

Working Well

A HEALTH AND SAFETY INFORMATION PUBLICATION

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Working Well

Welcome to the summer 2019 edition of *Working Well!* I'm sure most of us have known someone or have had an experience with heart attacks, strokes or diabetes. Unfortunately, these diseases are prevalent in Western society, and a medical event can occur at any time in the workplace. "Recognizing the Signs and Symptoms of Heart Attack, Stroke and Diabetes" identifies risks and symptoms of these diseases and emphasizes early recognition and response to affect a positive outcome in an emergent situation.

"New Rule for Insulin-Treated Diabetes Mellitus" outlines the new Federal Motor Carrier Safety Administration rule governing insulin-treated diabetes. The new rule allows for commercial drivers who have good control of their insulin-treated diabetes to be medically certified within the parameters of the rule. This practice will alleviate any further need for insulin-treated diabetes waivers or exemptions.

The "Workplace Violence" article discusses the four categories of workplace violence and the need for employers to assess and develop a comprehensive policy to address all forms of violence in the workplace.

"Silica Standard" is the fourth article and explains the Occupational Safety and Health Administration's final rule for Occupational Exposure to Respirable Crystalline Silica. Respirable crystalline silica can cause significant respiratory disease and medical surveillance is an integral part of the final rule.

Finally, tuberculosis is a public health disease that can be a factor in the workplace. Familiarity with the terminology, disease and health department protocol may help calm the fears of potential workplace exposure for employees.

It will be another hot summer in the Midlands of South Carolina. Review and yield to the symptoms of heat illness and dehydration. Stay cool and well-hydrated. I hope the information presented in this issue benefits you. Your comments and suggestions are welcomed.

Thanks for your support!

— Dana Rawl, MD, MPH

Recognizing the Signs and Symptoms of Heart Attack, Stroke and Diabetes

By Dana Rawl, MD, MPH

Recently, I was asked to present information on signs and symptoms of heart attack, stroke and diabetes that could occur in the workplace. Timely recognition of these maladies and an appropriate response could save someone's life.

Heart Attack

Basic anatomy of the heart shows the coronary arteries supplying blood and oxygen to the heart muscle (myocardium). With coronary artery disease, the coronary arteries begin to occlude from plaque formation and, as the plaques enlarge, the blood flow to the myocardium decreases. At some point, the blood flow cannot adequately supply the heart muscle with enough oxygen and the person will experience chest pain (angina). It can occur at exercise or at rest. If the blood flow is completely occluded from a blood clot or ruptured plaque, the heart muscle becomes damaged, which causes a heart attack (myocardial infarction).

Multiple risk factors affect plaque formation in the arteries of the body including the coronary arteries. Risk factors such as smoking, sedentary activity, obesity, anxiety, diabetes and hypertension can be modified with life changes or treatment, whereas other risk factors like gender, age and family history are not.

Symptoms of angina or a heart attack usually include chest pain in the front of the chest that is described as tightness, severe pressure or a sense of fullness or indigestion. The pain can radiate into the back, either shoulder, the jaw or the arms. There is usually shortness of breath, sweating and nausea. The person may experience extreme fatigue. Lightheadedness or fainting may occur. Women or people with diabetes may experience atypical symptoms and complain of uncommon fatigue, shortness of breath or an unusual sense of pain not classic for anterior chest pain.

The first step is recognizing the symptoms of a heart attack early and calling 9-1-1 to alert the emergency medical system. Call for help and have someone bring an automated external defibrillator to your location. Position the AED on the person's chest and follow commands. Monitor the person's pulse and breathing. Begin cardiopulmonary resuscitation if needed. Stay with the person until EMS personnel arrive. If the person has not lost consciousness and is alert and not



allergic to aspirin, a regular 325mg aspirin may be chewed and swallowed to help reduce further clot formation.

Stroke

Stroke is a loss of blood supply to any part of the brain. There are two stroke classifications: ischemic and hemorrhagic.

An ischemic stroke is the most common and involves a blocked artery to brain tissue. It can occur from an embolism (usually a blood clot that moves to an area) or a thrombosis (a blood clot that forms from a plaque or injury).

A hemorrhagic stroke occurs when there is a bleed in the brain from a ruptured artery from high blood pressure, a ruptured aneurysm or a bleed from head trauma, or other cause.

A temporary loss of blood to brain tissue results in a transient ischemic attack that can be a sign of stroke in the future.

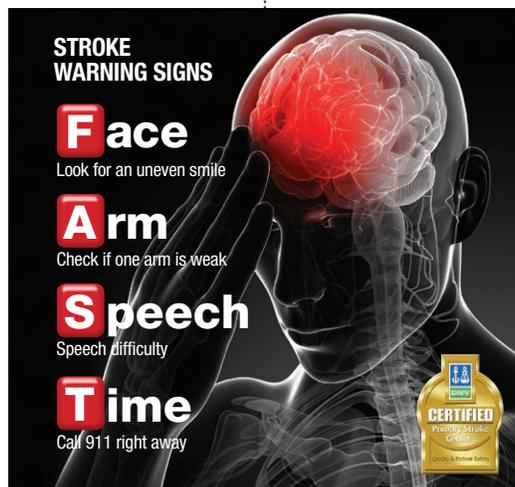
Risk factors for stroke include smoking; hypertension; diabetes; heart disease, such as atrial fibrillation; obesity;

some medications, such as blood thinners or estrogen; and previous history of stroke or transient ischemic attack. Other risk factors include being African-American or Hispanic or having sickle cell disease.

A stroke can manifest itself in many ways. Symptoms vary depending on what area of the brain is involved. Most commonly, the symptoms are sudden in onset and can include numbness or weakness in the face, arm, leg or one side of the body; confusion; difficulty speaking or understanding words; vision changes in one or both eyes; and dizziness, trouble walking and loss of balance or coordination. The person may or may not experience a headache, but a sudden severe headache could be a symptom of a hemorrhagic stroke.

Learn to think F.A.S.T. to recognize symptoms of a stroke. “F” is for Face. Ask the person to smile. Does one side of the face droop? “A” is for Arms. Have the person raise both arms. Does one arm drift down? “S” is for Speech. Ask the person to repeat a simple phrase. Is the speech slurred? “T” is for Time. Call 9-1-1 for help. A stroke is an emergency!

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Recognizing the Signs and Symptoms of Heart Attack, Stroke and Diabetes

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Recognize the symptoms and signs of a stroke FAST. Do not delay. Call 9-1-1 immediately to initiate the emergency medical system. Do not let the person drive. Stay with the person until EMS personnel arrive. Note the time the person began having symptoms. This information is important for proper treatment in the emergency department. Time lost is brain lost!

Diabetes

Diabetes is a metabolic condition that causes chronic high blood sugar, or glucose. Blood glucose is a vital source of cell energy for the body. Insulin must be available to allow glucose into the cells.

Type 1 diabetes is a condition where the pancreas does not produce insulin or not enough insulin for glucose to enter the cells. Type 2 diabetes is a condition where the insulin receptors on the cells are resistant to insulin and more insulin is needed to overcome the resistance, allowing glucose into the cells. People with type 1 diabetes require insulin for treatment and may be more “brittle” or variable with blood sugar control; whereas, people with type 2 diabetes use medications to stimulate their pancreas to produce more insulin.

Risk factors for type 1 diabetes normally include family history, although environmental factors such as a viral illness

can affect the pancreas and cause loss of insulin production. Type 2 diabetes risk factors include obesity, inactivity and family history.

People with either type of diabetes can have the following symptoms: increased thirst; frequent urination; increased hunger; unexplained weight loss (more common in type 1 diabetes); fatigue; blurred vision; irritability; frequent infections; or slow-healing wounds. Most people who have already been diagnosed with diabetes are familiar with their symptoms from high blood sugar or low blood sugar and can ask for help before a serious event occurs.

Significantly high or low blood sugar can be life threatening. Fatigue, lethargy, agitation, sweating, confusion, loss of consciousness and coma can indicate an emergent blood sugar condition. Dangerously low blood sugar is more of an imminent threat and dictates immediate treatment with glucose. If the person is alert, drinking a sugary drink or eating a candy bar can rapidly increase glucose levels and alleviate symptoms. If the person is semi-conscious or unable to eat or drink, emergency treatment with intravenous glucose is warranted. Call 9-1-1 and have EMS transport to the emergency department.

Recognition of a medical condition is the first step in the initiation of early and emergent treatment. Emphasize workplace situational awareness and encourage a buddy-check system among co-workers. It is an essential part of preparation, education and action for a safe and healthy workplace. 🌱

Tests to help you lead a healthy lifestyle

- **Blood pressure**—Get yours checked every time you visit a doctor, starting at age 20.
- **Cholesterol**—Get yours checked every five years, starting at age 20. Get your cholesterol checked more often if you meet these criteria:
 - if your total cholesterol is greater than 200
 - if your HDL is less than 50
 - if you have other risk factors for heart disease
- **Weight/Body Mass Index (BMI)**—Get yours checked every time you visit a doctor, starting at age 20.
- **Waist circumference**—Get yours measured as needed

KNOW YOUR NUMBERS

Your Goals Should Be:

BLOOD PRESSURE:

Optimal at 120/80
and no higher than 140/90

TOTAL CHOLESTEROL:

Less than 200

LDL CHOLESTEROL:

Less than 100 or
Less than 70
if you have other risk factors

HDL CHOLESTEROL:

More than 60 optimal
Less than 50 a risk for women
Less than 40 a risk for men

TRIGLYCERIDES:

Less than 150
(more important for women)

BLOOD GLUCOSE:

Less than 100 for fasting value

BODY MASS INDEX (BMI):

Less than 25 for women & men

WAIST CIRCUMFERENCE:

Less than 35" for women
Less than 40" for men

DAILY EXERCISE:

More than 30 minutes is ideal,
but you should strive for at least 20 min.

DAILY RELAXATION EXERCISE:

More than 30 minutes

CIGARETTES PER DAY:

Zero and no secondhand smoke

New Rule for Insulin-Treated Diabetes Mellitus

By Dana Rawl, MD, MPH

The Federal Motor Carrier Safety Administration passed the new rule for insulin-treated diabetes mellitus on September 19, 2018, with an effective date on November 19, 2018.

The new rule qualifies individuals with a stable insulin regime and properly controlled ITDM to operate commercial motor vehicles in interstate commerce as long as they meet the physical qualification standards: CFR 391.41; 391.45; and 391.46. The rule will eliminate the diabetes grandfather provision under CFR 391.64(a) by November 19, 2019, and will eliminate the need for the diabetes exemption program currently involving about 5,000 commercial drivers.

Under the new rule, individuals with ITDM must have an evaluation by their treating clinician defined as the health care professional who manages and prescribes insulin for the treatment of diabetes as authorized by the state licensing authority. The treating clinician completes form MCSA-5870, known as the ITDM Assessment Form. This form provides information to the certified commercial driver medical examiner and includes an attestation from the treating clinician that the individual maintains a stable insulin regime and proper control of his or her diabetes. The medical examiner must receive the completed MCSA-5870, signed and dated by the treating clinician, no more than 45 days before the commercial driver medical examination and any subsequent commercial driver examination.

With receipt of the completed MCSA-5870, the medical examiner can perform the commercial driver medical examination, consider the treating clinician-provided information, and determine whether the individual meets FMCSA's physical standards to operate a commercial motor vehicle safely. The medical examiner may issue a medical examiner's certificate, MCSA-5876, for up to a maximum of 12 months. The individual must provide the treating clinician with at least three preceding months of blood glucose self-monitoring records while being treated with insulin to be eligible for a 12-month medical examiner's certificate. If there is no three-month record of blood glucose monitoring, the medical examiner may provide no more than a three-month medical examiner's certificate to allow time for the individual to accumulate data.



The new rule provides for individuals who have a severe hypoglycemic episode, defined as requiring assistance of others or resulting in loss of consciousness, seizure or coma. If the individual experiences a severe hypoglycemic episode, he or she is prohibited from operating a commercial vehicle. The episode must be reported to the treating clinician. The individual will continue to be prohibited from commercial driving until the treating clinician evaluates the individual, assesses cause and stabilizes the individual's ITDM treatment. Once the treating clinician completes a new MCSA-5870, following the hypoglycemic episode, the individual may resume commercial driving operations. This MCSA-5870 should be given to the medical examiner at the time of the next commercial driver medical examination to document the hypoglycemic episode.

A copy of the final rule can be found here: <https://www.federalregister.gov/documents/2018/09/19/2018-20161/qualifications-of-drivers-diabetes-standard>. 🌐

Workplace Violence

By Dana Rawl, MD, MPH

Workplace violence is defined as any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior ranging from verbal abuse to physical assault that occurs at work or on duty. Resulting injuries range from psychological issues to physical injury or even death. In 2017, according to the National Safety Council, there were 4,414 preventable fatal work injuries plus an additional 733 homicides and suicides in the workplace in the United States.

There are nearly 2 million reports of workplace violence each year, but many cases go unreported. Risk factors for violence in the workplace are greater for workers who exchange money with the public and those who work with volatile, unstable people. Workers who work alone or in isolation or late at night or where alcohol is served are also at a higher risk of workplace violence. Some of these high-risk jobs include convenience store workers, taxi drivers, delivery drivers, health care professionals, public service workers and law enforcement personnel. The greatest risk for nonfatal violence resulting in lost work days is in health care and social work.

Workplace violence falls into four categories: criminal intent; customer/client; worker-on-worker; and personal relationship. Criminal intent is usually violence by a stranger during the commission of a crime. Customer/client violence is exemplified by an attack from a client or a customer on a worker providing some service and is frequently seen in the health care industry. Worker-on-worker violence involves assault between co-workers. Personal relationship violence occurs in the workplace and overwhelmingly targets women.

Under the Occupational Safety and Health Act general clause, employers are responsible for providing a safe and healthy workplace for their employees. As such, employers should develop a comprehensive workplace violence policy that covers all workers, as well as patients, clients, visitors,



contractors and any other person in contact with company personnel. An initial assessment of risk factors should be identified and addressed to prevent or mitigate potential violence hazards. Engineering controls, administrative controls and employee training can reduce workplace violence risk. A zero-tolerance policy toward workplace violence should be adopted, taught and implemented with any claims promptly investigated and remedied. In addition, an emergency action plan and mock training exercises with local law enforcement reinforces education, training and appropriate response, and may improve survivability.

Every organization needs to address workplace violence and be prepared with a well-written, comprehensive policy to address all four categories of workplace violence. The policy can be a separate violence prevention program or incorporated into a safety and health program, but it should be a focus for company executives and a critical education and training component for all employees. 🔄

References

Workplace Violence <https://www.osha.gov/SLTC/workplaceviolence/>

Occupational Violence <https://www.cdc.gov/niosh/topics/violence/>

Is Your Workplace Prone to Violence? <https://www.nsc.org/work-safety/safety-topics/workplace-violence>

Silica Standard

By Dana Rawl, MD, MPH

Silica is a naturally occurring mineral found as two types: crystalline silica and amorphous or non-crystalline silica. Quartz is the most common form of crystalline silica and composes up to 95 percent of all sand and silt fractions in soil. Exposure to crystalline silica commonly occurs from fine dust produced from drilling, cutting, chipping, breaking, sawing or polishing materials containing crystalline silica.

Construction work, granite or stone cutting, sandblasting and mining are industries that can expose workers to respirable crystalline silica, the crystalline silica dust that reaches the lower lung. Chronic respirable crystalline silica has been known to cause severe lung disease such as silicosis, lung cancer, kidney disease, autoimmune diseases and chronic obstructive pulmonary disease, and causes an increase risk in developing pulmonary tuberculosis. About 2.3 million people in the U.S. are exposed to crystalline silica at work.

The Occupational Safety and Health Administration's Final Rule for Occupational Exposure to Respirable Crystalline Silica took effect June 23, 2018. The new respirable crystalline silica standard has established an eight-hour time-weighted average permissible exposure limit of 50µg/m³ with an action level of 25µg/m³.

OSHA provides two silica standards: one for construction and one for general industry and maritime. Both must offer medical surveillance examinations as follows: the construction standard includes chest X-ray and lung function testing every three years for workers who are required to wear a respirator for

30 or more days per year. The general industry and maritime standards include chest X-ray and lung function testing every three years for workers exposed at or above the action level for 30 or more days per year starting June 23, 2020. (The medical surveillance must be offered to workers who will be exposed above the permissible exposure limit for 30 or more days a year starting on June 23, 2018.)

The new rule requires the employee to sign an authorization for the crystalline silica medical opinion to be available to the employer. It was noted during public hearings that employees may not want the employer to know the results of the silica medical examination for fear of being terminated or not getting the job. If the employee does not complete and sign this authorization, the employer will not be given information regarding identified conditions related to silica exposure and will not be responsible to provide specialist referral for the employee.

As with all workplace hazards, the National Institute for Occupational Safety and Health encourages using mitigation strategies to control exposure. These strategies include elimination, substitution, engineering controls, administrative controls and personal protective equipment. Eliminating crystalline silica or substituting non-crystalline silica materials would be the most effective way to reduce crystalline silica exposure risk. Two engineering controls for reducing respirable silica include the use of vacuum collectors on tools and applying a wetting process to reduce dust. Limiting the time workers are exposed to respirable silica or restricting access to areas of exposure would be administrative controls. Using PPE would be the least desirable mitigation tactic for exposure control and



Wetting process involves using water or a foam to keep dust down and out of the air.

would include proper respirator wear, protective clothing and eye protection.

Several resident public health physicians at the University of South Carolina School of Medicine contributed information for this article. Thank you to Drs. Blair Chance, Catherine Brett, and Stephanie Lee. ☺

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<https://www.osha.gov/laws-regs/regulations/standardnumber/1926>
Construction Industry (29 CFR 1926)
1926 Subpart Z, Toxic and Hazardous Substances

- 1926.1153. Respirable Crystalline Silica
- Appendix A, Methods of Sample Analysis
- Appendix B, Medical Surveillance Guidelines

<https://www.osha.gov/laws-regs/regulations/standardnumber/1910>
General Industry and Maritime Standard (29 CFR 1910)
1910.1053, Respirable Crystalline Silica

- Appendix A, Methods of Sample Analysis
- Appendix B, Medical Surveillance Guidelines

Tuberculosis

By Dana Rawl, MD, MPH

Tuberculosis is a seemingly ancient disease that terrified people because it was infectious, deadly and incurable. People were isolated to sanitariums to reduce public exposure. In the post-World War II era, strides were made in TB screening and treatment to the point where the disease was reduced as a major public health threat. Currently, TB is becoming more of a concern as immunocompromised persons or those with silicosis are more susceptible to the disease, and resistant strains of TB have emerged.

The probability of an employer encountering TB in the workplace is considerable. Understanding the facets of the disease, when it is infectious, and the public health department response may help alleviate questions and fears if an employee is identified with TB.

An employee may tell his or her employer that he or she has a positive skin test or blood test for TB. It means the employee has been exposed to TB

and has the bacteria in his or her body, but the employee is not infectious. He or she has “latent TB” and will probably need to be treated to prevent him or her from developing TB disease in the future. TB disease occurs when TB bacteria become active and cause a respiratory illness. Chest X-rays and/or sputum samples usually diagnosis TB disease. Only those with TB disease are infectious.

Medical providers are mandated to identify people who develop TB disease to the county health department. The health department will proactively approach the employer and conduct a contact survey to identify potentially exposed co-workers. They will also meet with employees to answer questions and reduce anxiety of potential exposure.

No matter how an employee with TB is identified to an employer (e.g., from the employee, a co-worker, the health department), the employer should request the employee provide a note from his or her provider regarding the employee’s work status. The medical provider report should assure that the employee can perform the essential functions of the job, with or without



accommodation, and that the employee does not pose a direct threat to the safety of others. ☺

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