



Management Bulletin

North Carolina State Laboratory of Public Health | Laboratory Improvement Unit

Accidents Happen?

It Only Takes Seconds

After reviewing several years' worth of accident reports and interviewing persons involved, I have discovered that none of these accidents were planned. No person involved saw "IT" coming. They did not have time to *pause the action*, put on their personal protective equipment or to modify their task. "IT" just happened. Accidents happen to even the most experienced laboratorians.

According to the online Business Dictionary an accident is defined, *"In general, as an unplanned, unexpected, and undesigned (not purposefully caused) event which occurs suddenly and causes (1) injury or loss, (2) a decrease in value of the resources, or (3) an increase in liabilities. In insurance terminology, an accident is the event which is not deliberately caused, and which is not inevitable. Also see Incident."*

Why Do Accidents Happen?

Is it the environment, the task, lack of training, or the behavior of the person doing the task that causes accidents? Or is it a combination of all of these?

Rarely is a hazard a simple case of one cause resulting in one effect. More often, many contributing factors line up in a certain way to create the hazard. Here are two examples of a hazard scenario:

#1. In the laboratory (environment), while opening a container of blood sealed with parafilm® (trigger), a worker's hand comes into contact (exposure) with the scalpel blade. The palm of his hand is cut open (consequences).

#2. While performing phlebotomy in the blood draw area (environment), a laboratorian's hand comes into contact with the needle (exposure) when the patient flinches (trigger). The needle sticks into her thumb (consequences).

Controlling Hazards

OSHA tells us in the Bloodborne Pathogen Regulation (29CFR 1910.1030) that we must conduct a hazard assessment or job hazard analysis to determine the dangers to employees.

A hazard assessment looks at overall hazards in your entire facility. Conducting a Hazard Assessment or a Job Safety Analysis will improve safety for your employees, help meet insurance requirements to lower rates, help you determine equipment needs and keep you in compliance with OSHA regulations.

Job Safety Analysis

A job hazard analysis (JSA) is a procedure which helps integrate safety and health principles and practices into a particular task or job operation; it is an exercise in detective work.

The four steps or stages in conducting a JSA are:

1. Selecting the job to be analyzed
2. Breaking the job down into a sequence of steps
3. Identifying potential hazards
4. Determining preventive measures to overcome these hazards

Selecting the job

Ideally, all jobs should be selected for JSA. You may want to prioritize the jobs based on accident frequency and severity, potential for severe injuries or illnesses, new jobs, unusual situations or infrequently performed jobs. Be sure to involve your employees in all phases of the analysis, from reviewing the job steps to discussing potential hazards and recommended solutions.

Breaking the job down into a sequence of steps

Examine each job in detail, separate each action of the job in order of occurrence into a distinct step. Next, analyze each step for hazards. This step can be done by observing a worker do the job. Remember, the job, not the individual is being studied in an effort to make it safer.

If you have already written your procedures of each job in the laboratory, this step is already complete!

Identifying potential hazards

Once the steps are sequenced, potential hazards must be identified. Do not try to solve problems here, just list the hazards detected. Identification should include hazards associated with machines, tools, supplies, job procedures and the surroundings. In this step you want to ask yourself 'what could go wrong?'

Some examples* might include:

Can any body part come in contact with a sharp?

Can a harmful substance splash onto the worker?

Is lighting adequate?

Can the worker slip, trip or fall?

Can contact be made with hot/cold substances?

Can the worker suffer a strain from lifting, etc?

Can the worker make harmful contact with moving objectives?

Is the work space/work station appropriate for the task?

Is equipment in need of repair?

Are employees properly trained and authorized?

*This list is not complete because each worksite has its own requirements and environmental conditions

Spend some time focusing on unusual situations. While it is important to be sure your employees can operate equipment under ordinary conditions, consider setting aside a training session just for emergency procedures. Try creating short scenarios, and then ask employees to describe the steps they'd take to correct the situation or remove themselves from danger. Since its likely employees do not often handle those hazards, the exercise can uncover confusion about safety steps

Determining preventive measures

The final step is to develop solutions designed to eliminate or otherwise control the hazards identified.

1. **Eliminate the hazard.** There are five techniques used to eliminate the hazards:

- Choose a different process
- Modify an existing process
- Substitute with less hazardous substance
- Improve the environment
- Modify or change equipment or tools

2. **Contain the hazard.** If the hazard cannot be eliminated, containment should be used. Examples include using a biosafety cabinet or restricting access to the lab.

3. **Revise the work procedures.** By modifying steps which are hazardous, changing the sequence of steps or adding additional steps hazards may be prevented or reduced.

4. **Reduce the exposure.** Use personal protective equipment. These measures are the least effective and should be used only if no other solutions are possible.

Documentation

Example of a job hazard analysis form.

Job Location:	Analyst:	Date:
Sequence of Events	Potential Accidents or Hazards	Preventive Measures
1.		
2.		
3.		
And so on...		

Final Notes:

Laboratory areas involve potential hazards and require the employees to follow established standard operating procedures (SOPs) to ensure increased personal safety.

Once the hazards are controlled, the JSA does not cease to be of use. One of the most valuable applications of the JSA is its use in new employee training programs. A completed JSA provides an instructional outlines, the steps of the job are shown in order, the hazards are listed and the safe and proper procedure for each step is described.

Integrating the results of a JSA into normal operations is a part of Total Quality Management efforts. When you take a look at your processes, procedures, operations, and so on with a critical eye toward continuous improvement, you can effectively move forward and identify goals and objectives in your quality initiatives.

**M. Kristy Osterhout, BS, SLS(ASCP) Safety Officer
NC State Laboratory of Public Health**

References

Safety Compliance Alert 10-31-2001.

JJ Keller & Associates, Inc. (1996) *Workplace Safety In Action.* Neenah WI

<http://www.businessdictionary.com/definition/accident.html>
<http://www.sciencebase.com/science-blog/incidents-and-accidents.html>

<http://www.osha.gov/>

<http://www.osha.gov/Publications/osha3071.pdf>