Reusing Syringes: Neither Safe Nor Cost-Effective

In 2015, the Texas Department of State Health Services was notified that a hospital telemetry unit nurse had been reusing saline flush prefilled syringes in patients’ intravenous lines. Mistakenly believing that it was safe—and that she was saving the hospital money—she had been reusing syringes for six months, although this was not the hospital’s practice.

Because she had been putting patients at risk for blood-borne pathogens, the state, regional, and local health departments, with consultation from the Centers for Disease Control and Prevention (CDC), worked with the hospital to investigate. The hospital notified 392 patients, advising them of potential exposure and offering them free testing for hepatitis B (HBV), hepatitis C (HCV), and human immunodeficiency virus. One year after the exposure, 262 patients had completed initial screening and 182 had completed all recommended testing.

Two patients had newly diagnosed HBV, and two had HCV. A patient with known pre-existing chronic HCV infection had been hospitalized on the telemetry unit on the same day as one of the patients with newly diagnosed HCV. That second patient did not share overlapping days with any patient with known HCV infection, nor did the two with newly diagnosed HBV infection share with each other or any other patient with a known HBV infection. No epidemiologic evidence linked the patients with newly diagnosed infections to a potential source patient. But when specimens were tested, results indicated transmission linkage between the patient with chronic HCV infection and one of the patients with newly diagnosed HCV infection.

Taken together, the CDC concluded, the findings indicated that at least one HCV infection was “likely transmitted” in the telemetry unit as a result of the inappropriate reuse and sharing of syringes. The investigation, the CDC adds, illustrates a need for ongoing education and oversight of health care providers regarding safe injection practices.

Source: Morbidity and Mortality Weekly Report, March 2017

More “Baby-Boomers” Need HCV Testing

Approximately 3.5 million U.S. adults are chronically infected with hepatitis C virus (HCV), and 80% of those are “baby-boomers.” As many as three of every four infected people, however, are not aware of it, according to the Centers for Disease Control and Prevention (CDC), which puts them at risk for liver disease, cancer, and death. And most “baby-boomers” aren’t getting tested for HCV.

Between 2013 (when the Preventive Services Task Force issued a recommendation that all people born between 1945 and 1965 be tested) and 2015, the rate of testing among “baby-boomers” only rose from 12.3% to 13.8%. In other words, only about 10.5 million of the 76.2 million “baby-boomers” have been tested for HCV, say American Cancer Society researchers who analyzed data from the CDC’s National Health Interview Survey.

Moreover, half of Americans identified as ever having had HCV received follow-up testing showing they were still infected, suggesting that even among those who receive an initial antibody test, half may not know for sure if they still carry the virus.

HCV has few noticeable symptoms, says John Ward, MD, Director of the CDC’s Viral Hepatitis Program, and left undiagnosed, it threatens the health not only of the person with the virus, but those the disease might be transmitted to. Identifying those who are infected is important, he adds, because new treatments can cure the infection and eliminate the risk of transmission.

Source: American Cancer Society, March 2017

Not Getting Enough Sleep? NIOSH Wants to Help

This won’t come as much of a surprise, but health care made the top-five list of occupations in which workers are getting too little sleep, according to a study by researchers from the National Institute for Occupational Safety and Health (NIOSH).

The researchers analyzed data from 179,621 working adults who responded to the 2013 or 2014 Behavioral Risk Factor Surveillance System annual surveys. Among the 22 major occupation groups, health care support (40.1%) and health care practitioners and technical (40.0%) ranked second and third in “short sleep duration,” after production (42.9%). Among the occupational subgroups, nursing, psychiatric, and home-health aides had a high adjusted prevalence of short sleep duration.

Workers in occupations in which alternative shiftwork is common, which includes more than 35% of health care practitioners, were more likely to have a higher adjusted prevalence of short sleep duration. Workers in other occupation groups, such as teachers, farmers, or pilots, were more likely to report getting enough sleep.

Time at work is always on the rise in the U.S., where workers have the longest annual working hours among workers in all wealthy industrialized countries, reducing the time available for sleep, NIOSH says. The researchers point out that lack of sleep has been linked to negative health outcomes, including cardiovascular disease, obesity, and depression, as well as safety issues related to drowsy driving and injuries.

To help people get more sleep or improve the sleep they get, NIOSH offers training and resources about sleep, shiftwork, and fatigue for a variety of audiences, including health care workers and emergency responders. Free materials are available at www.cdc.gov/niOSH/topics/workschedules/education.html.

Source: Centers for Disease Control and Prevention, March 2017
Research Briefs

Genomic Variation May Reveal Biological Pathway to Obesity

African-Americans have the highest age-adjusted rates of obesity in the United States. Now, a National Institutes of Health (NIH) study is offering clues to why that is.

Researchers from the National Human Genome Research Institute (NHGRI), University of Lagos, University of Nigeria, Kwame Nkumrah University of Science and Technology, University of Ghana, and University of Maryland collaborated in a study that found about 1% of West Africans, African-Americans, and others of African ancestry carry a genomic variant that increases the risk of obesity. People with the genomic differences were about 6 lbs heavier than those without them.

This is the first study to use a genome-wide association study (GWAS) to investigate the genomic basis of obesity in continental Africans. Most previous studies on obesity using GWAS have been done in people of European ancestry. Those studies would not have found the genomic variant for the African descendants, which is absent in both Europeans and Asians. “By studying people of West Africa, the ancestral home of most African-Americans, and replicating our results in a large group of African-Americans, we are providing new insights into biological pathways for obesity that have not been previously explored,” said Ayo Doumatey, PhD, study co-lead and a staff scientist at the NIH Center for Research on Genomics and Global Health.

Source: NIH, March 2017

Tumor Blood Vessels Cluster in “Belt-Like” Zones

Digital pathology has made it possible to measure microscopic objects, such as blood vessels, in tumor tissue and then visualize them in density maps, showing “hot-spot” regions. But for many applications in histopathology, there is no clear-cut definition of the hot-spots, researchers from Heidelberg University say. Thus, most tumor models “implicitly assume” that blood vessels are equally abundant in different parts of a tumor. But the researchers’ new computational approach to mapping angiogenesis in colorectal cancer (CRC) could turn that assumption on its head.

Their method analyzes blood vessels based on spatial statistics, identifying all hot-spot areas that are unlikely to occur by chance. They found that, in nearly all cases, the blood vessels grouped in a distinctive belt-like pattern. In 33 of 34 untreated CRC samples, the vessels were aggregated at the interface of tumor tissue to the intestinal wall. The researchers found similar “hypervascularized” zones at the boundaries of liver tissue in 100% of the samples of CRC liver metastases. They describe a new model of tumor vascularization: a highly vascularized zone approximately 1.5 mm wide close to the intestinal lumen in CRC primary tumors and a highly vascularized zone approximately 1 mm wide close to the invasion front in CRC liver metastases.

Their model has immediate and far-reaching implications, the researchers say. For instance, because vascular patterns determine how chemotherapeutic drugs are distributed in tumor tissue, it is likely that such drugs reach the luminal side of CRC tumors much easier than the basolateral side. Their information could also be used in timing surgery because the tumor parts of the deep invasion front may be less sensitive to chemotherapy. In fact, the researchers suggest their model could help optimize treatment in any number of ways, from explaining early symptoms (such as gastrointestinal bleeding), the architecture of CRC, and metastasis, to opening new pathways for investigation.

Source: PLoS ONE, March 2017

“Liberation Therapy” Is Not Effective for MS

Opening up narrowed veins from the brain and spinal cord (so-called “liberation therapy”) is not effective in treating patients with multiple sclerosis (MS), according to a study led by the University of British Columbia in Canada. Thousands of people with MS have undergone the procedure since 2009.

All 104 participants in the study had a catheter inserted into their blocked veins, but only 49 had their vessel walls pushed out by the inflation of a small balloon in the procedure known as venoplasty. A year later, the results in the venoplasty group were statistically the same as those in the sham-procedure group, as measured by brain imaging, standard assessments of MS symptoms, and patients’ self-assessments.

Using venoplasty as an MS treatment was first advanced by Dr. Paolo Zamboni of Italy, who asserted that narrowing of the veins in the neck could cause iron to accumulate in the brain and spinal cord, triggering an autoimmune response. He called the disorder chronic cerebrospinal venous insufficiency.

Source: University of British Columbia, March 2017

“Gene Silencer” Halves Cholesterol in Study

In a study conducted by researchers at Imperial College London, inclisiran—the first in a new class of gene-silencing drugs—halved cholesterol levels in patients at high risk of cardiovascular disease. The technique, known as RNA interference (RNAi) therapy, essentially “switches off” one of the genes responsible for elevated cholesterol levels.

A total of 497 patients were given subcutaneous inclisiran or placebo either in a single 300-mg dose or via a 300-mg dose on day 1 and another 300-mg dose at month 3. The patients were followed for eight months. In patients given the single 300-mg dose of inclisiran, cholesterol levels were reduced by 42% at six months. In the matched placebo group, cholesterol levels had increased by 2% within that time frame. In those given two 300-mg doses of inclisiran, cholesterol levels were reduced by up to 53% at six months. Moreover, 48% had achieved cholesterol levels of less than 50 mL/dL.

Source: Imperial College London, March 2017