SUMMARY/ABSTRACT

Laboratory animal facilities aim to provide excellence in animal care and welfare and support scientific research. Critical to these goals is to ensure a safe work environment for personnel comprised of veterinary and animal care, laboratory research, and maintenance staff. Thus, performing occupational risk assessments allows for evaluation of risks from identified hazards associated with a variety of tasks ongoing in laboratory animal facilities. Herein, we present the development of an occupational risk assessment tool purposed to capture the dynamics of work performed in laboratory animal facilities, calculate and prioritize identified risks associated with procedures and processes, and inform and evaluate risk mitigations. This tool and framework evolves into a holistic occupational risk management system that: identifies, evaluates, and mitigates occupational risks; determines risk acceptability; consistently ensures communication and consultation with front line personnel, stakeholders, senior leadership, and subject matter experts in biosafety, science, and animal care and welfare; and continuously strives to improve and enhance the operations of laboratory animal facilities.

INTRODUCTION

At its core, a risk assessment is asking the following questions: What can go wrong? How likely is it to happen? What are the consequences if it does happen? Risk assessments should be done before a standard operating procedure (SOP) is performed, especially a new procedure, and in response to an incident to identify root causes and implement corrective actions. Additionally, risk assessments should be done at least annually to review work procedures and recommended mitigations and to continuously monitor for risks and improve work environments in animal facilities. While the terms “risks” and “hazards” are used interchangeably, a hazard is something that has the potential to cause harm, such as a syringe needle. A risk is a function of the likelihood and consequence of an event occurring due to a hazard, such as a needle stick injury. Performing an occupational risk assessment is part of a larger, systematic management process intended to identify, evaluate, and mitigate risks. A key step in our occupational risk management process is establishing the who, what, when, where, why, and how (the SW-H) of the procedure and its accompanying risk assessment. Examples of SW-H questions may include: Who is performing the procedure? What is the procedure? When is the procedure performed? Where is the procedure being performed (e.g., the animal biosafety level)? Why is the risk assessment being performed (e.g., in response to an incident)? How will the risk assessment identify risks and mitigate them? This process involves consulting with front line staff performing the procedures and subject matter experts such as veterinary, scientific, facilities and maintenance, and safety and occupational health personnel; additionally, engaging these diverse teams and consistently communicating with personnel and stakeholders, such as researchers and the IACUC, is pivotal. Another component involves training personnel when recommended mitigations drive changes in SOPs to make tasks safer. This occupational risk management process continuously monitors for risks to improve the safety landscape while achieving quality and excellence in animal care and research support. This process integrates occupational safety into the daily operations of an animal facility as it involves front line staff throughout the process, creates buy-in, and empowers personnel to be a participating voice in enhancing the safety of their work environment.

ASSESSING MITIGATION EFFICACY AND DETERMINING RISK ACCEPTANCE

To determine the feasibility of recommended mitigations, it is necessary to “test drive” these mitigations and calculate risk. This involves working with front line staff to receive their input and feedback to refine work processes. Outlined in the adjacent figure are relevant risk mitigations. It is essential that recommended mitigations maintain occupational safety and animal welfare. A critical discussion point that arises, as adjacent figure are relevant risk mitigations. It is essential that recommended mitigations maintain occupational safety and animal welfare. A critical discussion point that arises, as the Comparative Medicine Branch’s (CMB) occupational risk management process, adapted from the International Organization for Standardization (ISO) 31000 standard on risk management. CMB developed a risk calculation matrix to account for other variables that affect occupational risks and to capture the dynamic workspace and operations of animal facilities.

REFERENCES


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