TENNESSEE DEPARTMENT OF HEALTH

TENNESSEE EPI-NEWS

COMMUNICABLE AND ENVIRONMENTAL DISEASE SERVICES

Kenneth S. Robinson, MD
Commissioner of Health

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Phone: 615-741-7247

Editor-In-Chief:
Marion Kainer, MD, MPH
Managing Editor:
Tracy McCauley, BSN, RN
Design Editor:
Amanda Ingram, MPH

For address changes and/or to be placed on the e-mail distribution list, contact Samir Hanna, MD, MSPH at samir.hanna@state. tn.us.

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West Nile Virus Update and Testing Guidelines

As of August 26, 2003, 883 human cases and 19 deaths were reported from 33 states. Colorado, Nebraska and South Dakota have reported 70 percent of all human cases. In our region, Mississippi, Alabama, Georgia and Kentucky have all reported human cases. As of August 26, 2003, Tennessee has reported 108 birds and 9 horse cases and 3 identified human cases.

Overall, 2003 West Nile virus (WNV) activity in Tennessee (positive birds and horses) appears to be consistent with the 2002 activity to date. Last year, the first confirmed human cases were identified in August although the date of disease onset was late July. To monitor current WNV activity can be monitored by visiting the CDC website, www.cdc.gov/ncidod/dvbid/westnile/index.htm. For Tennessee activity, visit the Health Department website, tennessee.gov/health. Other mosquito-borne illnesses are endemic in Tennessee and should be considered as a differential diagnosis. La Crosse encephalitis (LAC) is primarily a pediatric illness with most identified cases in the eastern Tennessee region. Eastern equine encephalitis (EEE) is a deadly (fatality rates 30-50%) but rare human disease that is detected in Tennessee by equine surveillance.

Since Tennessee experienced widespread evidence of WNV (positive birds and equine) including 56 serious human cases resulting in 7 deaths during 2002, we can assume many infections were not detected (asymptomatic or mildly symptomatic). Persons who were infected last year and not detected in surveillance may have serological evidence of past WNV

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Prevention of Perinatal Group B Streptococcal Disease

Group B streptococcus is the most common cause of sepsis (blood infection) and meningitis in newborns. About half of the cases of group B streptococcal disease among newborns happen in the first week of life ("early-onset disease"), and most of these cases start a few hours after birth. Sepsis, pneumonia, and meningitis are the most common problems. Premature babies are more at risk of getting a group B streptococcal infection, but most babies who become sick from group B streptococcus are full-term.

Revised Guidelines for the Prevention of Group B Streptococcal Disease

The incidence of group B streptococcal disease in babies less than a week old declined by over 70 percent in the 1990s, coinciding with increased use of intrapartum antibiotic prophylaxis. In 1999, three years after the release of CDC guidelines, the incidence began to plateau. Studies conducted after the issuance of the 1996 guidelines prompted re-evaluation of prevention strategies by the CDC. Compelling evidence for a strong protective effect of the screening-based strategy relative to the risk-based strategy led to a new

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WNV Update and Testing Guidelines

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infections, which makes interpretation of human serological results much more problematic in 2003 and years to come. Figure 1 is a summary comparing serological evidence of current WNV to past WNV infection.

Many asymptomatic or mildly symptomatic patients may ask their doctors to test them for WNV. The likelihood of diagnosing WNV infections in these patients is extremely low. Physicians can reassure these patients that there symptoms are likely not due to WNV, recovery will be rapid, there is no specific medical treatment for WNV and to seek medical attention if more severe symptoms develop. Patients that exhibit severe symptoms of infection can be tested for WNV through the Tennessee Unexplained Encephalitis Surveillance (TUES) program, state laboratory testing or commercial laboratory testing.

Hospitalized patients with at least 24 hours of altered mental status are eligible to be enrolled in the TUES project at Vanderbilt University. Cases of encephalitis or meningoencephalitis that are enrolled in this study will be thoroughly tested for a variety of pathogens, including WNV. (Contact: Diane Levine, 615-322-1519 or 800-756-5800). Since the vast majority of human cases are not WNV, TUES provides a free comprehensive testing battery that attempts to identify the etiology of the illness.

Figure 1

Current WNV Human Cases:

1. IgM positive CSF
2. Four-fold IgG titer increase between acute and convalescent serum samples.
3. High IgM and IgG serum titers
   a. Acute and convalescent samples drawn too close together in time
   b. Current infection with evidence of a past flavivirus infection

Not a Current WNV Infection:

1. IgM negative and IgG strong positive is evidence of a past flavivirus infection (symptomatic or asymptomatic)
2. IgM negative and IgG weak positive
   a. False positive IgG
   b. Cross-reaction with past flavivirus exposure
   c. Evidence of a yellow fever vaccine

Specimens can be sent directly to the state laboratory for WNV testing upon prior coordination with the local health department medical officer. State laboratory testing for WNV is restricted to patients with encephalitis or meningoencephalitis, who are ill enough to be hospitalized and undergo lumbar puncture for evaluation of the central nervous system. The health department recommends including CSF specimens whenever possible since a positive IgM in acute CSF with compatible symptoms is confirmatory for WNV infection without further testing. Serologic confirmation of WNV infection requires testing of both acute and convalescent serum specimens.

Commercial laboratories are another source of testing with the advantage of convenience for physicians although there are significant disadvantages. Commercial laboratories will only test for WNV compared to the TUES program which will test for numerous pathogens. Positive results from a commercial laboratory need to be verified by the state. In some cases, commercial laboratory positive results cannot be confirmed by the state laboratory. Physicians that have a positive WNV commercial laboratory report should notify the local health department medical officer of the status. The State Health Department will attempt to obtain the specimens from the commercial laboratory for verification by the state laboratory.

Detection of West Nile Virus in Tennessee by Year

Year	Human		Horses		Birds		Mosquito Pools	
	Positive	# Tested	Positive	# Tested	Positive	# Tested	Positive	# Tested
2000	0	0	0	0	0	0	0	0
2001	0	0	1	23	46	215	0	0
2002	56	226	148	373	824	1430	307	650
2003*	3	56	9	204	108	347	123	990

* Year to date as of August 26, 2003

To view the latest information and statistics, visit our website at tennessee.gov/health. Under the heading “Featured Topics”, click on West Nile virus.

PREVENTION OF PERINATAL GROUP B STREPTOCOCCAL DISEASE

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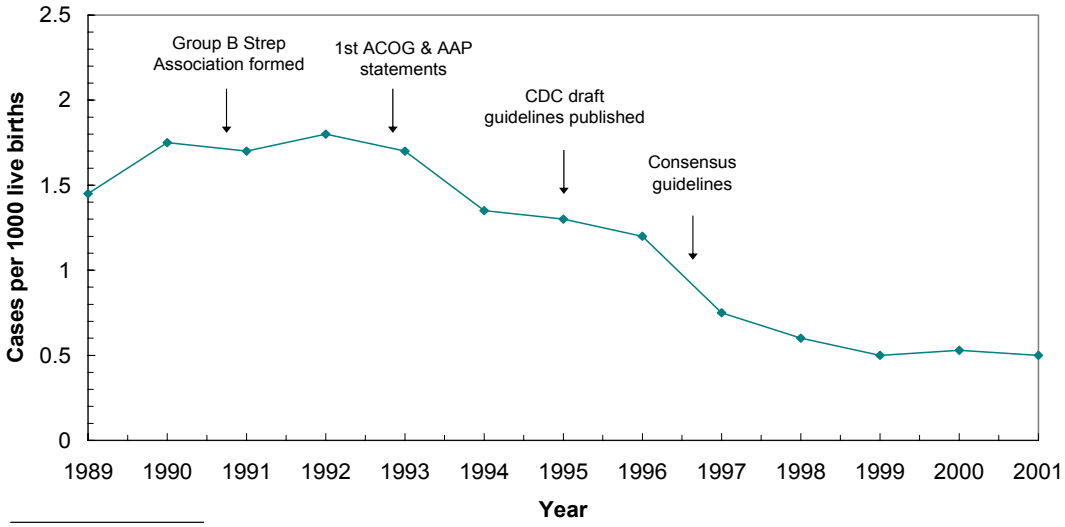
recommendation in 2002 for universal prenatal screening for group B streptococcal colonization by vaginal-rectal culture at 35-37 weeks gestation. In light of emerging clindamycin and erythromycin-resistant group B streptococcal isolates, second line agents for penicillin-allergic women were revised. A number of additional issues related to management of threatened preterm delivery, planned cesarean section deliveries in group B streptococcal colonized women, group B streptococcal bacteriuria, management of newborns exposed to intrapartum chemoprophylaxis, culture collection, and processing methods are also addressed. The 2002 guidelines for perinatal group B streptococcal prevention are comprehensive and replace the 1996 guidelines. [1] To review the complete guidelines, visit the following web address: www.cdc.gov/groupBstrep/gbs/hospitals_guidelines.htm.

THE MAIN DIFFERENCES AND SIMILARITIES BETWEEN THE 2002 REVISED AND PREVIOUS 1996 GUIDELINES[1]:

Differences:

- Recommendation of universal prenatal screening for vaginal and rectal group B streptococcal colonization of all pregnant women at 35-37 weeks' gestation
- Updated prophylaxis regimens for women with penicillin allergy
- Detailed instruction on prenatal specimen collection and expanded methods of group B streptococcal culture processing, including instructions on susceptibility testing
- Recommendation against routine intrapartum antibiotic prophylaxis for group B streptococcal colonized women undergoing planned cesarean deliveries without preceding labor or membrane rupture
- A suggested algorithm for management of patients with threatened preterm delivery
- An updated logarithm for management of newborns exposed to intrapartum antibiotic prophylaxis

Incidence of early -onset invasive group B streptococcal disease — selected Active Bacterial Core surveillance areas, 1989–2000, and activities for prevention of group B streptococcal disease



Source: Adapted from CDC. Early onset group B streptococcal disease, United States, 1998-1999. MMWR 2000;49:793-6; and Schrag SJ, Zywicki S, Farley MM, et al. Group B streptococcal disease in the era of intrapartum antibiotic prophylaxis. N Engl J Med 2000;342:15-20.

Similarities:

- Penicillin remains the first line agent for intrapartum antibiotic prophylaxis, with ampicillin as an acceptable alternative
- Women whose culture results are unknown at the time of delivery should be managed according to the risk-based approach; the obstetric risk factors remain unchanged (i.e., <37 weeks' gestation, duration of membrane rupture >18 hours, or temperature >100.4 F (>38.0 C))
- Women with negative vaginal and rectal group B streptococcal screening cultures within five weeks of delivery do not require intrapartum antimicrobial prophylaxis for group B streptococcal, even if they develop obstetric risk factors (i.e., <37 weeks' gestation, duration of membrane rupture >18 hours, or temperature >100.4 F (>38.0 C))
- Women with group B streptococcal bacteriuria in any concentration during their current pregnancy or who previously gave birth to an infant with early-onset group B streptococcal disease should receive intrapartum antimicrobial prophylaxis.

Number of Group B Streptococcus Cases, Tennessee, 2000-2003

	2000	2001	2002	2003
Early-onset cases	21	28	19	13*
Total cases	87	157	164	156*

* Year to date as of August 25, 2003

[1] Centers for Disease Control and Prevention, Group B strep disease new guidelines (online). http://www.cdc.gov/groupBstrep/gbs/state_guidelines_summary.htm. Accessed August 4, 2003.

E. COLI O157:H7 IN RECALLED STEAKS

Shiga toxin producing *Escherichia coli* (STEC), of which serotype O157:H7 is but one, are potentially deadly bacteria that can cause severe bloody diarrhea, abdominal cramps, and dehydration. Patients with uncomplicated infection usually remain afebrile. However, about two to seven percent of *E. coli* O157:H7 infections nationwide lead to hemolytic uremic syndrome (HUS) in which red blood cells are destroyed and the kidneys fail. In Tennessee in 2002, six cases of HUS were reported to the Tennessee Department of Health. Five of those cases were under the age of ten years.

E. coli O157:H7 is found in the intestines of healthy cattle; meat is then contaminated during slaughter and the organisms thoroughly mixed into meat when it is ground into hamburger. The pathogen can be found in at least 89 percent of ground meat. Prevention has been aimed at teaching consumers to cook ground meat to 160°F.

Steak has not been considered to be a source of *E. coli* O157:H7 since this cut of meat is not exposed to the products of the cow's intestine during slaughter. Consumers have eaten rare beef cuts without fear of consuming the pathogen as long as the surface of the meat was cooked.

However, in June 2003, the United States Department of Agriculture recalled over 700,000 pounds of frozen beef products, including a large quantity of vacuum packaged steaks possibly infected with *E. coli* O157:H7. It is believed that the bacteria were transferred from the surface of the meat to the inside of the steak by injection of the meat with tenderizers and flavor-enhancing solutions. This recall is significant because, for the first time, the possibility of steaks contaminated with *E. coli* O157:H7 has been found. Consumers will need to be aware of whether or not their steaks have been "tenderized" and "flavor-enhanced" before purchasing them. Consumers will need to consider whether or not they want to consume rare or medium rare meat.

Unlike some other foodborne infections, which have declined from 1996-2001, the incidence of *E. coli* O157:H7 has remained constant. Good hand washing, prevention of cross-contamination between cooked and uncooked foods, prevention of ingestion of contaminated water or other liquids, and heating foods to sufficiently kill bacteria greatly decreases the chances of *E. coli* O157:H7 infection.

Additional information about *E. coli* O157:H7 can be found at the CDC web site at www.cdc.gov. Click on "Health Topics".

Number of *E. coli* O157:H7 and HUS Cases, Tennessee, 1998-2003

	1998	1999	2000	2001	2002	2003
Escherichia coli O157:H7	52	57	66	73	51	20*
Hemolytic Uremic Syndrome	+	+	10	10	7	9*

+ Not reportable until 2000

* Year to date as of August 26, 2003

Tennessee Department of Health
Communicable and Environmental Disease Services
4th Floor Cordell Hull Building
425 5th Avenue North
Nashville, TN 37247-4911

RETURN SERVICE REQUESTED