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The summer 2016 edition of *Working Well* provides some insight and protective information on the current Zika virus outbreak. Dr. Tomarchio is a preventive medicine resident with the University of South Carolina School of Medicine who is interested in occupational medicine as a career. Dr. Kacka, also a preventive medicine resident with the USC School of Medicine, submitted an excellent article on occupational injury and prevention that should be of interest to all safety managers. His goal is to continue in epidemiology after his residency. We wish both of them good luck and great success for the future.

The “Fitness-for-Duty” article may help Human Resources departments cypher when and how to request a fitness-for-duty evaluation. The “Sun Exposure” article emphasizes skin cancer identification and prevention, which is sometimes overlooked by employers and safety managers. The “Nurse Practitioner Pearls” for this edition brings to light what techniques may help smokers in their quest to stop smoking.

We enjoy presenting this publication and hope it provides usable information that can be shared in the workplace and at home. If you would like to hear more about a subject, please let us know. Or, if you have an interesting safety tip or occupational health issue that you would like to share with other employers, we can present it in this format anonymously. The goal is to learn and share information for a better workplace. Thank you!

— Dana Rawl, MD, MPH



What's Up with Zika Virus?

By Branham Tomarchio, MD

Zika virus is a human virus transmitted to people by the bite of infected mosquitoes. Most people who become infected with Zika virus have no symptoms; however, up to 20 percent of those infected by the Zika virus may experience mild symptoms, including sudden onset low-grade fever, rash, joint aches typically in the hands and feet, and conjunctivitis or red eyes.

Zika virus has been associated with a number of babies born with microcephaly in Brazil. Additional investigations are currently underway to further explore this possible link. People infected with Zika virus may have a small chance of developing a neurological condition called Guillain-Barré syndrome as a result of their infection with the virus.

Transmission of Zika virus in humans primarily occurs after the bite of an infected mosquito of the *Aedes* genus. The *Aedes aegyptus* mosquito is the primary vector of Zika virus and lives only in tropical regions, including South and Central America. The *Aedes albopictus* mosquito is also capable of carrying and transmitting the virus. This genus of mosquito thrives in temperate climates, including South Carolina. *Aedes* mosquitoes breed in standing water and bite primarily during the daytime and twilight hours. These

Only one in five people infected with Zika virus become ill. Humans rarely die from Zika virus infection.

mosquitoes are also known to transmit other human viruses, such as Dengue and Chikungunya viruses. Although Zika virus is expected to spread along the geographical distribution of the *Aedes aegyptus* and *albopictus* mosquitoes, a similar spread of Dengue virus and Chikungunya has occurred at a slow pace.

Zika virus is primarily a clinical diagnosis, although laboratory testing is also used to confirm human infection. Only one in five people infected with Zika virus become ill. If symptoms become apparent, they are usually mild and may include fever, rash, joint pain, red eyes, muscle aches or headache. Humans rarely die from Zika virus infection. Physicians may suspect Zika virus infection if a person has recently traveled to a region of the world where new cases of endemic transmission of Zika virus is known to be occurring, and if he or she has clinical symptoms consistent with Zika virus infection.

The best way to protect yourself from Zika virus infection is to avoid contact with infected mosquitoes in areas where Zika virus is known to be present. Travelers to areas of the world, such as Brazil, Colombia, Southeast Asia or Africa, currently experiencing outbreaks of Zika virus should take standard precautions to avoid mosquito bites. DEET is the preferred repellent against mosquitoes and should be applied to exposed areas of the skin before going outdoors. Mosquito nets provide protection to those who may be sleeping outdoors. Pregnant women or women who plan to become pregnant should avoid travel to areas of the world that are experiencing outbreaks of Zika virus. Travelers returning to the United States concerned about Zika virus exposure should consult with their personal physician to consider the advantages and disadvantages of being tested for the virus.

Update

As of June 30, 2016, in the United States and District of Columbia, 320 pregnant women have reported lab evidence of Zika virus infection. There have been seven live births and five pregnancy losses with birth defects, including microcephaly. ☞

References:

Centers for Disease Control and Prevention. *Emergency Preparedness and Response: Recognizing, Managing, and Reporting Zika Virus Infections in Travelers Returning from Central America, South America, the Caribbean, and Mexico*. <http://emergency.cdc.gov/han/han00385.asp> (Accessed on January 18, 2016).

Petersen EE, Staples JE, Meaney-Delman D, et al. Interim *Guidelines for Pregnant Women During a Zika Virus Outbreak*. United States, 2016. *MMWR Morb Mortal Wkly Rep* 2016; 65:30.

European Centre for Disease Prevention and Control. *Rapid Risk Assessment: Zika Virus Disease Epidemic: Potential Association with Microcephaly and Guillain-Barré Syndrome* (first update), 21 January 2016. ECDC, Stockholm 2016. https://c2.staticflickr.com/6/5007/5372378066_35ff19593b_b.jpg

Prevention

Take precautions when in areas where Zika virus and other diseases may be spread by mosquitoes:

- ▶ Wear long-sleeved shirts and long pants.
- ▶ Stay indoors with window and door screens.
- ▶ Take steps to control mosquitoes by using outdoor insect spray, emptying anything that can hold water and sealing water storage containers.
- ▶ Use mosquito netting if necessary.
- ▶ Use insect repellent. (Apply sunscreen before insect repellent.)
- ▶ Treat clothing with permethrin, but don't use it directly on the skin.
- ▶ Travelers returning to the United States from known Zika-endemic areas should continue to take steps to prevent mosquito bites for three weeks to help prevent passing Zika to uninfected mosquitoes.

Fitness-for-Duty Evaluations

By Dana Rawl, MD, MPH

A fitness-for-duty evaluation (FFDE) is a medical evaluation that determines a person's physical, mental and/or emotional ability to safely perform the essential functions of a specified job without posing a direct threat of injury or harm to oneself, his or her co-workers or the general public.

Not only does an employer have an Occupational Safety and Health Administration requirement to provide a safe workplace environment, but there is a moral obligation to protect the employee, his or her co-workers and the general public. By ensuring that an employee can safely perform the essential duties of the assigned job, the employer can reduce injury risk for the employee and, thereby, his or her co-workers and the public.

When can an employer question an employee about his or her medical ability to work an assigned job? There are multiple laws that govern the ability of an employer to direct a medical examination or inquiry. These laws are derived from the Americans with Disabilities Act, Family Medical Leave Act, Genetic Information Nondiscrimination Act, Equal Employment Opportunity Commission, Department of Transportation, Health Insurance Portability and Accountability Act and workers' compensation regulations.

The Americans with Disability Act bases medical examination on the timing through the employment process. The Equal Employment Opportunity Commission defines medical examination as any procedure or test that seeks information regarding physical or mental impairments or health.

During the "pre-offer" stage, the ADA prohibits all medical- and disability-related inquiries and medical examinations regardless of whether or not the inquiry is job related. At the "post-offer" stage, medical/disability inquiries and medical examinations are allowed if all non-medical components of the hiring process have been completed and if the same applies to all hires in the same job category. The job offer can then be conditional on successful completion of the medical examination.

After the person has been hired, at the "employee" stage, medical/disability inquiries and medical examinations must only be "job related and consistent with business necessity." There needs to be a reasonable belief based on objective

evidence that the ability to perform the essential job functions will be impaired by the medical condition, or that the employee poses a direct threat to self or others due to the medical condition. For example, if a crane operator complains of dizziness to a co-worker and is observed stumbling when walking, the employer may request a FFDE relative to his or her safe operation of the crane. The employer may not inquire about any other medical condition not related to the employee's ability to safely operate the crane. In other words, the employer is only entitled to information necessary to determine if the employee can perform the essential functions of the job without posing a direct threat. The employer is not entitled to the entire medical record.

What if the FFDE screens out a post-offer applicant or a current employee? The employer must show that the rejection was job related and consistent with business necessity. The employer must also show an inability to provide reasonable accommodation that would permit the worker to perform the essential functions of the job. If the rejection is due to safety concerns, the employer must show there is a direct threat relative to the medical condition, and the risk of substantial harm cannot be reduced through reasonable accommodation.

If a job applicant requests accommodation for his or her job, the employer may ask the applicant to provide medical information to verify that he or she has a legitimate disability that needs accommodation. This requirement would also hold true if the request is from a current employee. If the information from the worker's provider is incomplete or too vague to make a determination about disability, the employer may request a FFDE with a provider of its choice at the employer's expense.

What if the employee returns from leave for a medical condition? [See 29 CFR 825.312, Fitness-for-duty certification.] FMLA directs that there should be a uniformly applied company policy that requires all similarly situated employees to obtain a certification to return-to-work from



An employer is only entitled to information necessary to determine if the employee can perform essential functions of the job without posing a direct threat and is NOT entitled to the entire medical record.

their health care provider. The employer must first advise the employee in the Designation Notice for FMLA that a return-to-work certification must be presented before returning to work. Also, if the employer wants the essential job functions to be addressed in the return-to-work certification, the essential functions must be given to the employee at the Designation Notice for the health care provider to review and comment. The employer may contact the health care provider for clarification of the return-to-work certification. As per the EEOC, in this instance, the employer may make disability-related inquiries or ask for FFDE when the employer has reasonable belief that employee's present ability to perform the essential functions of the job will be impaired by the medical condition, or there is reasonable belief based on objective evidence that the employee will pose a direct threat.

At the end of an FFDE, the employer should receive one of the following results: fit-for-duty without restrictions; fit-for-duty with accommodations that would enable the employee to perform the essential functions; or unfit and there are no accommodations that would enable the employee to perform the essential functions of the job. There are many nuances within these laws that will test the patience of the employer and the employee. Having a good knowledge base and consulting with your employment attorney are steps to help

navigate these issues. Here are other suggestions to enhance your FFDE program:

Have a written Fit-for-Duty policy.

- ▶ Maintain updated and accurate job descriptions with essential functions of jobs.
- ▶ Maintain confidentiality of employee medical information.
- ▶ Match employees' physical and mental capabilities to essential job functions.
- ▶ Accommodate when possible.
- ▶ Partner with an occupational health provider. 🌿

References:

Fitness-for-Duty: Walking the Medical-Legal Tightrope; K.D. Anger, S.D. Mabee, Summit Law Group; AWC Labor Relations Institute, May 2013.

"Enforcement Guidance: Disability-Related Inquiries and Medical Examinations of Employees Under the Americans with Disabilities Act (ADA)." <http://www.eeoc.gov/policy/docs/guidance-inquiries.html>

29 CFR 825.312 Fitness-for-Duty Certification.

Occupational Injury and Injury Prevention

By Michael J. Kacka, MD

Workplace injuries are one of the biggest contributors to preventable worker absenteeism. The U.S. Bureau of Labor Statistics (BLS) reports that there were nearly 3 million reported cases of a workplace injury in 2014.¹ About a third of occupational injuries are evaluated in an emergency department, and about 150,000 of those workers require admission to a hospital.^{2,3} Almost a third of non-fatal injuries resulted in missed work, and the median number of missed days is nine.¹

There were 4,821 fatal injuries in 2014.¹ The cost of occupational injuries in the U.S. due to medical care and lost work is estimated at \$192 billion each year.³ It should be noted as well, that many of these numbers underestimate the true toll of occupational injuries because they rely on employer reports to the Occupational Safety and Health Administration (OSHA). Injuries to those self-employed or working on small farms are not included, nor are any injuries not officially reported.²

An injury is defined as damage to tissue resulting from a transfer of energy.⁴ That energy could come in the form of impacts, heat, electricity or toxic substances. It could also result from the absence of an essential energy such as heat in hypothermia or oxygen in hypoxia. The BLS defines an occupationally related traumatic injury as this type of transfer of energy resulting from a specific event during a single shift or workday. An acute poisoning from inhalation of chlorine gas would meet this definition, but mesothelioma resulting from many years of asbestos exposure would not be classified as an occupational injury. Similarly, a myocardial infarction (heart attack) or stroke would be classified as an illness, not an injury, even if one's occupation contributed to the condition.

The major causes of fatal workplace injuries overall are transportation incidents, contact with equipment (struck with a falling object or caught in machinery) and violence.² Motor vehicle collisions and violence represent major causes of premature loss of life both within and outside the workplace. Based on data from 2004, the three most common non-fatal injuries overall were musculoskeletal sprains and strains, cut injuries such as lacerations or amputations, and impact injuries such as contusions or abrasions.² Overall, these non-fatal injuries are most likely to occur from contact with equipment,

falls or body reactions to environmental stress.² While it is helpful to understand which occur most frequently, the major causes of injury vary based on the industry in which one is employed, work type and exposures. A focused approach with a thorough understanding of these setting-specific factors is necessary to reduce injury events.

In the field of injury prevention, the word “accidents” is avoided. That term implies that the incident was unavoidable when, in fact, injuries are considered preventable. Injuries do not occur randomly. They cluster around specific worker characteristics, exposures and job types.² It is these characteristics that allow public health agencies, such as the Centers for Disease Control and Prevention (CDC), and federal agencies, such as OSHA, to take a systematic approach to develop strategies to reduce injuries. One of the first modern examples of using this tactic was a military surgeon during World War II named Hugh Cairns. He conducted an analysis





to demonstrate that the use of helmets on motorcycles could reduce fatal crashes.⁴

The CDC's approach to preventing injuries involves a step-wise approach, and it is equally relevant for interventions in other settings, such as communities or industries. It begins with defining the problem by collecting and analyzing data,⁴ which allows those injury clusters to be identified. The next step is a more detailed exploration of those factors that may protect workers from injury and those that put them at risk.⁴ Based on the results of these steps, investigators develop and evaluate strategies to protect workers. These strategies can begin as a complete change in policy or may involve a small pilot study as a trial. Investigators may recommend types of personal protective equipment (PPE), equipment redesign or new training methods for employees. In the next step, the effectiveness of the new intervention is evaluated and any barriers to its implementation are identified.⁴ After-Action Reviews (AAR) are a common method during this phase to ensure more instantaneous feedback for improvement.⁵ This evaluation is one of the keys to this strategy as it ensures corrective actions can be taken and ultimately provides evidence that the change was worthwhile or else should be abandoned. If the usefulness of the new program is demonstrated, the final step is to promulgate widespread adoption.⁴ This method offers a systematic approach to

testing interventions and provides supportive evidence of their effectiveness.

Another useful approach to injury prevention involves identifying the timing of opportunities to intervene.⁴ Primary prevention techniques are applied to stop injuries before they happen. Spill-proof containers and ventilation hoods represent primary prevention to protect employees from chemical exposures. Secondary prevention involves safeguarding workers during an injury event. Face shields and other PPE offer safety while a chemical splash is occurring. Tertiary prevention limits the extent of an injury that has already occurred. Convenient eye-wash sinks and showers permit immediate treatment of a chemical exposure and may reduce the damage that occurs.

In the 1970s, William Haddon Jr. developed a more comprehensive approach for applying the primary, secondary and tertiary model for prevention.⁴ Now known as the Haddon Matrix, it uses a spreadsheet design where the three prevention areas are listed in the rows to the left. The risk factors are listed out in the columns above. These factors would vary based on the industry involved or specific injury considered. The columns would commonly include areas such as human factors, equipment and physical environment. Each cell in the matrix is filled with prevention approaches relative to the timing and risk factor listed. Haddon utilized this approach to reduce automobile crash injuries, and the resulting regulations and vehicle safety features have saved many lives. Used in the planning phase, the Haddon Matrix can provide a more complete picture of the best strategies to prevent injuries.

Although workplace injuries continue to take a toll on the U.S. workforce, effective prevention strategies have protected many from harm and saved lives. Non-fatal occupational injuries have been consistently declining from 2003 to 2014.⁶ Systematic approaches to develop new interventions and evaluate their effectiveness have played a major role in this success. Proper application of these methods will continue the decreasing injury trend and make workplaces safer. ☺

References:

1. *Injuries, Illness, and Fatalities*. Bureau of Labor Statistics website. <http://www.bls.gov/iif/>
2. Levy B, Wegman D, Baron S, Sokas R. *Occupational and Environmental Health*. 6th ed. New York, NY: Oxford University Press; 2011.
3. Traumatic Occupational Injuries. The Centers for Disease Control and Prevention website. <https://www.cdc.gov/niosh/injury/>
4. Varkey P. *Mayo Clinic Preventive Medicine and Public Health Board Review*. New York, NY: Oxford University Press; 2010.
5. After-Action Review. U.S. Agency for International Development website. http://pdf.usaid.gov/pdf_docs/PNADF360.pdf
6. Employer-Reported Workplace Injuries and Illnesses – 2014. Bureau of Labor Statistics website. <http://www.bls.gov/news.release/pdf/osh.pdf>

Sun Exposure

By Dana Rawl, MD, MPH



It's summer time and the weather is fine — not. It's hot, hot, hot in the Midlands of South Carolina, and the sun can be an enemy. Ultraviolet radiation can penetrate the skin and increase your risk for developing skin cancer.

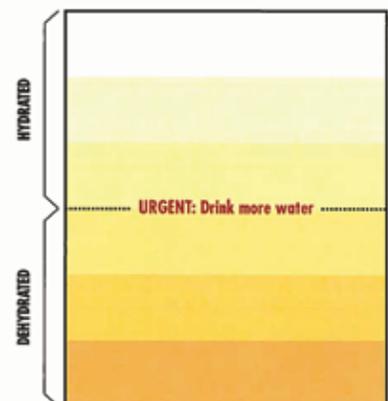
There are three types of ultraviolet (UV) radiation: UVA; UVB; and UVC. UVA is the most abundant solar radiation. It can penetrate the layers of the skin and can damage connective tissue, increasing risk for skin cancer development. UVB radiation can cause skin cancer, but the skin penetration is less. UVC radiation is absorbed in the atmosphere and does not pose a cancer risk.

UV radiation can be direct from the sun or reflected from snow or sand. It can penetrate clouds as well. Sunburn

is an indicator that there is UV radiation exposure, but no sunburn does not mean no exposure. Worker exposure to UV radiation can be from above or below, or even on cloudy days.

Not only can overexposure to UV radiation lead to premature wrinkling and skin aging, but it can cause skin cancer and affect the eyes. Tissue overgrowth on the eyes, called pterygium, can result from sun exposure. UV radiation can also cause cataracts and possibly macular degeneration.

Urine Color Chart
Are you hydrated?



Types of skin cancer include basal cell, squamous cell and melanoma. Basal cell skin cancers may have many appearances such as a raised, shiny, smooth bump; a pink growth with a smooth, rolled border and an indented center; or a waxy-appearing whitish, yellow scar-like lesion. Squamous cell cancers can appear raised and crusty or red and scaly, and may have a depressed center. Melanomas can vary in color, size and shape. They can be dark, mole-appearing or flat, discolored patches of skin, or they can develop from an existing lesion or mole.

To detect any skin cancer, watch for and be aware of any skin changes; a change in the size, shape or color of a mole or a skin lesion; areas of skin that are persistently irritated, red, itchy or painful; a skin sore that does not heal or persistently bleeds; or new lesions or lumps that cannot be explained.



Have your doctor evaluate a skin lesion of concern.

Recommendations for UV radiation protection include using a minimum SPF 15 sunscreen even though the SPF rating applies to UVB radiation protection. To achieve UVA protection, use products that contain Mexoryl™, Parsol® 1789, titanium dioxide, zinc oxide or avobenzone. Know that sunscreens more than one to two years old lose effectiveness and should be thrown away. Sunscreens should be reapplied at least every 2 hours as it is washed off by water or perspiration. Consider using SPF clothing or clothing with a tight weave to reduce UV exposure. Also wear wide-brimmed

hats and sunglasses with UV protection and side panels to avoid UV exposure to the eyes.

Complete prevention of sun exposure is impossible, but using appropriate protection and common sense is a practical approach to reduce UV radiation exposure and potential skin cancer development. Employers should consider risk and employ logical steps to reduce sun exposure, such as avoiding outdoor work when sunlight exposure is greatest, providing shaded or indoor break areas and offering UV exposure education and training for employees. Work safely! ☺

NOAA's National Weather Service

Heat Index Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution
 Extreme Caution
 Danger
 Extreme Danger

Reference: <http://www.cdc.gov/niosh/topics/sunexposure/default.html>



Nurse Practitioner Pearls

Smoking Cessation

Research estimates that an average cigarette smoker makes five or six serious attempts to quit smoking. A national telephone survey of 1,000 smokers age 25 and older during a 14-month period revealed that smokers who ate more fruit and vegetables smoked fewer cigarettes per day, waited longer to smoke the first cigarette of the day and seemed less dependent on nicotine.

Some research also showed that alternative therapy, such as acupuncture and hypnosis, would trend toward the benefits of smoking cessation, but it did not prove that those persons would stop smoking.

A survey of more than 7,400 smokers compared the use of medications to no medications regarding their attempts to quit smoking. Medications included over-the-counter nicotine products and prescription medications. Of those surveyed, about 2,200 used a medication in their attempt to quit smoking while others tried to quit “cold turkey.” Researchers tracked the participants for six months. They found that bupropion (Wellbutrin®, Zyban®) and nicotine patches were

linked to increase quitting success fourfold. Using varenicline (Chantix®) resulted in a near six-times increase in quitting success. (Keep in mind that any medication may have potential adverse side effects.) This study showed that those smokers who used medications were more likely to quit. Moreover, other studies suggest that 25 percent of smokers who combine counseling with medication are cigarette-free at one year. 🌱

Resources for smoking-cessation assistance include SmokeFree.gov and 1-877-448-7848, or NAQuitLine.org and 1-800-784-8669.

Making Room for Tomorrow

Opening 2019

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