to complete.

The results of this questionnaire will be used to compile descriptive information on safety incentive programs and practices. **GAO is not an enforcement agency and will not use responses for inspection, targeting, or other enforcement activities.** In reporting the results of this questionnaire, we will only present aggregated data, not information that identifies any individual respondent, location, or company.

INSTRUCTIONS

This questionnaire should be completed **by the person most familiar with safety programs and practices at your establishment**. Some questions require knowledge about your establishment's injury and illness recordkeeping practices. More than one person may complete this questionnaire so please feel free to consult with colleagues, as needed.

The questionnaire is divided by topic into three short sections: (1) Workplace Safety Incentive Programs and Practices; (2) Injury and Illness Records; and (3) Final Comments.

Please complete the questionnaire within 10 business days of receipt. There are three ways to submit this questionnaire:

- (1) **Online:** Go to <https://websurveys.gao.gov/workplacesafety> and enter the user name and password provided on the enclosed postcard to complete the questionnaire online; *or*
- (2) **By Mail:** Send the completed questionnaire in the enclosed pre-addressed business reply envelope to U.S. Government Accountability Office; Attn: Joel Green; 301 Howard Street, Suite 1200; San Francisco, CA 94105-2252; *or*
- (3) **By Fax:** Fax the completed questionnaire to (202) 512-2514, Attn: Jim Lloyd.

If you have any questions, please call Jim Lloyd toll-free at 1-855-384-7949

or send an email to: safetysurvey@gao.gov

Thank you for your time and assistance!

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**Appendix III: Questionnaire Used for GAO's
Survey of Manufacturing Worksites**

Questionnaire Instructions and Definitions:

Please check the box next to or below the appropriate response. For purposes of this questionnaire:

- "Establishment" refers to the worksite located at the address on the cover letter;
- "In calendar year 2010" refers to any period of time during the year regardless of duration;
- "Injuries" and "illnesses" refer to work-related injuries and illnesses.

Section 1: Workplace Safety Incentive Programs and Practices

Some establishments provide workers rewards to help prevent injuries and illnesses. Two common types of programs or practices that reward workers include: (1) rewarding employees for reporting few or no work-related injuries and illnesses during a particular time period, for example giving bonuses to employees who went 3 months without a reported injury; and (2) rewarding employees for using safety practices that may help prevent injuries and illnesses, for example giving bonuses to employees who identify hazardous conditions.

1. In calendar year 2010, did your establishment offer rewards to employees for having few or no work-related reported injuries and illnesses? <i>(Please mark YES or NO)</i>		
YES <input type="checkbox"/>	NO <input type="checkbox"/>	NOT SURE <input type="checkbox"/>

2. In calendar year 2010, did your establishment offer rewards to employees for meeting any of the following goals? <i>(Please mark YES or NO for each item)</i>			
	YES	NO	NOT SURE
No reported injuries or illnesses during a certain time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low number or rate of reported injuries or illnesses during a certain time.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reduction in the number or rate of reported injuries or illnesses from one time to the next.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>(If "Other," please specify)</i>			

**Appendix III: Questionnaire Used for GAO's
Survey of Manufacturing Worksites**

3. In calendar year 2010, did your establishment offer rewards to employees for using safety practices such as the practices listed below in question 4? <i>(Please mark YES or NO)</i>		
YES <input type="checkbox"/>	NO <input type="checkbox"/>	NOT SURE <input type="checkbox"/>

4. In calendar year 2010, did your establishment offer rewards to employees for using any of the following safety practices? <i>(Please mark YES or NO for each item)</i>			
	YES	NO	NOT SURE
Wearing protective gear.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending safety training.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notifying management of near-miss incidents.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identifying hazards or hazardous conditions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recommending health or safety improvements.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being part of a safety team.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>(If "Other," please specify)</i>			

5. In calendar year 2010, were the following used to reward employees for the two common types of programs or practices listed below? <i>(For each item, please mark YES or NO under column [1] and column [2])</i>						
	[1]			[2]		
	Reward for having few or no reported injuries or illnesses			Reward for using safety practices		
	YES	NO	NOT SURE	YES	NO	NOT SURE
Monetary award (for example, bonus).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food or meals.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time off of work.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Certificate of recognition, plaque or trophy.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other non-monetary award (for example, gift card or t-shirt).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bingo (for example, "Safety Bingo").....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scratch-off cards (for example, "Safety Jackpot" ®).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drawing or raffle.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>(If "Other," please specify)</i>						

**Appendix III: Questionnaire Used for GAO's
Survey of Manufacturing Worksites**

6. In calendar year 2010, who received rewards for the two common types of programs or practices listed below?
(For each item, please mark YES or NO under column [1] and column [2])

	[1] Reward for having few or no reported injuries or illnesses			[2] Reward for using safety practices		
	YES	NO	NOT SURE	YES	NO	NOT SURE
Entire company.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entire establishment.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work teams, departments, or shifts.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual manager or supervisor.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Injury and illness recordkeeper.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual front-line worker (non-manager).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other..... <i>(If "Other," please specify)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. In your opinion, do you think rewards valued at the amounts below help prevent work-related injuries and illnesses for the two common types of programs or practices listed below?
(For each reward amount, please choose one response under column [1] and one response under column [2])

	[1] Reward for having few or no reported injuries or illnesses				[2] Reward for using safety practices			
	GREAT EXTENT	SOME EXTENT	NO EXTENT	NOT SURE	GREAT EXTENT	SOME EXTENT	NO EXTENT	NOT SURE
Less than \$10.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
\$10 to less than \$100.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
\$100 to less than \$1000.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
\$1,000 or more.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix III: Questionnaire Used for GAO's
Survey of Manufacturing Worksites

8. In calendar year 2010, did your establishment have a policy or practice of disciplining employees for certain unsafe practices (for example, not wearing protective gear or not notifying management of near-miss incidents)?

(Please mark YES or NO)

YES

NO

NOT SURE

9. In calendar year 2010, did your establishment have a policy or practice of testing employees for alcohol or drugs after their involvement in injury-causing incidents (aside from any driving accidents, as required by law)?

(Please mark YES or NO)

YES

NO

NOT SURE

10. If there are any other issues, details, or information concerning safety incentive programs or practices at your establishment that you would like us to know about, please use the space below to provide this information.

Section 2: Injury and Illness Recordkeeping Practices

Some questions in this section require knowledge about your establishment's injury and illness recordkeeping practices. Please feel free to consult colleagues as needed.

11. In calendar year 2010, did your establishment perform work under contract for the U.S. government, for example, the U.S. Department of Defense?

(Please mark YES or NO)

YES

NO

NOT SURE

12. In calendar year 2010, did your establishment perform any work under contract for another company?

(Please mark YES or NO)

YES

NO

NOT SURE

(Continue to Question 13)

(Skip to Question 14) →→→→

13. Has your establishment's injury and illness record ever been requested by any potential contracting company?

(Please mark YES or NO)

YES

NO

NOT SURE

If you have any additional details, please provide below.)):

**Appendix III: Questionnaire Used for GAO's
Survey of Manufacturing Worksites**

14. In calendar year 2010, were you responsible for maintaining OSHA's Form 300 (or equivalent) for logging work-related injury or illness? <i>(Please mark YES or NO)</i>			
YES <input type="checkbox"/> <i>(Continue to Question 15)</i>	NO <input type="checkbox"/>	NOT SURE <input type="checkbox"/> <i>(Skip to Question 18) →→→→</i>	
15. In calendar year 2010, were you ever unsure of whether or how to record an injury or illness? <i>(Please mark YES or NO)</i>			
YES <input type="checkbox"/>	NO <input type="checkbox"/>	NOT SURE <input type="checkbox"/>	
16. In calendar year 2010, did you ever feel you needed more training or guidance on recording work-related injuries or illnesses on OSHA's Form 300 (or equivalent)? <i>(Please mark YES or NO)</i>			
YES <input type="checkbox"/>	NO <input type="checkbox"/>	NOT SURE <input type="checkbox"/>	
17. Which types of training or guidance on recording work-related injuries and illnesses on OSHA's Form 300 (or equivalent) would you find helpful? <i>(Please mark YES or NO for each item)</i>			
<u>Training:</u>	YES	NO	NOT SURE
On-the-job training by a supervisor or colleague.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From a third-party (for example, private expert at conferences or workshops).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
From OSHA at conferences or workshops.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OSHA webinar(s).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Guidance:</u>			
More guidance from OSHA available via a toll-free phone number.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More written guidance from OSHA available online.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>(If "Other," please specify)</i>			

Section 3: Final Comments

18. Please use the space below to provide any additional information about workplace safety and recordkeeping practices that you would like us to know about.

You've reached the end of the questionnaire.

Thank you for your participation!

Please return the questionnaire as described on the cover page.

Appendix IV: Comments from the Department of Labor

U.S. Department of Labor

Assistant Secretary for
Occupational Safety and Health
Washington, D.C. 20210



MAR 20 2012

Ms. Reva E. Moran, Director
Education, Workforce, and Income Security Issues
U.S. Government Accountability Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Ms. Moran:

Thank you for the opportunity to comment on the Government Accountability Office's (GAO) report, *Better OSHA Guidance Needed On Safety Incentive Programs*. The following comments are submitted on behalf of the Department of Labor's Occupational Safety and Health Administration (OSHA).

OSHA appreciates the time and effort that GAO took to perform this study. OSHA has long been on record as being very concerned about the existence of programs that appear to encourage safe work but in fact discourage injured workers from reporting injuries. OSHA has seen too many programs that offer a pizza party or allow workers to enter a raffle for a new television or even a truck as a reward for no reports of injuries on the job. Even worse is the threat to automatically drug-test, discipline or fire any worker who reports an injury. Employers who use these programs also often offer monetary bonuses to managers to keep injury rates low. The effect of these programs is to discourage workers from reporting their injuries.

Effective safety programs rely on accurate reporting. If a worker does not report an injury, he or she may not receive proper treatment or be eligible for workers' compensation benefits. But the damage does not stop there. Although these employers appear to be safer, unreported injuries are never investigated, problems remain concealed, workers remain exposed, and nothing is ever learned to prevent future injuries.

Reports and patterns of current workplace injuries and illnesses are particularly important tools in preventing future injuries and illnesses. Employers and workers need this information in a timely manner to focus their prevention activities. OSHA needs this information to better target its inspections.

OSHA recognizes that incentive programs can be a useful means for improving safety if they incentivize workers to identify hazards, participate in training or participate in investigating near-misses.

OSHA will soon provide policy guidance about safety incentive programs across the agency's cooperative programs, similar to the revised Voluntary Protection Programs (VPP) Policy which makes clear that VPP participants fail to meet the requirements to participate in VPP if their

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incentive programs have the potential to discourage workers from reporting injuries. In addition, OSHA has issued policy guidance to its field inspectors that clarifies OSHA policy regarding incentive programs. The guidance will underscore OSHA's position that programs that discourage workers from reporting injuries may violate section 11(c) of the OSHA law or other whistleblower statutes, and that some may also violate OSHA recordkeeping regulations.

OSHA appreciates the opportunity to review and respond to GAO's draft report.

Sincerely,

A handwritten signature in black ink, appearing to read 'DM', is written over the word 'Sincerely,'.

David Michaels, PhD, MPH

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

Revae Moran, (202) 512-7215 or moranr@gao.gov

Staff Acknowledgments

In addition to the contact named above, Gretta L. Goodwin, Assistant Director, and Joel Green, Analyst-in-Charge, managed all aspects of this assignment; James E. Lloyd III and Michelle Loutoo Wilson made significant contributions to all phases of the work; Grace Cho made substantial contributions to data analysis and message and report development; Carl Barden and Pamela Davidson provided assistance in designing the study, conducting data analysis, and developing the report; Lorraine Ettaro, Stuart Kaufman, and Carl Ramirez helped with survey administration; Delores Hemsley assisted in data collection; Catherine Hurley assisted in data analysis; Ashley McCall provided literature search assistance; Barbara Chapman, Cynthia Saunders, and Elizabeth Wood assisted in the methodological review of studies; Susannah Compton assisted in message and report development; James Bennett created the report's graphics; Sarah Cornetto provided legal advice; and Amber Yancey-Carroll and Anna Bonelli reviewed the report to check the facts presented.

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