Guest Editorial

Surviving Biosafety: Coping with Occupational Stressors of Serving the Profession

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The Federal Select Agent Program (FSAP) recently released new guidelines for organizations working with select agents. These guidelines, along with recommendations in Biosafety in Microbiological and Biomedical Laboratories (BMBL) (U.S. Department of Health and Human Services, 2009) and other safety references, are simply words on paper which aim to minimize overall risk associated with biological scientific research. Biosafety officers play an instrumental role in biological risk mitigation by identifying risks, assessing risks, developing organizational plans to manage these risks, and communicating the risk/benefit equation to those expected to comply with these guidelines. Alone, these guidelines do not produce consistent behavioral practices among the workforce. Because behavioral inconsistencies may lead to a variety of outcomes which may not be safe, biosafety officers may hold themselves or be assigned accountability should an unsafe incident occur within a biocontainment facility.

The burden of integrating a guideline into an organization may fall solely on the biosafety officer. This burden may lead to several occupational stressors including but not limited to high workloads, long hours, limited resources, immediate deadlines, feeling undervalued, and lack of task control. A study by the American Psychological Association found many Americans listed the causes of work stress to include low salaries (46%), lack of opportunities for growth and advancement (41%), heavy workloads (41%), long hours (37%), and unclear job expectations (35%) (APA, 2012). These occupational effects may have a profound impact on overall safety within organizations. A biosafety officer who is exhausted, feels unmotivated, and lacks needed resources may not have the energy or cognitive ability to minimize the risks associated with daily laboratory activities. This not only puts the laboratory staff at increased risk but could also pose an increased risk to the organization’s overall reputation, research agenda, and overall liability.

In October 2012, Emory University hosted a 30-minute teleconference as part of its monthly Lunch Break Series titled “Surviving Biosafety: Coping with the Occupational Effects of Serving the Profession.” During this teleconference, strategies for coping with the seven stressors listed above were presented and discussed. In some instances, stress on the job may be a good thing; however, stress has also been directly linked to employee withdrawal behaviors including absenteeism and turnover (Gupta & Beehr, 1979). Feelings of inadequate control over one’s work and frustrated hopes and expectations seem to be independent causes of burnout, a term that describes a condition of professional exhaustion. This exhaustion may lead to low levels of satisfaction with the overall job, impacting interpersonal and family relationships and leading to a negative attitude toward life in general (A Iacovides, 2003). The following are descriptions and recommendations for dealing with common workplace stressors, some of which biosafety officers may be experiencing.

High Workloads

A biosafety officer’s workload is the perception of work demands placed on him or her during any given day. Biosafety officers who feel they have more work than they can accomplish in one day are experiencing the stress of a high workload. High workloads increase emotional distress both in the workplace and at home. Individuals experiencing high workloads also evidence higher blood pressure rates which significantly impact overall health (Ilies, 2010).

Recommendations for dealing with high workloads include delegating tasks to others and managing tasks more efficiently. For example, a biosafety officer may assess the amount of time he or she spends responding to e-mails and decide to reduce this activity by dedicating specific daily time slots to e-mails, thus allowing more time to engage in other activities and accomplish other tasks. Taking breaks during the day to re-energize is another strategy to better manage high workloads. This strategy is not only needed, but also has been shown to increase workplace productivity.

Limited Resources

According to the job demands-resources (JD-R) model (Demerouti et al., 2001), work conditions can be divided into two broad categories: job demands and job resources. Job demands are strongly related to worker exhaustion (aka, burnout), whereas job resources are primarily related to work disengagement. High workloads lead to worker exhaustion, while limited resources lead to worker disengagement. Biosafety officers who are disengaged and not fully committed to their workplace may exhibit low morale and decreases in overall work performance.
Dealing with limited resources begins with differentiating ideal, preferential, and acceptable safety practices. Each level requires a different quantity of resources; however, an evaluation may show that there will be little variation in the overall outcome. In that case, diverting resources away from an "ideal" level may be appropriate. Another strategy to increase resource allocation is to conduct workplace assessments and solicit feedback on the resources needed from the population the biosafety officer serves. Having others state what is needed provides additional weight to biosafety requests and may increase the likelihood of gaining additional resources.

**Lack of Control with Immediate Deadlines**

Stress may begin to occur when a biosafety officer feels as though he or she has no control over workplace responsibilities and activities. The sense of control is reduced when an assignment with an immediate deadline is imposed, and this impacts overall employee motivation. Externally imposed deadlines lower employee interest and motivation to address workplace tasks (Amabile et al., 1976). Low interest and motivation levels among biosafety officers may lead to unsafe work environments and increases in organizational risk.

The primary recommendation for dealing with immediate deadlines is to establish healthy boundaries. Biosafety officers must be able to communicate what can and cannot be done by a specific deadline. If one task takes priority over another, the biosafety officer must communicate the impact of the new deadline on existing responsibilities rather than accept the additional burden without explanation of what it means to the workplace. Failure to establish healthy boundaries may lead to burnout, incomplete tasks, poorly completed tasks, and general safety oversights.

**Feeling Undervalued**

A recent study by the American Psychological Association (APA, 2012) indicated that among individuals who felt undervalued at work, only 33% said they were motivated to do their best at work and only 38% reported feeling engaged. The study also indicated many reasons for feeling undervalued in the workplace including not being involved in the decision-making process, being less satisfied with potential growth and advancement opportunities, and restrictions on the ability to utilize flexible work options. If a biosafety officer feels undervalued, leading to decreased levels of motivation and workplace engagement, organizational risks may increase over time.

Unfortunately, there may not be many opportunities for growth and advancement for biosafety officers. Additionally, the need for biosafety officers to be present and available at all times may also minimize their ability to have flexible work options. This poses a challenge to biosafety officers, as feeling valued must be influenced more by intrinsic rather than extrinsic factors. Thus, biosafety officers should do their best to remember why they became a biosafety officer in the first place. They must identify what activities make them feel valued and utilize these activities to motivate and engage themselves back into the workforce. Communicating his or her sense of being undervalued to leadership can be considered; however, this communication should occur only after the biosafety officer has identified activities that would increase his or her sense of professional value so that requests to participate in these activities can be considered during or following the discussion.

**Long Hours**

A recent study published in the *Journal of Epidemiology* (Virtanen et al., 2012) has shown that a combination of stress, raised blood pressure, and unhealthy diets stemming from long working hours (>8 hours) may be the causes of serious health problems. Furthermore, individuals working long hours are at a 40% increased rate of suffering from coronary heart disease. Additionally, Sparks (1977) conducted a review of the literature on working hours and health and performed meta-analyses on 21 study samples. Results indicated positive mean correlations among overall health, physiological and psychological health, and hours of work.

A biosafety officer who works long hours, every day of every week, may have reduced physiological and psychological health, as well as lower engagement and motivation levels. To minimize long hours, biosafety officers must prepare as though they are running a marathon instead of a sprint and establish healthy boundaries that include walking away from work after 8 hours. Moreover, the biosafety officer’s positive impact on the organization may not be appreciated in a day, a week, a month, or even a year. Since recognition may come slowly, biosafety officers must remain healthy, engaged, and motivated. To do this, they must be able to walk away at the end of the day, go home to reenergize, and return to work ready to continue the race.

Regardless of the profession, workplace stressors have a profound impact on personal health and quality of life. Biosafety officers should consider the recommendations discussed above to minimize workplace stress. However, implementing these changes may lead to initial increases in stress (as change usually does), and as a result, activities to reduce stress may not even be considered. The decision to implement any recommendation/change is a personal one that may be influenced by unknown environmental factors; however, the greatest factor of influence for change is always the personal choice to change.

An old story of a wise man and a young cow herder sums this up best: Once there was a little boy who raised cows. He would herd them up a mountain every day and at the end of the day come back, tie them up, and leave them overnight. One day, as he was tying up the cows, he noticed he did not have a rope for one of the cows and be-
came concerned the cow would walk away during the night. The young cowherder asked a wise man what he should do. The wise man told him to go back to the cow, pretend to tie up the cow, and make sure the cow watches you do this. The little boy listened to the wise man and did as he was instructed. The next morning, to the little boy’s amazement, the cow was standing right where he had left it. He untied all the other cows but the cow he had pretended to tie up would not budge. He did everything he could to move the cow, but the cow simply would not move. He returned to the wise man and asked what he should do. The wise man told him, “Untie the cow!” So the little boy returned, pretended to untie the cow, and watched as the cow returned to the herd.

The reason change may not occur within an individual is an “invisible rope”—a limitation that one believes exists and yet it truly does not. By applying the model for biological risk mitigation to stress mitigation, biosafety officers can clearly identify the risks associated with the stressors discussed above. Then they must assess the impact of these stressors on their personal and professional lives, determine effective stress management activities and communicate with those they serve. Identify, assess, manage, and communicate—these are not only biological risk mitigation strategies but also a biosafety officer stress reductive strategy as well.

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References


Potential Pandemic Influenza A/H5N1 Research

The risks and benefits of potentially pandemic Influenza A/H51 research are hotly debated, and the issues are highlighted in the open-access articles below. These viewpoints deserve your careful consideration.