Lessons from the BP Texas City Disaster

The Fight Against Behavior-based Safety and New Ways to Measure Workplace Health and Safety

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APHA Annual Meeting, November, 2009

On March 23, 2005, tragedy stuck the BP Oil Refinery in Texas City, Texas. Massive fires and explosions killed 15 people and injured 180 others at the third largest refinery in the country. The disaster was many years in the making. It involved numerous technical and organizational failures that reached all the way to the board of directors in London.

BP Texas City had a behavior-based safety program. The refinery's OSHA recordable rate was eight times lower than the average for U.S. workplaces. This apparent safety success was celebrated by BP and the PACE Union. Their shared belief was that an injury-free workplace is a safe one. The low injury and illness rate, however, obscured more than it revealed about actual safety conditions in the facility. Moreover, because the oil and chemical industry had low recordable rates, OSHA performed virtually no planned inspections of the sector.

The Chemical Safety Board, CSB, investigated the disaster and conducted the most comprehensive investigation of a workplace safety incident in U.S. history. The CSB also issued an urgent recommendation that created the Baker Panel, which investigated the broken organizational culture at BP's five U.S. refineries. The CSB and Baker reports provide vitally important safety lessons for all workplaces. The most compelling lesson is that the injury and illness rate is a very poor measure of safety performance in the oil and chemical industry. The broader lesson is that we need new ways to measure health and safety not just in oil and chemical plants, but in all workplaces.

The CSB and Baker reports found that the union, government and company focus on OSHA recordable rates places most attention on slips, trips, falls and similar injuries. This focus detracts from examination of the full range of hazards as well as safety system performance, and problems in the organization. At BP, with all eyes on the low injury and illness rate, countless warning signs of the disaster to come were missed by workers, their union, management and OSHA.

Behavioral safety programs

There are many reasons why behavior-based programs are often popular. For management the programs place responsibility and blame for incidents on workers, promote employee involvement and may improve union/management relations. For union activists, the programs create full-time union safety positions. The programs get things fixed that had not been corrected through health and safety committees, grievances and collective bargaining. Frustrated local union activists will sometimes grab on to whatever program helps them get a few things fixed.

Ultimately, the primary reason that behavior-based programs are often popular is that they are associated with a lower the OSHA recordable rate. Behavioral safety and use of injury and illness rates to measure safety are a perfect fit for each other. Reliance on the OSHA recordable rate to measure workplace safety is actually the foundation that sustains behavioral safety programs. If we measured safety management systems performance rather than just worker injuries and illnesses, behavioral-based safety programs would be exposed as being badly misdirected.

It should be acknowledged that behavior-based safety programs are one more way that companies discourage injury reporting and manipulate the numbers. I urge everyone to read the excellent 2008 congressional report entitled "Hidden Tragedy, Underreporting of Workplace Injuries and Illnesses". I believe that one of the authors was Jordan Barab. The report identifies dozens of programs and strategies widely used by companies to lower the OSHA recordable rate. It is noteworthy that none of the underreporting techniques identified in the report involve behavior-based safety. While behavior-based safety programs discourage reporting, they are not a key driver of the much broader problem of underreporting.

VPP

Another safety program that fits perfectly with use of the OSHA recordable rate and behavioral safety is VPP. Behavioral safety is a frequent feature of VPP sites. This is no surprise because a low OSHA recordable rate is the primary measure for getting into and advancing in the VPP program.

A 2009 GAO report on OSHA VPP found that "sites with serious safety and health deficiencies that contributed to fatalities have remained in the program". GAO concluded that "OSHA lacks performance goals and measures to use in assessing the performance of the VPP". GAO recommended that OSHA establish a new system for monitoring the performance of VPP sites. Once again, reliance on the OSHA recordable rate to measure workplace safety was found to be inadequate.

What you measure is what you fix

It is said that what you measure is what you fix. The measurement method we select in effect frames the nature of the problem that we want to understand. When we use the OSHA recordable rate to measure workplace safety and health, the problem that needs fixing is too often the workers. The best way to counter behavioral safety programs and the blame culture as well as eliminate hazards is to create new ways to measure workplace safety and health. In my opinion, this is the most strategic initiative that can be undertaken by the occupational health and safety movement today

Lessons from the restaurant sector

We have been locked into reliance on the OSHA recordable rate to measure safety performance for so long that this approach is taken as a given in much of the OHS community. We need to step outside our areas of expertise to better understand the problem. Think about it this way: measuring workplace safety performance using the OSHA recordable rate is like measuring restaurant health and safety conditions by the number of people who suffer food poisoning.

We can learn from the safety and health approaches used in the restaurant sector. There are periodic inspections of restaurants. The government publishes performance ratings for each establishment based on multiple factors. These include things such as:

- hand washing and bare hand contact with ready-to-eat foods
- improper cooking, holding, and re-heating temperatures
- cross-contamination of food and food equipment.
- food from unapproved sources

Cities such as New York require that safety and health inspection results be posted for customers and workers to see. There is a four-tiered rating system. "A" rated establishments, the safest ones, are reinspected once per year. Level "B" restaurants are reinspected twice per year and level "C" eateries are reinspected three times per year. Restaurants failing to get one the three ratings are shut down. Prevention of illnesses from restaurants requires attention and measurement of the precursors of harm. Reliance on measuring the number of illnesses, in this case poisonings, is clearly an inadequate approach to prevention.

Management Systems: the key to workplace safety and health

Nearly 21 years ago, OSHA published Safety and Health Program Management Guidelines. The voluntary guidelines were issued on the very last day of the Reagan presidency. It was recognized that the key to safe and healthy workplaces is effective management systems. Employee participation was central to the initiative. OSHA has not yet issued a mandatory safety program management rule.

Many years later in 2005, the American National Standard for Occupational Health and Safety Management Systems, ANSI/AIHA Z10 was issued with significant union participation. It was recognized again that effective management systems are the key to workplace safety and health. The Z10 framework helps us to envision what we should measure. What we need to measure is the performance of management systems not just the number of injuries and illnesses suffered by workers.

For example, Z10 builds safety into the procurement process. It calls for a formal safety review prior to the purchase of chemicals, materials and equipment. Measuring the effectiveness of this program is far more valuable for prevention than measuring injuries and illnesses after the fact.

What should be measured?

Broad public discussion is needed to identify new ways to measure workplace safety and health. Possible new measures may include:

- effectiveness of near miss and hazard reporting programs
- investigations of incidents and near misses and sharing of lessons learned
- equipment breakdowns and reliance on breakdown maintenance
- effectiveness of employee participation
- completion of audit and investigation action items
- levels of overtime worked
- results of annual standardized surveys of employee perceptions of facility safety and health
- fires, explosions, hazardous material releases
- completion of safety-related training
- air monitoring readings that exceed safe limits
- completion of equipment inspections
- employee and contractor injuries and illnesses
- compliance with work permit program requirements including LOTO, hot work, and confined space entry
- safety and health reviews of the procurement of equipment and materials

This is by no means the best list, but hopefully my presentation has sparked your thinking on finding new ways to measure workplace health and safety.