STANDARD DEVIATIONS: Time for Biosafety!

Greetings,

October is almost gone! How did that happen? Well, before it slips away, let's look at why October is noteworthy.

We designate the months to identify themes, causes, and concerns. Each month has its share of remembrances and I'm sharing some of the less remarkable with you.

October is **INTERNATIONAL WALK TO SCHOOL MONTH!**

As the final nice days for much of the Northern Hemisphere land in October, International Walk to School Month encourages us to spend that time outdoors stretching our legs! While we also conserve fuel and preserve the environment, the message here is getting exercise. Walking is one of our healthiest endeavors. Walking gets the heart rate up providing a good cardiovascular workout, and it's easy on the joints and muscles.

October is **FINANCIAL PLANNING MONTH!**

Holiday season means spending foolishly and frantically (I know cuz I have kids and grandkids). Financial Planning Month reminds us to keep our spending in check and prepare our budgets. While it's always better to give than receive, it's smarter stick to a budget all year long. Depending on where we are in life, our approach to budgeting changes. However, if we start out saving and planning for our financial future when we're young, the target is easier to make (and then later, you can really spoil those brats).

October is **CAFFEINE ADDICTION RECOVERY MONTH**!

While studies have shown that 400 mg of caffeine in a healthy adult diet is considered safe, some need to discuss other options. For example, those who suffer from side effects or take medications that interact with caffeine may need to curb their caffeine habit.

According to the Mayo Clinic, just a few reasons to cut back on caffeine intake may be:

- A migraine headache
- Insomnia
- Restlessness
- Irritability
- Rapid heartbeat
- Stomach issues
- Anxiety

(hmmm, sounds more like STAY HOME FROM WORK MONTH to me) Consider these recommended alternatives to that jolt:

- Add morning and afternoon walks to your day
- Sparkling water
- Herbal teas
- Lemon water
- Carob powder

- Add 5-minute desk stretches to your daily routine

October is **BAT APPRECIATION MONTH!**

Despite the bad rap they've received since 1897 when Bram Stoker wrote about the undead, bats demand respect. These Halloween icons deserve their notorious reputation as reservoirs for rabies and a slew of other mammalian viruses (one more relevant than the rest), but they also deserve our respect and gratitude.

They are also one of the largest and longest living species on earth. Add to their unique charm the ability to sleep upside down, that they are the only mammals able to fly, their ability to navigate with precision via echolocation and bats are downright savvy. Where would we be without the bats that pollinate our favorite fruits? They are also a non-invasive species and a source of natural pest control; drawn to invasive insects like kids to candy or teenagers to vampires.

Don’t forget that October is **NATIONAL PIZZA MONTH!**

This observance began in October 1984, and was created Pizza Today magazine. Some people observe National pizza month by consuming various types of pizzas or pizza slices, or going to various pizzerias. During the month, some pizzerias give away free pizzas or pizza slices to customers or offer reduced-price promotions. Some businesses run fundraising drives, donating proceeds of pizza sales to benefit various organizations or charities. Some pizzerias create unique pizzas that they don't routinely offer. For example, Mamma Mia! Pizza Kitchen in Levelland, Texas makes a rattlesnake meat pizza to celebrate the month.

And then there is ….

October is **NATIONAL BIOSAFETY MONTH**!

National Biosafety Month is an opportunity for laboratories, hospitals, and research to highlight the importance of biosafety and proactively strengthen their biosafety programs.

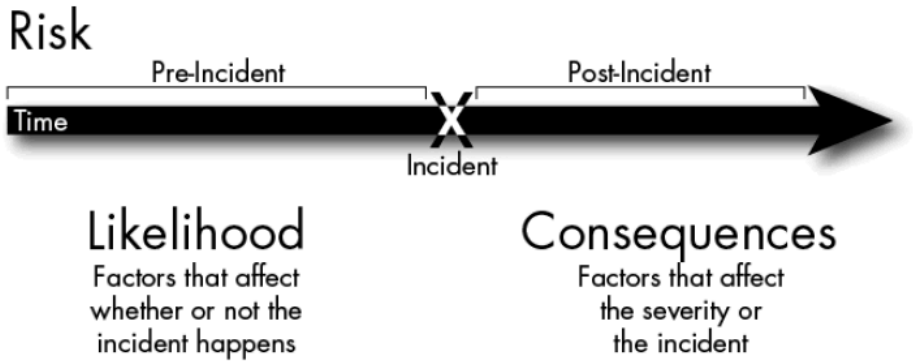
This year (7th anniversary), the theme for 2020 is **"The Role of Biosafety and Biosecurity in Mitigating Emerging Risk."** The goal of this initiative is to ensure that all biological labs have the essential skills, knowledge, and abilities required to evaluate and respond to any potential emerging risks.

To promote the concepts and practices of providing a safe work environment, biosafety encourages labs to:

- re-examine and re-evaluate the risk assessment portion of Biosafety plans
- organize and conduct lab exercises or drills that test the current risk assessment and staff understanding.

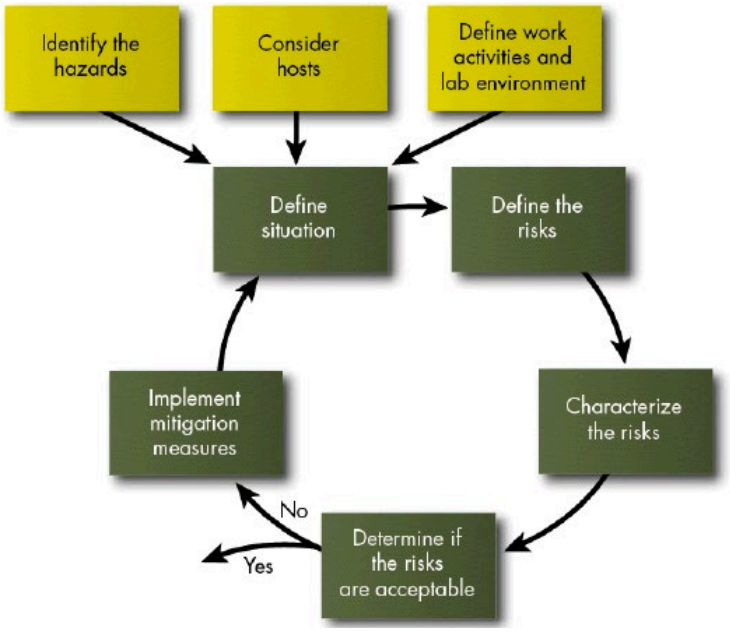
We use biosafety to ask:

- What can go wrong?
- How likely is it?
- What are the consequences?



{Likelihood and consequences of risk. The likelihood component of risk includes factors that affect whether or not the incident happens and occurs before the actual incident occurs; the consequences component of risk considers factors that affect the severity of an incident after it has occurred.}

Here is a handy flowchart model and explanation to follow for your risk assessments. This is the meat and potatoes of the newsletter. **I'm asking you to save it for your reference and risk assessment needs.**



{Biosafety Risk Assessment Process. Yellow boxes indicate biosafety specific steps of the risk assessment process; green boxes illustrate common steps shared between biosafety and biosecurity risk assessments.}

1. Define the situation
    - Identify the hazards
        - What can go wrong?
        - Determine the biological characteristics of each agent in order to determine how hazardous the agent is.
    - Consider hosts
        - Limited to laboratory staff or is there a wider host range?
    - Define the work activities and laboratory environment
        - Define and document the laboratory processes, including locations, procedures, and equipment used.
        - Identify procedures involving biological agents where there is the potential for the generation of aerosols, as well as those utilizing sharps.
        - Evaluate the concentration and volume of cultures or suspensions of biological agents.
2. Define the risks
    - Review of the possible exposure routes individuals inside and outside the laboratory may encounter if they come in contact with the hazard(s).

3. Characterize the risks
    - Hazard Assessment
        - Consider the biological properties of the hazard that would influence its potential (or likelihood) to cause an infection.
            - Identification of the routes of infection of the biological agent in the laboratory and the natural environment as well as the agent's infectious dose.
            - Review the properties of the disease(s) caused by the biological agent if an infection occurs or the consequences of the disease.
    - Host Assessment
        - Consider what may happen if individuals who have a medical condition or are susceptible to disease due to a weakened immune system come into contact with the biological agent.
        - Consider factors which might influence an individual's potential (or likelihood) of developing an infection, or would influence the potential (or likelihood) of the biological agent establishing a reservoir within the community (environment).
    - Work Activities and Laboratory Environment Assessment
        - Review the types of laboratory processes performed and identify any potential areas where an exposure to the hazard (biological agent) might occur.
        - Document the potential sources of an exposure separately from existing mitigation measures.
    - Overall Risk Characterization
        - To characterize the overall risk, the overall likelihood would need to be considered as well as the consequence of infection.
4. Determine if the risks are acceptable
    - Determine if the assessed risk is acceptable to the institution, individuals working in the institution, and the community.
5. Implement risk mitigation measures, as needed
    - The results of the risk assessment will allow an institution to determine the relative level of safety and security risks they face and help guide risk mitigation decisions so they are targeted to the most important risks.

All of this comes with this caveat, risk varies. The properties of the biological agent, the specific laboratory processes, and the severity of the consequences to a lab worker or to the environment all affect risk.

October is ending, and 2020 won't be over soon enough. But risk assessment is dynamic and our need for biosafety is with us every day.

Have a great week and be safe,

Bryan