

Case Study #1

Case Study #1: Behavior-Based Safety Reduces Lost Days at a Manufacturing Facility

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Description of Client and Facility

Dr. Boyce assisted in the implementation of behavior-based safety with 476 hourly and salary employees at a manufacturing facility that produces engine parts for a large American automobile company. The population of employees ranged in age from 19 to 63 years and employment at the facility ranged from six months to more than 25 years. The proportion of hourly to salary workers was approximately five to one.

General Implementation Procedure

The behavior-based safety (BBS) process began by training volunteer safety facilitators from representative work areas on first shift and second shift in the basic principles and procedures of behavioral safety. Topics included:

- defining target behaviors
- developing critical behavior checklists to record occurrences of target behaviors
 - designing interventions to improve safety-related behaviors
 - charting progress in a time-series, and
 - giving effective behavioral feedback

Following two intensive eight-hour education/training sessions for the safety facilitators, the remaining employees across three shifts received a four-hour version of BBS education/training.

Development of Process Specifics

During separate safety meetings, Shift 1 safety facilitators selected:

- the initial safety-related behavior (hearing protection) to be observed plant-wide
- the design of the checklist used to make the observations of the target behavior
 - the schedule for behavioral observations by facilitators
 - the target number of behavioral observations per week
- the design and location of group feedback charts displaying on-going measures of plant-wide hearing protection use
 - the protocol for safety slogan contest, and
 - the design and color of safety shirts offered plant-wide

The choices made by Shift 1 safety facilitators were taught to Shift 2 safety facilitators, in that both shifts implemented the same process customized by Shift 1.

Observation and Feedback Rollout

For nine weeks the safety facilitators of the 230 front-line workers on Shift 1 and 210 workers on Shift 2 made behavioral observations on use of hearing protection. Observations were made on behavioral checklists designed by the Shift 1 facilitators. On each shift, one facilitator was responsible for collecting completed observation cards. These data were collected two times per month at facilitator meetings

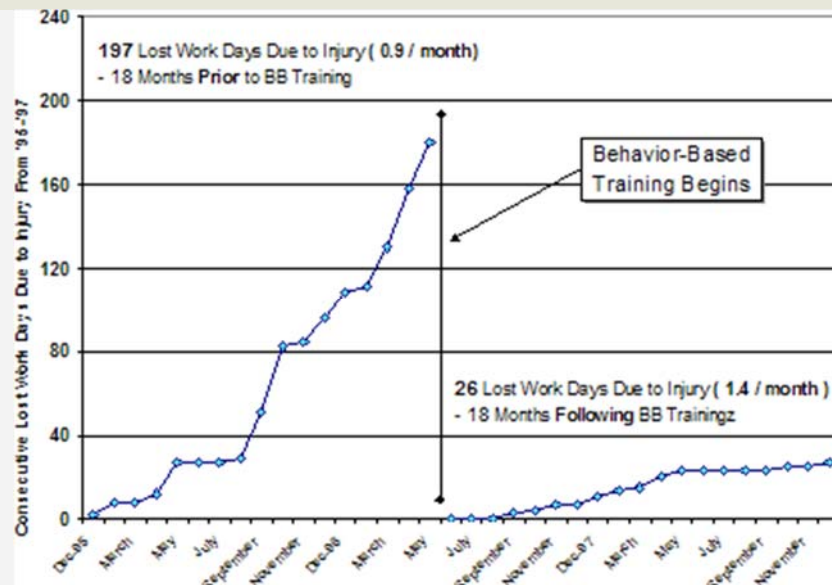
scheduled and led by Dr. Boyce or another project consultant. These data were graphed and posted on a safety bulletin board located at the highly traveled entrance to the production areas.

In addition to facilitator observations, during the first year of BBS, each department designed and implemented their own behavior-based safety improvement process. Specifically, facilitators helped department employees design and employ their intervention following the outline of Define, Observe, Intervene, and Test (i.e., DO IT; Geller, 1996 *The Psychology of Safety*). Each department selected a problem to solve based on their area's specific needs (e.g., lockout/tagout; PPE, fork driving).

Results

Effects on Lost Workdays

Figure 1 below depicts a cumulative record of this organization's lost workdays for 18 months prior to and 18 months following the introduction of the BBS process. The figure shows a marked decrease in lost days due to injuries after the start of BBS education and training, implementation of observation and feedback for hearing protection, and the department specific interventions. An average of 10.9 lost days per month occurred prior to BBS; whereas after BBS, an average of 1.5 days per month were lost due to injury.



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Figure 1: Cumulative Lost Work Days Due to Injury

Concluding Comments

It has been suggested that many occupational injuries go unreported (Leigh, 1995; Miller, 1997; Weddle, 1996; Wilson, 1985). Therefore, using a safety metric that is difficult to hide or cover up, such as lost-time injuries, probably provides a more accurate picture of the impact of a safety process than a record of minor or OSHA recordables. As such, it is noteworthy that following the introduction of BBS there was a dramatic decrease in lost workdays due to injury (from 197 to 26). This prominent reduction in lost workdays was reported by the organization to save approximately \$200,000 in workers' compensation (personal communication with safety office, 1998). This speaks to the impact on the plant's bottom line of the BBS education/training, subsequent observation and feedback strategies, and various employee-driven behavioral safety interventions.

This case study was originally published as part of a report for the National Institute for Occupational Safety and Health entitled *Critical Success Factors for Behavior-Based Safety*. Please contact the Center for Behavioral Safety for complete references

