CDC Releases Report on Antibiotic Resistance in the United States

In the United States, more than 2 million people every year are sickened by antibiotic-resistant germs, and at least 23 000 die as a direct result, according to a new report from the Centers for Disease Control and Prevention (CDC).

for its first-ever report on antibiotic resistance, the CDC estimated the number of cases of disease caused by antibiotic-resistant bacteria and fungi and the number of deaths resulting from those cases of disease. The report prioritizes resistant bacteria as urgent, serious, or concerning.

According to the report, the 3 most urgent threats are *Clostridium difficile*, carbapenem-resistant Enterobacteriaceae, and gonorrhea. These bacteria reportedly have the largest clinical and economic impact and greatest current and projected incidence. In addition, they are among the easiest to transmit. Eleven bacteria and 1 fungus were categorized as serious, and 3 bacteria were categorized as concerning.

Designed to be used in part as a reference guide, the CDC's report features summaries of each bacteria and includes information about what itself, communities, doctors, nurses, patients, and the CDC can do to combat antibiotic resistance.

The report notes that the use of antibiotics is the single most important factor leading to antibiotic resistance around the world.

"Antibiotics are among the most commonly prescribed drugs used in human medicine. However, up to 50% of all the antibiotics prescribed for people are not needed or are not optimally effective as prescribed," the report says. "Antibiotics are also commonly used in food animals to prevent, control, and treat disease, and to promote the growth of food-producing animals. The use of antibiotics for promoting growth is not necessary, and the practice should be phased out."

The report identifies 4 core actions that fight the spread of antibiotic resistance, including (1) preventing infections from occurring and preventing resistant bacteria from spreading, (2) tracking resistant bacteria, (3) improving the use of antibiotics, and (4) promoting the development of new antibiotics and new diagnostic tests for resistant bacteria.

"Preventing the spread of antibiotic resistance can only be achieved with widespread engagement, especially among leaders in clinical medicine, health care leadership, agriculture, and public health," the report says. "Although some people are at greater risk than others, no one can completely avoid the risk of antibiotic-resistant infections. Only through concerted commitment and action will the nation ever be able to succeed in reducing this threat."

Statin Use Linked to Increased Risk of Cataracts

Individuals taking statins may have an increased risk of developing cataracts compared with nonusers, according to a study in *JAMA Ophthalmology*.[1]

Jessica Leuschen, MD, of San Antonio Military Medical Center and colleauges conducted a retrospective propensity score–matched cohort analysis using data from October 1, 2003, to March 1, 2010. Based on medication fills during fiscal year 2005, patients were divided into 2 groups: (1) statin users (those who received at least a 90-day supply of statin) and (2) nonusers (those who never received a statin throughout the study). Among 46 249 patients meeting study criteria, 13626 statin users and 32 623 nonusers were identified.

For the primary analysis, the investigators matched 6972 pairs of statin users and nonusers. They found that the risk for cataract was higher among statin users compared with nonusers in the propensity score-matched cohort (odds ratio [OR], 1.09; 95% confidence interval [CI], 1.02–1.17). In secondary analyses, after adjusting for identified confounders, the incidence of cataract was higher in statin users compared with nonusers (OR, 1.27; 95% CI, 1.15–1.40). Sensitivity analysis confirmed this relationship, the study authors found.

1. Leuschen J, Mortensen EM, Frei CR, Mansi EA, Panday V, Mansi I. Association of statin use with cataracts: a propensity score-matched analysis [published online ahead of print September 19, 2013]. *JAMA Ophthalmol*. doi:10.1001/jamaophthalmol.2013.4575.

FDA Issues Final Guidance on Medical Smartphone Apps

The US Food and Drug Administration issued final guidance for developers of mobile medical applications, or apps, according to a news release.

The FDA reportedly intends to exercise enforcement discretion (meaning it will not enforce requirements under the Federal Drug & Cosmetic Act) for the majority of mobile apps, as they pose minimal risk to consumers, the news release said. Instead, the agency will focus its regulatory

oversight on a subset of apps that it feels presents greater risks to patients if they do not work as intended.

"Some mobile apps carry minimal risks to consumer or patients, but others can carry significant risks if they do not operate correctly," Jeffrey Shuren, MD, JD, director of the FDA's Center for Devices and Radiological Health, said in the news release. "The FDA's tailored policy protects patients while encouraging innovation."

The FDA will focus its oversight on apps that (1) are intended to be used as an accessory to a regulated medical device—for example, an app that allows a health care professional to make a specific diagnosis by viewing a medical image from a picture archiving and communication system on a smartphone or a mobile tablet; or (2) transform a mobile platform into a regulated medical device—for example, an app that turns a smartphone into an electrocardiography machine to detect abnormal heart rhythms or determine if a patient is having a heart attack.

Mobile medical apps that undergo FDA review will be assessed using the same regulatory standards and risk-based approach that the agency applies to other medical devices, the news release said. The FDA has cleared about 100 mobile medical applications over the past decade; about 40 of those were cleared in the past 2 years.

Little Benefit Seen in Repeat Bone Density Screening

Repeat bone mineral density (BMD) scans may not meaningfully improve the prediction of hip or major osteoporotic fracture, according to a study in the *Journal of the American Medical Association*.[1]

Sarah D. Berry, MD, of the Institute for Aging Research at Hebrew Senior Life and Harvard Medical School in Boston, and colleagues conducted a population-based cohort study of 310 men and 492 women (mean age, 74.8 years) from the Framingham Osteoporosis Study. All participants had 2 measures of femoral neck BMD taken from 1987 through 1999. The main outcome measure was the risk of hip or major osteoporotic fracture through 2009 or 12 years following the second BMD measure.

Patients were followed for an average of 10 years, during which 113 had 1 or more major fractures. The results of the second BMD measure provided little information; of the patients who experienced a hip fracture, repeating a bone density test improved the investigators' ability to classify a person at higher risk by about 4%.

"In untreated men and women of mean age 75 years, a second BMD measure after 4 years did not meaningfully improve the prediction of hip or major osteoporotic fracture," the study authors wrote. "Repeating a BMD measure within 4 years to improve fracture risk stratification may not be necessary in adults this age untreated for osteoporosis."

1. Berry SD, Samelson EJ, Pencina MJ, et al. Repeat bone mineral density screening and prediction of hip and major osteoporotic fracture. *JAMA*. 2013;310(12):1256-1262.

Induced Labor Linked to Increased Risk of Autism

Inducing or augmenting labor in pregnant women may be linked to an increased risk of autism diagnosis in childhood, according to a study in *JAMA Pediatrics*.[1]

Simon G. Gregory, PhD, of Duke University in North Carolina, and colleagues performed an epidemiologic analysis using multivariable logistic regression modeling data from the North Carolina Detailed Birth Record and Education Research databases. The study included 625042 live births linked with school records, including more than 5500 children with a documented exceptionality designation for autism.

The investigators found that, compared with children born to mothers who did not receive labor induction or augmentation, children born to mothers who were induced and augmented, induced only, or augmented only had increased odds of autism after controlling for potential confounders related to socioeconomic status, maternal health, pregnancy-related events and conditions, and birth year. The observed associations between labor induction or augmentation and autism were particularly pronounced in male children, the authors concluded.

"While these results are interesting, further investigation is needed to differentiate among potential explanations of the association including underlying pregnancy conditions requiring the eventual need to induce [or] augment, the events of labor and delivery associated with induction [or] augmentation, and the specific treatments and dosing used to induce [or] augment labor (eg, exogenous oxytocin and prostaglandins)," the study authors concluded.

1. Gregory S, Athopolos R, Osgood CE, Grotegut CA, Miranda ML. Association of autism with induced or augmented childbirth in North Carolina birth record (1990-1998) and education research (1997-2007) databases [published online ahead of print August 12, 2013]. *JAMA Pediatr*. doi:10.1001/jamapediatrics.2013.2904.

High Glucose Linked to Dementia

High glucose levels may be a risk factor for dementia, even in people without diabetes, according to a study in the *New England Journal of Medicine*.[1]

Paul K. Crane, MD, MPH, of University of Washington, Seattle, and colleagues analyzed 35 264 clinical measurements of glucose levels and 10 208 measurements of glycated hemoglobin levels from 2067 patients (839 men, 1228 women; median age, 76 years) without dementia. Of these individuals, 232 had diabetes and 1835 did not. Cox regression models were used to evaluate the association between

glucose levels and dementia, adjusting for age, sex, study cohort, education level, exercise, blood pressure, and status with respect to coronary and cerebrovascular diseases, atrial fibrillation, smoking, and hypertension treatment.

During a median follow-up of 6.8 years, 524 participants (74 with diabetes, 450 without) developed dementia. In those with diabetes, the risk of dementia was 40% higher for those with an average glucose level of 190 mg/dL, compared with participants who had an average glucose level of 160 mg/dL. In participants without diabetes, the risk of dementia was 18% higher for those with an average glucose level of 115 mg/dL vs those with an average of 100 mg/dL.

1. Crane PK, Walker R, Hubbard RA, et al. High glucose levels linked to dementia. *New Engl J Med.* 2013;369:540–548.

Migraine May Be Risk Factor for Structural Changes in Brain

Individuals who experience migraines, either with or without aura, may show structural changes in the brain on imaging, according to a study in *Neurology*.[1]

Asma Bashir, MD, of the University of Copenhagen in Denmark, and colleagues analyzed data from 6 population-based studies and 13 clinical-based studies to evaluate the association between migraine without aura (MO) and migraine with aura (MA) and 3 types of structural brain abnormalities detected by MRI: white matter abnormalities (WMAs), infarct-like lesions (ILLs), and volumetric changes in gray matter (GM) and white matter (WM) regions. Pooled ORs and 95% CI were calculated for WMAs and ILLs.

The meta-analysis of WMAs showed an association for MA (OR, 1.68; 95% CI, 1.07–2.65; *P*=.03) but not for MO (OR, 1.68; 95% CI, 0.96–1.87; *P*=.08). The association of ILLs was greater for MA (OR, 1.44; 95% CI, 1.02–2.03; *P*=.04) than for MO, but no association was found for MA and MO compared with controls.

"Additional longitudinal studies are needed to determine the differential influence of migraine without and with aura, to better characterize the effects of attack frequency, and to assess longitudinal changes in brain structure and function," the study authors concluded. ■

1. Bashir A, Lipton RB, Ashina S, Ashina M. Migraine and structural changes in the brain. *Neurology*. 2013;81(4):1260-1268.

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