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Tennessee epi-news

GOVERNOR BILL HASLAM

COMMISSIONER JOHN J. DREYZEHNER, MD, MPH



Cluster of Late Vitamin K Deficiency Bleeding in Infants

During January-October 2013, five infants with late vitamin K deficiency bleeding (VKDB) were diagnosed at a hospital in Nashville. These infants were born in area hospitals and birthing centers, and none had received a vitamin K injection at birth. Late VKDB is a blood-clotting disorder that occurs when an infant's body's stores of vitamin K are insufficient to prevent bleeding. Late VKDB typically manifests as bleeding in the brain and can result in motor and intellectual deficits. Although the standard of care for prevention of late VKDB is a single vitamin K injection at

birth, parents can opt out of having their newborn receive the injection.

TDH, together with CDC, conducted an investigation to determine whether parents who opted out understood the consequences of not providing a vitamin K injection and why they chose not to have it administered to their newborns. From the records of six hospitals in the Nashville area and all six freestanding birthing centers in Tennessee, new parents were identified who had not agreed to an



injection or whose infants did not have documented receipt of vitamin K.

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CSMD Update

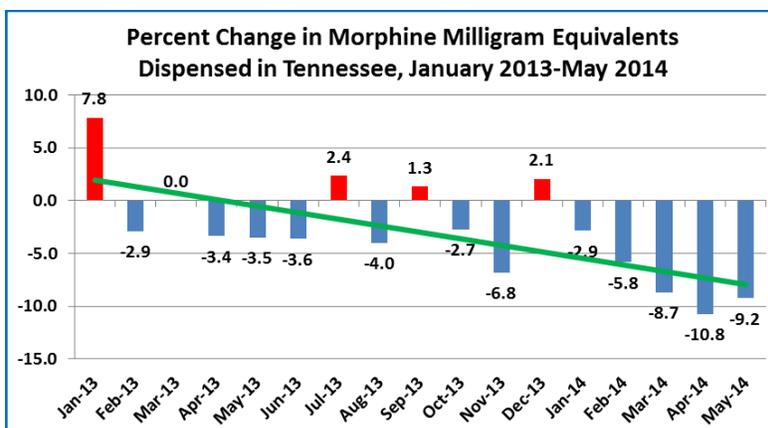
Several important efforts have been made across Tennessee over the last several years to tackle the epidemic of prescription drug abuse. Since the mandatory checking requirement of the Prescription Safety Act of 2012 went into effect, the number of high utilization patients in the Controlled Substance Monitoring Database has been markedly reduced. Another notable finding is a reduction in the cumulative morphine milligram equivalents (MME) dispensed. There was a slight (0.7%) decline in 2013; a more noticeable decline (6.7%) is apparent thus far in 2014.

“While all states continue to struggle with the national epidemic of drug misuse and abuse, Tennessee’s Controlled Substance Monitoring Database is a potent resource

in the ongoing effort to keep some drugs out of the wrong hands,” said TDH Commissioner John Dreyzehner, MD, MPH. “It’s a sad fact that many have been able to

go from one clinician to another, obtaining numerous prescriptions to feed an addiction or to obtain a supply of narcotics they can sell to others. The CSMD allows healthcare professionals to better identify these individuals and to thwart these practices. It also allows identification of potentially inappropriate prescribing.”

See page 4 for more on the prescription drug epidemic. ❖



Late Vitamin K Deficiency (continued)

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In all, 217 newborns were identified as having not received vitamin K injections during 2013. Contact information for 158 families was obtained, and, of those, the parents of 58 infants completed the survey. Respondents were predominantly white (88%) and covered by private insurance (81%); mothers' average age was 29 years.

Bleeding risk was correctly identified by 60% of parents as a consequence of not receiving the vitamin K injection. The most common reasons reported for not agreeing to the injection were belief that vitamin K is unnecessary and desire for a natural birthing process. The majority of parents refusing vitamin K also refused the hepatitis B vaccination and erythro-

mycin eye ointment offered shortly after birth. Because 34% of parents believed that vitamin K was unnecessary despite correctly identifying bleeding as a risk of not receiving it, TDH recommends that health-care providers have early discussions with expectant parents to increase awareness of the severity of late VKDB. — *by Josh Clayton, Ph.D* ❖

Vaccination During Pregnancy: Protecting Mom and Baby

Women who are pregnant or attempting to become pregnant often focus on preventative measures to protect their bodies and their babies. So that she can carry the baby, natural changes occur to the lungs, heart and immune system of a pregnant woman—changes which also make her vulnerable to infectious diseases. Certain immunizations during pregnancy will protect the mother's health and produce antibodies shared with the unborn child that can confer protection in the first few weeks or months of life.

Influenza poses serious risks to pregnant women, including medical complications, premature delivery and (rarely) even death for her or the infant. The CDC has shown that the flu shot given during pregnancy is safe and can protect both the mother and newborn, for up to the first six months of age, from the worst complications of influenza. Researchers found babies were 48% less likely to be hospitalized for influenza early in their lives when their mothers were vaccinated during pregnancy. Flu shots have been given to millions of pregnant women over decades and have not been shown to cause harm to the women or their infants. For these reasons, the Advi-

sory Committee of Immunization Practices (ACIP) recommends influenza vaccination for pregnant women in any trimester.

Whooping cough, or pertussis, can trigger coughing spells so severe that a person will vomit, lose consciousness or even break ribs, with illness lasting for weeks or months. Pertussis can be especially serious for infants, with almost all deaths from pertussis occurring in infants less than three months of age. The symptoms in infants can be different from those in older

children and adults, with an absence of the characteristic whoop, a short catarrhal stage resembling the common cold, gagging, gasping and slowed heart rate—or they may simply stop breathing. More than half of babies less than 12 months old with pertussis are hospitalized, and they are at greater risk of dying or having complications such as seizures or encephalopathy. The ACIP recommends that women receive the Tdap vaccine with each pregnancy regardless of whether they have received it in the past, preferably at 27-36 weeks gestation. Other close family contacts should receive Tdap if they have not already, as approximately 80% of babies with pertussis were infected by someone in the household. Women not vaccinated during pregnancy should receive the vaccine immediately postpartum if they have never had a Tdap. Vaccination after delivery will not provide the same protection to the newborn that vaccination during pregnancy does, but it is still helpful to protect the mother. For more information, please visit <http://www.cdc.gov/vaccines/pubs/preg-guide.htm>. — *by Robb L. Garman, MPH*



Newly Reported HIV-2 Cases in Tennessee

HIV subtype 1 (HIV-1) accounts for more than 50,000 new infections annually in the U.S.; about 800-900 of these are reported in Tennessee. Most HIV infections worldwide are caused by HIV-1. A second subtype, HIV-2, is predominantly seen in persons in or from West African countries. A recent study by CDC using a working case definition for HIV-2 infection identified only 166 cases of HIV-2 reported in the U.S. during 1987-2009. Most of these cases were found in the Northeast.

In June 2014, the Shelby County Health

Department identified HIV-2 cases for the first time in Tennessee. The two cases were identified through fourth generation Multi-spot tests. Both were women from West Africa. The women presented to the clinic with non-HIV infection related complaints and denied any history of sexually transmitted diseases or injection drug use.

As of 2010, HIV testing is no longer required for the U.S. immigration medical screening process, allowing individuals with HIV to enter the country who previously would have been excluded. As a result, it is likely that

more cases of HIV-2 will be seen in the U.S. in the coming years. Current CDC guidelines recommend comprehensive HIV screening in health-care settings for all persons 13-64 years of age. Screening of all immigrants and refugees 13-64 years of age is also recommended.

Appropriate referral for care, treatment and preventive services should be made for all individuals confirmed to be HIV-infected. Local HIV/STD health de-

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Newly Reported HIV-2 Cases in Tennessee (continued)

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partment staff have specialized training and resources available to counsel individuals regarding risk behaviors, identify partners who should be tested, and help link patients to HIV care. For assistance in treating, counseling or referring any newly-diagnosed HIV patient for care, please contact the TDH HIV/STD program at 615-741-7500. — by Afework Keskesa, MD, MPH and Thomas J. Shavor, MBA, MPH ❖

One Health: Climate Change and Vector-borne Diseases

From mosquito-borne viruses like Chikungunya expanding their range, newly discovered tick-borne pathogens like Heartland virus, to emergence of drug-resistant strains of malaria, vector-borne diseases are frequently making headlines in the scientific and popular press. Collectively, these diseases are a major threat to human and animal health around the globe.



The factors affecting the distribution of vector-borne disease are wide-ranging. Individual behavior and institutional policies, land-use and community planning, global trade and travel, and a changing climate all interact in a dynamic system. Climate change, with increases in temperatures and escalation of extreme weather events, alters vector ecology and ultimately affects health.

Consider dengue, a viral disease which causes fever, pain and severe headaches in its victims, carried by *Aedes* mosquitoes. The incidence of the disease around the world has increased significantly in recent years, with outbreaks occurring in new areas annually. Increases in average daily temperatures lead to longer seasons for mosquitoes to transmit the disease to humans, as well as expanding the geographic range of *Aedes*. The time it takes for an egg to become an adult mosquito is shortened with higher temperatures, thus increasing mosquito population abundance. The incubation period of the virus within mosquitoes is shortened as well during warmer days, which increases the likelihood of disease transmission before behavioral and environmental interventions can be put into place to prevent or interrupt an outbreak. Surprisingly, even drought could lead to an increase in dengue cases. A drought could cause a need for water storage containers near dwellings, creating an ideal breeding ground for *Aedes*.

Climate change will also likely affect incidence of tick-borne diseases, including

Lyme disease, Spotted Fever Group Rickettsiosis and Heartland virus. A rise in temperatures can lead to increased tick questing behavior, egg production and population density. Increases in tick population density and size will likely lead to expansion in the geographic ranges of various tick species, more frequent interactions between ticks and hosts (including humans), and greater likelihood of transmission of tick-borne pathogens.



The climate will continue to impact health and well-being, and the public health system must be flexible to prevent,

mitigate and respond to health-related events in a changing situation. For more information on climate and health, visit <http://www.cdc.gov/climateandhealth/>.

— by Julie Shaffner, MS, MPH ❖

False-Positive Hepatitis B Surface Antigen after Vaccination

Hepatitis B virus (HBV) infection is an important cause of acute and chronic liver disease. Introduction of an effective vaccine reduced the incidence of acute infection 75% during 1990-2004. The Advisory Committee on Immunization Practices (ACIP) recommends administration of HBV vaccine at birth and subsequent doses to be completed before two years of age. In addition, ACIP recommends universal vaccination of persons with end-stage renal disease, including predialysis, hemodialysis, peritoneal dialysis and home dialysis patients, with appropriate follow up testing (see <http://www.cdc.gov/hepatitis/Settings/hemo.htm>).

HBV vaccination can produce transiently detectable hepatitis B surface antigen (HBsAg), the most commonly used sero-

logical marker to detect HBV infection. The exact timing of this effect is not clear, although studies have shown HBsAg positivity up to 21 days after vaccination. Antibody to the surface antigen (anti-HBs) is a serological marker to assess immunity for HBV. It is recommended to perform post-vaccination testing of hemodialysis patients at one to two months after the last dose. In addition to the potential for false-positive HBsAg results, HBV testing shortly after vaccination may result in false-negative anti-HBs if there has not been enough time for the body to respond to the vaccine.

Testing of HBsAg is not needed to assess vaccine response. However, this test is commonly a part of the hepatitis test panel, and it is important to keep in mind that

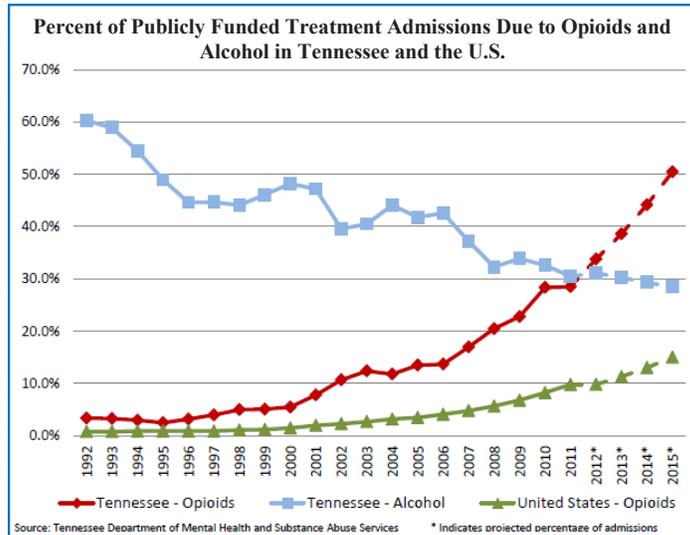
transient false-positive surface antigen may be detected within 21 days after a dose of HBV vaccine.

TDH has been receiving positive HBsAg laboratory reports for persons found, upon case investigation, to be undergoing vaccination for HBV—particularly in settings where routine testing is conducted (e.g. dialysis centers). If a new patient who is undergoing vaccination tests positive for HBsAg, we suggest repeating the test one to two months after the last dose of vaccine before determining case status. See “Recommendations for Preventing Transmission of Infections among Chronic Hemodialysis Patients” at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5005a1.htm>. — by Daniel Muleta, MD, MPH ❖

The Prescription Drug Epidemic in Tennessee

The Tennessee Department of Mental Health and Substance Abuse Services has partnered with other state agencies (including TDH) impacted by the prescription drug epidemic and the U.S. Drug Enforcement Administration to combat the problem of prescription drug abuse. "Prescription for Success: Statewide Strategies to Prevent and Treat the Prescription Drug Abuse Epidemic in Tennessee" is a strategic plan developed by TDMHSAS in collaboration with its sister agencies (<http://tn.gov/mental/prescriptionforsuccess/>). The report contains some alarming statistics:

- In 2012, prescription opioids became the primary substance of abuse in TDMHSAS-funded treatment programs, overtaking alcohol for the first time.
- Almost 5% of Tennesseans have used pain relievers in the past year for non-medical purposes.
- Young adults (18-25 years) are using prescription opioids at a 30% higher rate than the national average.
- There were 25% more controlled substances dispensed in 2012 than in 2010.
- More than 70% of people who use prescription drugs for non-medical reasons got them from a friend or relative.
- The number of emergency department visits for prescription drug poisoning has increased by approximately 40% from 2005 to 2010.
- Drug overdose deaths increased 220% from 1999 to 2012.
- Drug-related crimes increased by 33% from 2005 to 2012.
- The cost of lost productivity due to prescription drug abuse was \$143 million in 2008.
- About 50% of the youth taken into Department of Children's Services custody resulted from parental drug use.
- Babies born with neonatal abstinence syndrome increased ten-fold from 2001-2011.
- Providing state-funded treatment services to individuals who abuse prescription drugs and live below the poverty level would cost more than \$29 million. ❖



Selected Conditions Reported by Year, Tennessee

CONDITION	2009	2010	2011	2012	2013	2014*
Campylobacteriosis	499	401	413	445	403	275
Chlamydia	29761	27809	30249	31834	29635	23924
Cryptosporidiosis	82	52	99	70	81	72
Enterobacteriaceae, carbapenem-reducing (CRE)	--	--	392	280	204	200
Gonorrhea	7933	6974	7453	8922	7202	5449
Haemophilus influenzae	112	97	108	103	104	76
Hemolytic uremic syndrome (HUS)	16	17	16	19	17	10
Hepatitis A	12	13	25	22	21	9
Hepatitis B, acute	139	148	216	264	276	202
Hepatitis C, acute	35	51	93	150	108	132
Lyme disease	39	29	34	30	23	17
Meningococcal disease	15	13	9	7	7	5
Pertussis	203	226	106	314	225	213
Salmonellosis	779	1113	1060	1106	853	732
Shiga toxin-producing Escherichia coli (STEC)	60	89	111	130	125	109
Shigellosis	367	268	213	205	682	579
Spotted fever rickettsiosis	187	307	262	696	540	490
Syphilis	1316	1130	878	948	875	672
Tuberculosis	210	193	172	169	143	99

*Year-to-date (reported as of October 11, 2014): Preliminary data, subject to change

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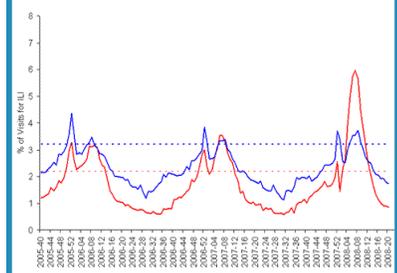
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