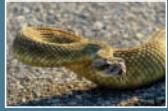


ROUX

Health & Safety News



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Improving Our Mental Health During COVID-19

By Shannon Boyle – Somerset, New Jersey

World Mental Health Day is October 10th, so let's take a moment to reflect and consider ways we can improve our mental health during COVID-19.

It is easy to fall into bad habits when you have been stuck at home for months;

but we must take steps to strengthen our mental health because our usual coping mechanisms may not be working anymore. We can't maintain a physical connection with our loved ones; we can't see a movie and get drinks comfortably; even grocery shopping is an event now. The ever-present fear of the virus and the uncertainty associated with it, compounded with a myriad of other disastrous events we have experienced this past year, are catalysts for mental illness.

Stress can physically and mentally manifest itself in ways that make your life difficult and make you unhappy, such as:

- Changes in sleep or eating patterns
- Difficulty sleeping or concentrating
- Worsening of chronic health problems
- Increased use of alcohol or other substances
- Excessive negative thoughts
- Withdrawing from others

Coping with lockdown burnout and stress is difficult, but there are actions we can take to make our circumstances a little easier. Below are some suggestions:

- Keep informed by listening to or reading information from trusted sources
- Reduce how much you absorb news that makes you anxious or distressed
 - Set a time limit for your scrolling or listening
- Keep a consistent sleep schedule and maintain personal hygiene
- Eat healthy meals
- Exercise regularly
 - Also consider practicing yoga, stretching, or following a guided meditation to reduce anxiety
- Avoid using alcohol or drugs to cope with fear, anxiety, boredom, and social isolation
- Go outside, get some fresh air, and practice 20-20-

20 (every 20 minutes look away from your screen at something 20 feet away for 20 seconds)

- Maintain a work/life balance and leave time for hobbies and activities that make you happy
 - Set a time where you log-off the VPN and close your laptop for the day
 - Consider using the Pomodoro Technique to keep yourself productive and focused while you tune-out home life (I have been using this method on and off for several years and find it incredibly useful. There are even playlists on Spotify to help with keeping time)
- Maintain social connections by phone, text, video chat, email, mail, carrier pigeon, etc.
 - Communicate with your coworkers! We are all navigating tricky home lives with tricky work lives. Do not be afraid to reach out to another parent in the office (or company) and share your frustrations with your kids' online learning. Do not be afraid to reach out to another staff member and share your concerns of working in the field during a pandemic. We are in this together.
- Help others and be kind ♥

If you still find yourself overwhelmed, do not hesitate to pursue professional help. Many providers offer phone or video counseling, so you can get the help you need without risking contraction of COVID-19. Consult your primary care provider, the National Institute of Mental Health, or countless other online resources.

If you or someone you know requires immediate help in a crisis:

- Call 911
- Disaster Distress Helpline
- 1-800-985-5990
- National Suicide Prevention Lifeline
- 1-800-273-TALK (8255)
- Lifeline Crisis Chat National Domestic Violence Hotline
- 1-800-799-7233 or text LOVEIS to 22522

Valley Fever

By Mark Nishibayashi – Long Beach, California

What is Valley Fever?

Valley Fever (also known as coccidioidomycosis) is a disease caused by a microscopic fungus known as *Coccidioides immitis*, which lives in the soil in certain areas of California and the southwestern United States. People and animals can get infected by the fungus if they inhale the fungal spores into their lungs. The fungus can inhabit the upper 2 to 12 inches of soil, and when soil is disturbed by activities, such as digging, grading, driving, or high winds, fungal spores can mobilize into the air where they can be inhaled.

The cocci spores grow best after heavy rainfall and disperse into the air during hot/dry conditions (late summer/fall).

Valley Fever is not contagious and cannot be spread from one person (or animal) to another.

Valley Fever Symptoms and Treatment

About 60% of people infected with Valley Fever show no symptoms at all; however, people who do get sick from the infection usually develop symptoms within 1 to 3 weeks after breathing in the fungus. Valley Fever generally infects the lungs, which can cause respiratory symptoms or pneumonia. Symptoms can include:

- Fatigue;
- Cough;
- Chest pain;
- Fever;
- Rash on upper body or legs;
- Headaches;
- Muscle or joint aches;
- Night sweats; and/or,
- Unexpected weight loss.

No vaccines exist to prevent Valley Fever, and there are no over-the-counter medications to treat Valley Fever. In most cases, people who do experience symptoms will get better on their own without any treatment within a few weeks to months. Some cases, generally for people at “higher risk,” require antifungal medication to be prescribed. In the rarest, and most severe cases, Valley Fever can spread from the lungs into other parts of the body, including the brain or other organs (also known as Disseminated Valley Fever). If this happens, the disease can be very serious, develop into meningitis, and become fatal. Each year in California, approximately 80 people die from Valley Fever, and over 1,000 people are hospitalized. People at higher risk of severe Valley Fever include older adults (+60 years old), African Americans and Filipinos, pregnant women, and people with diabetes or weakened immune systems.

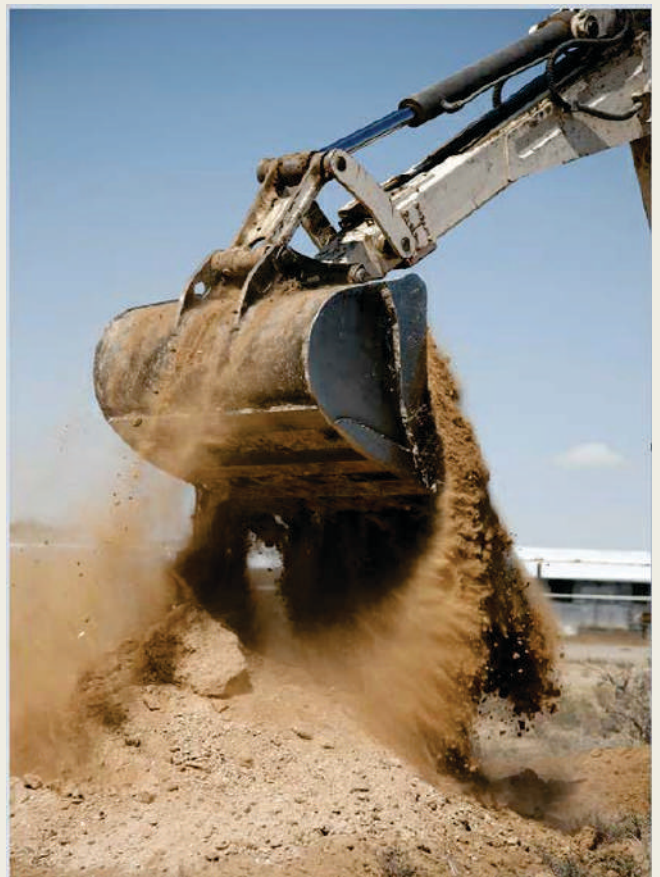
Protection from Valley Fever and Reducing Risk

There is no commercial test available to assess if the *Coccidioides* fungus is present in soil or dust in certain areas (or jobsites). Currently, the only soil testing for *Coccidioides* is being done for scientific research purposes only. Therefore, there is no way to evaluate if the fungus is present at a site prior to conducting earth-moving activities.

If you will be conducting soil disturbing activities in a region in which the fungus is endemic, there are several work practices that can be implemented to reduce the risk of infection:

- Minimizing soil disturbing activities;
- Using water or another stabilizer to reduce dust;
- Covering soil stockpiles;
- Utilizing an air-conditioned vehicle/equipment cabs and keeping windows closed;
- Suspending work during heavy winds;
- When exposure is unavoidable, using respiratory protection rated as N95 or greater; and,
- Decontaminating field equipment, tools, and clothing before transporting off-site.

Field personnel working in these regions should be trained on the risks of Valley Fever prior to the start of fieldwork.



Biological Hazards in Texas

By Dana Carstens – Texas

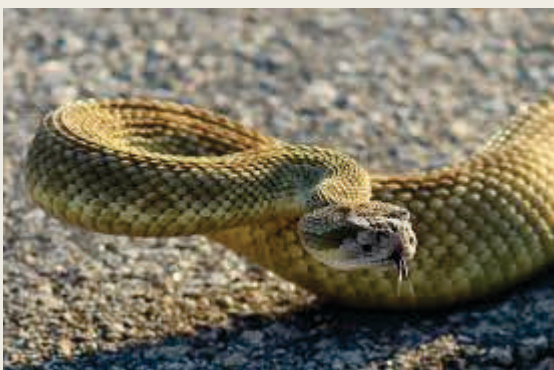
Biological hazards are organic substances that pose a threat to the health of humans and other living organisms. These hazards can include vector-borne diseases, venomous wildlife and insects, and poisonous plants. In Texas, we often work at sites that expose us to a variety of plants, animals, and insects that can potentially present significant health risks. Therefore, it's important we take special precautions to protect ourselves in the field. Staying vigilant and wearing proper personal protective equipment (PPE) are essential to mitigating biological hazards in the field. Below outlines a few types of venomous wildlife and poisonous plants commonly found in the Texas region.

Venomous Texas Snakes

Texas is home to 15 types of dangerous snake species or subspecies, including copperheads, cottonmouths, rattlesnakes, and coral snakes. Snakes don't generally attack unprovoked. With that being said, bites are usually a result of the snake being surprised. Because of this, it's important to take certain safety measures in the field if you know snakes might be present. For example, the monitoring wells at one of our sites in Texas are surrounded by tall grassy areas. Field personnel have reported that they frequently see rattlesnakes ranging from 4-5 feet long! To mitigate this, field personnel ensure the grass around the wells is mowed and that they don't traverse through areas where grass extends above their ankles. In addition, field personnel wear snake chaps as a last line of defense.

It's extremely important to apply proper first aid if you or someone else is bitten by a snake:

- Keep the victim as calm as possible – This can help to slow the spread of venom
- Prevent movement of the bitten area
- Remove restrictive clothing or jewelry in the area of a bite
- Wash the bite area with a disinfectant soap
- Cover the bite with a clean, dry dressing
- Seek medical attention as soon as possible
- **DO NOT** cut between the punctures, try to suck the venom out, apply a tourniquet, apply ice, or immerse the wound in water



If possible, try to identify the species of the snake. This could help with the medical treatment, but do not endanger yourself in the process.

Scorpions

Scorpions are arachnids—close relatives of ticks, mites, and spiders—and are prevalent across the entire state of Texas. Scorpions have a bulb-like poison gland, four pairs of legs, and two large piercer-bearing arms. They range in size from ½ inch to 7 ¼ inches long depending on the species. The most common species in Texas is the striped bark scorpion, *Centruroides vittatus*. In fact, I spotted this species inside a monitoring well while groundwater sampling last spring.

The sting of a scorpion may be painful or even deadly. However, only about 20-25 of the 1,500 species of scorpion species worldwide are considered dangerous. The stings from Texas scorpions produce only moderate reactions in most people because the poison has little effect on the nervous system. Severity of the sting is usually dependent on the individual and can worsen if there is an allergic reaction. If stung by a scorpion, an ice pack should be applied to the affected area. If swelling or pain persists or breathing difficulties occur, seek medical attention immediately.

Poisonous Plants

Poison ivy grows throughout every part of Texas, excluding the Western Panhandle. It has three-leaf clusters extending from a single stem. Contact with poison ivy can cause symptoms to appear within 12-36 hours after exposure, which typically manifests as a burning and itching rash over the affected area. Skin exposed to poison ivy should be washed as soon as possible with soap and lots of water. Hydrocortisone creams can also be applied.



The Texas Bullnettle is common throughout Texas and is a flowering plant that grows 1-3 feet tall. Flowers are white and consist of 5-7 petals. Contact with the plant can cause an intense pain, burning, itching, cellulitis, and potential allergic reaction. Use soap and water to clean affected parts of the skin and a cool compress to provide relief from the sting.

It's important to wear long pants and long sleeves any time you are working in a vegetated area. In addition, always make sure to thoroughly wash your hands and body at the end of the day if you think you have come in contact with any poisonous vegetation.

Lead Exposure in the Workplace

By Anthony Marsocci – Massachusetts

Every day in the environmental consulting and remediation industry, workers are potentially exposed to many contaminants during site operations. Inorganic and organic species of lead-based chemicals are some of the more commonly encountered substances, yet the risks to human health are often poorly understood.

Lead is one of the oldest known and most widely studied occupational and environmental toxins. Industrial lead production dates back at least 5,000 years to the Roman times. More recently, the use of organic lead-based compounds as fuel additives have been responsible for a myriad of health issues and deaths, beginning in the early 20th century.

The National Institute for Occupational Safety and Health (NIOSH) estimates that there are between 1.6 million to more than 3 million workers in the United States who are potentially exposed to lead in the workplace each year. Respiratory lead absorption is the most likely pathway to exposure and is dependent on particle size; ingestion and dermal absorption are also quite common. The potential acute and chronic health effects of both organic and inorganic lead can be quite serious, even when dealing with relatively low concentrations. Lead in large quantities is highly poisonous and affects almost every organ in the body. Adults inhaling or consuming lead can suffer cardiovascular problems, weakened kidneys, and fertility problems in both men and women.

Mineral deposits and other inorganic forms of lead do not readily dissipate, nor are they biodegradable. Inorganic lead can be found in manufacturing and construction settings. Inorganic lead is commonly encountered by disturbing existing building materials, such as sanding items coated with lead paint. It has also been known to be caused by working with lead-containing water pipes in old residential and municipal systems.

Organic lead compounds are generally associated with historical gasoline additives and as stabilizers for plastics and lead soaps. Organic lead compounds can cross the dermal barrier and respiratory tract quickly and easily, acting as a central nervous system toxin that produces an acute psychosis.

There are, however, several engineering, administrative, and personal protective equipment controls that can be implemented to mitigate lead hazards to ensure worker safety, such as:

- Isolating the exposure source and providing exhaust ventilation;
- Good housekeeping;
- Washing hands before eating, drinking, or smoking;
- Limiting the amount of time that a worker is potentially exposed;
- Respiratory protection and specialized clothing.

Generally, it is also good practice to ensure that building materials and disturbed soil be maintained in a moist condition to preclude or minimize the airborne migration of lead. Real-time continuous air monitoring of dust levels is then necessary to verify that such soil wetting measures adequately mitigate airborne dust generation.

The most commonly used method for assessing worker exposure in the workplace is the collection of air samples within the breathing zone using personal air pumps and a cellulose collection filter, which is subsequently sent to an accredited lab. These lab samples can be time-consuming and costly, and do not provide real-time information at an active remediation site.

Alternately, there are several field-portable techniques that allow for rapid assessments of hazardous environments, which can gauge inorganic lead levels in a matter of minutes or hours. These tests are not able to give an exact quantitative measurement of lead exposure, but can be used as a pass/fail qualitative indicator of personal exposure levels:

- Colorimetric lead spot tests using NIOSH Method 7700
- Portable X-ray fluorescence (XRF) using NIOSH Method 7702
- Portable anodic stripping voltammetry (ASV) using NIOSH Method 7701

There are currently no commercially available field screening tests to determine the levels of organic lead compounds in the breathing zone. In the absence of alternative solutions, Roux's Greenpoint team (in the early 90s) developed a proxy method for field screening of organic lead in the breathing zone. Using a series of complex calculations, they were able to determine a field screening PID value that was conservatively protective of organic lead exposure based on the fraction of tetraethyl lead emission rates to total VOC levels in a worst-case assumption model. Similar calculations, based upon expected or known lead levels in the subsurface, could be used on other projects to determine site-specific threshold levels that are protective of worker health.