



Biosafety Tips

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Biosafety Tips brings you practical approaches to biosafety or “news you can use.” If you are looking for a useful and sensible solution to a biocontainment problem or perhaps a reference to help convince a skeptical researcher of the need for caution, this is the place to look. In this column I will share some biosafety insights for managing a variety of workplace situations. I welcome feedback or suggestions for future topics. Please e-mail any comments or suggestions to karen_byers@dfci.harvard.edu or to the Chief Editor, Barbara Johnson, at barbara_johnson@verizon.net.

Resources on Sharps and Safety Culture

The CDC Division of Healthcare Quality Promotion has provided hospitals with an excellent resource: Workbook for Designing, Implementing, and Evaluating a Sharps Injury Prevention Program, on the web at www.cdc.gov/sharpsafety/. This document was developed because “CDC estimates that each year 385,000 needlesticks and other sharps-related injuries are sustained by hospital-based healthcare personnel; an average of 1,000 sharps injuries per day” (CDC, 2004). The workbook includes toolkits to assess, implement, and evaluate each step of a sharps injury prevention program in healthcare, and posters to reinforce training efforts.

This web site is worth reviewing, as it provides some advice relevant to all safety programs. The points listed from the section “Institutionalize a Culture of Safety in the Work Environment” outline the administrative support required for biosafety programs. The following material on “safety culture concepts” is excerpted directly from the Sharps Injury Prevention Program workbook.

Safety Culture Concepts

From an organizational perspective, culture refers to those aspects of an organization that influence overall attitudes and behavior. Examples include:

- Leadership and management style
- Institution mission and goals
- Organization of work processes

An organizational culture is the accepted norms that each place of work establishes for day-to-day tasks. It is shown to be strongly associated with workers’ perceptions of job characteristics and organizational functioning (Kretzer & Larson, 1998).

A culture of safety is the shared commitment of management and employees to ensure the safety of the work environment. A culture of safety permeates all aspects of the work environment. It encourages every individual in an organization to project a level of awareness and accountability for safety. Employees perceive the presence of a culture of safety based on multiple factors, including:

- Actions taken by management to improve safety,
- Worker participation in safety planning,
- Availability of written safety guidelines and policies,
- Availability of appropriate safety devices and protective equipment,
- Influence of group norms regarding acceptable safety practices, and
- Socialization processes around safety that personnel experience when they first join an organization.

All of these factors serve to communicate the organization’s commitment to safety.

Value of Institutionalizing a Culture of Safety to Healthcare Organizations. Most of our knowledge about safety culture comes from the manufacturing sector and heavy-industry work settings, where it was first studied. Critical determinants of the successful safety programs in early research include:

- Management's involvement in safety programs,
- High status and rank for safety officers,
- Strong safety training and safety communications programs,
- Orderly plant operations, and
- An emphasis on recognizing individual safe performance rather than relying on punitive measures.

The concept of institutionalizing a culture of safety is relatively new for the healthcare industry and much of the focus is on patient safety. However, recent studies in some healthcare organizations link measures of safety culture to:

- Employee compliance with safe work practices, and
- Reduced exposure to blood and other body fluids, including reductions in sharps-related injuries (AHA, 1999; Gershon et al., 2000)

Strategies for Creating a Culture of Safety. To create a culture of safety, organizations must address those factors known to influence employees' attitudes and behavior. Organizations must also direct measures to reduce hazards in the environment. Although many factors influence a culture of safety, this workbook emphasizes those that are believed to be the major determinants of a safety culture.

KEY POINTS

Factors That Influence a Culture of Safety

- Management commitment to safety
- Healthcare worker involvement in safety decisions
- Method of handling of safety hazards in the work environment
- Feedback on safety improvements
- Promotion of individual accountability

Ensure Organizational Commitment. Organizations can use three important strategies to communicate their involvement in and commitment to safety.

- Include safety-related statements (e.g., zero tolerance for unsafe conditions and practices in the healthcare environment) in statements of the organization's mission, vision, values, goals, and objectives.
- Give high priority and visibility to safety committees, teams, and work groups (e.g., occupational health, infection control, quality assurance, pharmacy, and therapeutics), and ensure direct management involvement in the evaluation of committee processes and impact.

- Require action plans for safety in ongoing planning processes. (For example, an action plan for improving the culture of safety for sharps injury prevention could be one element in an overall safety culture initiative.)

Management can also communicate a commitment to safety indirectly by modeling safe attitudes and practices. Healthcare professionals in positions of leadership send important messages to subordinates when they:

- Handle sharp devices with care during procedures,
- Take steps to protect co-workers from injury, and
- Properly dispose of sharps after use.

Similarly, managers should address sharps hazards in a non-punitive manner as soon as they are observed and discuss safety concerns with their staff on a regular basis. This will positively reflect the organization's commitment to safety and build safety awareness among staff.

Involve Personnel in the Planning and Implementation of Activities That Promote a Safe Healthcare Environment. Involving personnel from various areas and disciplines while planning and implementing activities improves the culture of safety and is essential to the success of such an initiative. Those personnel who participate on committees or teams created to institutionalize safety serve as conduits of information from and to their various work sites. They also legitimize the importance of the initiative in the eyes of their peers.

Encourage Reporting and Removal of Sharps Injury Hazards. Another strategy for institutionalizing a culture of safety is to create a blame-free environment for reporting sharps injuries and injury hazards. Healthcare personnel who know that management will discuss problems in an open and blame-free manner are more likely to report hazards. Healthcare organizations can also actively look for sharps injury hazards by performing observational rounds and encouraging staff to report near misses and observed hazards in the work place. (See *Implement Procedures for Reporting Sharps Injuries and Injury Hazards*.) Once identified, hazards should be investigated as soon as possible to determine the contributing factors, and actions should be taken to remove or prevent the hazard from occurring in the future.

Develop Feedback Systems to Increase Safety Awareness. A number of communication strategies can provide timely information and feedback on the status of sharps injury prevention in the organization. One strategy incorporates findings from hazard investigations, ongoing problems with sharps injuries, and prevention improve-

ments into articles in the organization's newsletter, staff memoranda, and/or electronic communication tools. It is important to communicate the value of safety by providing feedback when the problem is first observed and commending improvements. Another strategy is to create brochures and posters that enhance safety awareness. Such materials can reinforce prevention messages and highlight management's commitment to safety.

Promote Individual Accountability. Promoting individual accountability for safety communicates a strong message about the organization's commitment to a safe healthcare environment. In order for accountability to be an effective tool, all levels in the organization must comply. An organization can promote individual accountability for safe practices in general and sharps injury prevention in particular in many ways. One way is to incorporate an assessment of safety compliance practices in annual performance evaluations; for managers and supervisors, this might include evaluating methods used to communicate safety concerns to their subordinates. Organizations might also consider having staff sign a pledge to promote a safe healthcare environment. This could be incorporated into hiring procedures and/or as part of an organization-wide safety campaign.

Measuring Improvements in the Safety Culture.

Data from four possible sources can measure how improvements in safety culture affect sharps injury prevention:

- Staff surveys on perceptions of a safety culture in the organization and reporting of blood and body-fluid exposures (See Appendices A-2 & 3 at www.cdc.gov/sharpsafety/a2.html or www.cdc.gov/sharpsafety/a3.html),
- Sharps injury reports (See Appendix-7 at www.cdc.gov/sharpsafety/a7.html),
- Hazard reports (Appendix-9 at www.cdc.gov/sharpsafety/a9.html), and
- Observational hazard assessment reports (Appendix A-9).

Each of the above tools can demonstrate changes over time that serve to indicate improvements in the safety culture. For example, decreased frequency of selected items on a blood exposure report form can reflect an increased safety consciousness (e.g., improperly discarded sharps, collisions between personnel that result in a sharps injury). Also, periodic (e.g., every few years) personnel surveys on perceptions of safety and exposure reporting are likely to reflect positive changes in the organization's commitment to

safety. Hazards will also decrease as problems are addressed and corrected. If no improvements are detected, the sharps injury prevention leadership team should reassess its strategies and revise the performance improvement action plan.

Author's Commentary—Application to Biosafety

Of course, it is extremely difficult for an already overburdened biosafety professional to single-handedly take on the role of promoting an institutional culture of safety in the workplace. Every day, we face the challenge of providing an expanding list of biosafety services. But implementing even one of the above-discussed points may result in an improved work climate for the biosafety professional by reducing some of the resistance faced while performing audits, protocol reviews, etc. Consistently applying a set of "best practices" in our own worksites would be easier if we had similar resources and toolkits for the many varied situations we experience daily.

Resource Sharing

ABSA members could create such resources by continuing to build upon efforts already undertaken by the ABSA Training and Education Committee. This committee has provided a system for sharing resources to deal with various types of biosafety problems. The insight of other biosafety professionals working in similar settings can be extremely helpful in implementing a sharps injury reduction program. For example: When my employer required that I provide follow-up for the numerous reports of lacerations sustained by researchers using razor blades, I turned to the biosafety listserve for help. Most of our lacerations did not involve biological exposures, so I wondered what could be done to change the research community's ingrained habits of careless use and disposal of razor blades. A listserve [BIOSAFTY] search revealed that other biosafety professionals were actively working to reduce similar injuries in laboratory settings. Several individuals

shared their approach to the problem and slides from their training programs. Taking the concept a step further, it would be very helpful for biosafety professionals to have a resource web site that collated peer recommendations in an organized format.

Currently the **ABSA Training and Education Committee** has a message on the ABSA web site that reads:

TRAINING TOOLS. The ABSA Training & Education Committee is soliciting submissions to this Training Tools page. Our goal is to provide a resource of tools and templates to those who provide training in biosafety or closely-related areas.

You may contribute in two ways:

1. Send us tools or templates you are willing to share. These can be placed on the public site for full access or on the members-only area for access only by ABSA members. Your content will be reviewed prior to posting. E-mail the ABSA Training & Education Committee for more information.
2. Please let us know what types of tools and templates you might find useful. The Training & Education Committee will gather requests and look into what resources are currently available as well as make recommendations for development of appropriate tools. You may e-mail the ABSA Training & Education Committee at training@absa.org for more information.

I am encouraging ABSA members to look at the Training and Education tab on the ABSA web site. Think about it. If we all contribute one tool, slide, or template—we will have a resource similar to the CDC web site, but it will be a resource for many biosafety program issues—not just sharps injuries in hospital settings. Let's share resources and reduce our workloads!

References

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