disease prevention news

DPN

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Hepatitis E: Could it Happen Here?

Over the last 15 years hepatitis E virus (HEV) has been responsible for large hepatitis outbreaks in many developing countries. India, Pakistan, Indonesia, Vietnam, China, Algeria, Somalia, the Sudan, and the Republics of the former Soviet Union have all been affected. In North America there have been only two recognized outbreaks, both of which occurred in rural areas of Central Mexico in 1986 and 1987. These outbreaks, which affected approximately 100 people each, were associated with contaminated drinking water. Almost all cases of hepatitis E in the United States are associated with travel to endemic areas, but a few sporadic cases have been reported in persons who had not traveled outside the US during their incubation periods. Ten hepatitis E cases were reported to the Centers for Disease Control and Prevention (CDC) during 1995.

HEV is transmitted by the fecal-oral route, and fecally contaminated water has been the most frequent vehicle for outbreaks in developing countries. Outbreaks of HEV are not expected to occur in the US. However, if the virus is introduced into this country, it could pose a threat in areas where drinking water is supplied by shallow, unchlorinated wells that could become fecally contaminated.

Similar to hepatitis A virus (HAV) infection, HEV infection causes a self-limited acute hepatitis; there is no evidence of a chronic or persistent form. Cholestasis is more common with HEV than with HAV infection. The average incubation period noted during outbreaks has been around 40 days. The incubation period, however, can range from 2 to 9 weeks.

The attack rate in hepatitis E outbreaks is highest among young adults, and males may be disproportionately affected. Clinically recognized cases are uncommon among children, in whom infection is often asymptomatic or anicteric. Cases are also uncommon among the elderly. Women infected in the third trimester of pregnancy are at the highest risk of fulminant disease, with mortality rates ranging from 10% to 20%.

HEV is a non-enveloped, single-stranded RNA virus 32 nanometers in diameter. HEV infection can be diagnosed by either detection of viral particles in stool using electron microscopy or detection of anti-HEV antibodies in serum. Similar to HAV, HEV occurs in high concentrations in stool in the weeks immediately prior to onset of symptoms. Viral shedding in the stool usually continues about 2 weeks after the onset of jaundice, although in a few persons viral shedding has persisted as long as 4 weeks. Antibodies to HEV (anti-HEV) are detectable in nearly all infected patients upon presentation of their illness.

Suspected cases should be reported to the local health department. In the event of an outbreak, control measures for the community include sanitary disposal of feces and disinfection of drinking water. Although secondary cases of hepatitis E have not caused significant morbidity during outbreaks, careful hand washing after defecation and before handling food is recommended for infected individuals and their contacts. It is unlikely that immune globulin (IG) prepared from the plasma of US or European donors would protect against HEV.

Continued ☞

Also in this issue:

Clinical specimens should be submitted to the Texas Department of Health (TDH) from patients who meet the following criteria:

1) The patient's illness has a discrete date of onset, with jaundice or serum alanine aminotransferase (ALT) greater than 2.5 times the upper limit of normal.

2) A serum specimen from the patient is negative for serologic markers of acute hepatitis A virus infection (IgM anti-HAV), acute hepatitis B virus infection (IgM anti-HBc), and hepatitis C virus infection (anti-HCV).

To arrange for hepatitis E testing, contact TDH at (800) 252-8239 to obtain the appropriate forms.

Stool samples will be examined at TDH for viral particles by electron microscopy and immune electron microscopy. Serum for anti-HEV testing will be forwarded from TDH to the Centers for Disease Control and Prevention (CDC). To have both the serum anti-HEV test and the stool tests performed, 2 to 3 grams of stool and at least 2 milliliters of serum should be collected. These specimens should be accompanied by both a completed TDH **G1** laboratory form and a CDC **Viral Hepatitis Case Record** form (CDC 53.1, rev 6-93) and sent cold, but not frozen, within 24 hours of collection to:

Texas Department of Health
Bureau of Laboratories
1100 W. 49th St.
Austin, Texas 78756

For cases in which testing for additional hepatotropic viruses is indicated, also submit 2 serum specimens of 0.5 mL each in plastic cryovials (available from TDH). These specimens must be frozen to -20 C^0 within 4 hours of collection and shipped on dry ice overnight to TDH.

Think hepatitis E when patients ...

present with symptoms of acute hepatitis and are seronegative for hepatitis A, B, and C - particularly if they have traveled to a developing country within the last 9 weeks or if they live on the Texas / Mexico border.

Editorial Note: Serology results on many patients with acute hepatitis C are negative for anti-HCV during the early months of illness, but patients may seroconvert later. Therefore, initial findings that are negative for antibodies to hepatitis A, B, C, and E, should be followed up by immediate use of the reverse transcriptase polymerase chain reaction (RT-PCR) test for HCV RNA or by retesting for anti-HCV about 6 months later.

Prepared by Ben J. Barnett, MD, and Lynne Sehulster, PhD, TDH Infectious Disease Epidemiology and Surveillance Division

The authors wish to thank Laura Tabony, MPH, M(ASCP), Section Chief, TDH Diagnostic Serology Laboratory, and Susan Neill, PhD, Branch Director, TDH Medical Virology laboratory for their assistance.

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1. Control of Communicable Diseases Manual, Abram S. Benenson, editor. 16th edition, APHA, 1995.

2. Bradley DW, Krawczynski K, and Purdy MA. Epidemiology, Natural History, and Experimental Models, in Viral Hepatitis: Scientific Basis and Clinical Management, Arie J. Zuckerman, editor. Churchill Livingstone, 1993.

3. Zhang HY, et. al. Hepatitis E Virus Excretion and Serologic Response for an Epidemic of Hepatitis in Pakistan: Abstract in Program and Abstracts of the 44th Annual Meeting of the American Society of Tropical Medicine and Hygiene, San Antonio, TX, November 17 - 21, 1995.

The One That Got Away

Over the last few years a number of emerging infections in Texas have been recognized because healthcare professionals have called the health department to discuss a novel patient, microorganism, or antibiotic resistance pattern. In each instance confirmation was possible because either sera or isolates had been saved. This report was prepared to warn health professionals in Texas of a serious infection expected to emerge soon and to emphasize the need for a swift response to this threat.

In 1993 the first hantavirus case in Texas was identified when an infection control practitioner contacted the Texas Department of Health (TDH) Infectious Disease Epidemiology and Surveillance Division (IDEAS) to report a case of an unusual pneumonia. The Centers for Disease Control and Prevention (CDC) was able to test the serum and confirm the case.

In 1994 and early 1995 a listeriosis outbreak in Webb County was identified when an infection control practitioner contacted the local health department to report the cases. Because the hospital laboratory had saved the *Listeria* isolates, the TDH Laboratory was able to compare the isolates by pulsed-field gel electrophoresis (PFGE) and confirm a common-source outbreak due to a frozen vegetable mix.

Over the last few years in Texas, meningococcal infections have shifted from predominately serogroup B to C. It has been possible to follow this trend because many laboratories send their meningococcal isolates to the TDH laboratory for serogrouping. For instance, 159 meningococcal isolates were submitted to the TDH Laboratory during 1995; 91% were serogroup C.

During 1989, in contrast, 21 isolates were submitted; only 19% were serogroup C. Such data are particularly important during meningococcal outbreaks when the issue of vaccine use arises. The polyvalent vaccine includes antigens for only serogroups A, C, Y, and W-135.

Of recent concern are antibiotic resistant bacteria such as methicillin resistant *Staphylococcus aureus* (MRSA), which has become increasingly prevalent over the last few decades and now can be found in almost every hospital. Vancomycin resistant *Enterococcus* (VRE) and penicillin resistant *Streptococcus pneumoniae* have emerged more recently. The anticipation of vancomycin resistant *Staphylococcus aureus* (VRSA) emerging in the near future has raised concerns among scientists and health professionals that we may soon enter the postantibiotic era. **However, such resistance has never been confirmed in any hospital or community setting**.

Over the last year IDEAS has received 3 reports of possible VRSA. In 2 instances the infection control practitioner was reviewing microbiology laboratory reports and noticed that a *Staphylococcus aureus* isolate was resistant to vancomycin (Figure 1). In both cases, the isolate had already been discarded. In 1 of these 2 instances the patient was recultured and found to have *Serratia marcescens.* In only 1 instance was an isolate still available; IDEAS was notified immediately, but vancomycin resistance was not confirmed by the reporting hospital.

The anticipation of . . . VRSA emerging in the near future has raised concerns . . . that we may soon enter the postantibiotic era.

The emergence of antibiotic resistant bacteria is of critical concern; TDH will be increasing efforts over the next few months to inform health professionals of important resistance patterns in their particular communities. This fall TDH hopes to initiate laboratory-based surveillance for vancomycin resistant *Enterococcus* and drug resistant *Streptococcus pneumoniae.* Data regarding the prevalence of these organisms will be provided through this newsletter and via the Internet.

Continued ☞

Any laboratorian who identifies a VRSA isolate should **immediately**

1. Notify the microbiology supervisor.
2. Notify the patient's physician and, if applicable, the Infection Control Practitioner at the hospital.
3. Contact IDEAS at (800) 252-8239 for assistance with confirmation of vancomycin resistant *Staphylococcus aureus* and for infection control recommendations.

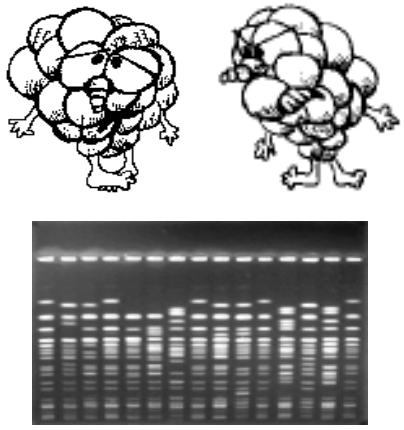
Identification of VRSA is of worldwide importance. Immediate action is required if VRSA is identified. A VRSA isolate MUST NEVER BE DISCARDED.

Prepared by Beverly Ray, RN CIC, and Kate Hendricks, MD, MPH&TM, IDEAS

Acknowledgement: The FBI office in Austin provided the wanted poster used as a guideline for presenting the information below.

WANTED BY TDH - Alive

Vancomycin Resistant *Staphylococcus aureus*



Aliases: *S. aureus*, Staph, VRSA
Place of Birth: ??? County, Texas
Race: bacteria
Size: 0.5 - 1.5 μm in diameter
Other Physical Characteristics: coagulase positive, Gram positive, catalase positive; may be seen singly or in pairs, tetrads, short chains, or irregular clusters
ICD-9 Code: 041.1
Occupation: human pathogen

Remarks: *S. aureus* laboratory results for vancomycin showing a Minimal Inhibitory Concentration (MIC) $\geq$16 μg/mL are indicative of RESISTANT organisms. **Apprehend immediately!** MICs of 2-8 μg/mL: INTERMEDIATELY RESISTANT (Russle up them critters, too!) The TDH Microbiological Investigation Section will confirm the resistance. Submit a pure, LIVE culture of any suspected VRSA on any suitable medium (preferably in tubes rather than on plates). Send specimen at ambient temperature to TDH Bureau of Laboratories, 1100 West 49th Street, Austin, TX 78756.

A TDH warrant has been issued May 27, 1996, by the Commissioner of Health, charging *Staphyococcus aureus* with causing the following skin infections: furuncles or boils, cellulitis, impetigo, scalded skin syndrome, and postoperative wound infections. *S. aureus* also is charged with causing infectious pneumonia, meningitis, bacteremia, osteomyelitis, acute endocarditis, myocarditis, pericarditis, cervicitis, cerebritis, meningitis, and abscesses of the muscle, urogenital tract, central nervous system, and various intra-abdominal organs.

CAUTION: VRSA is being sought for causing serious, possibly fatal, nosocomial infections. This organism should be considered highly resistant to antibiotics and extremely dangerous.

If you have any information concerning this organism, please contact the TDH Infectious Disease Epidemiology and Surveillance Division IMMEDIATELY at (512) 458-7676 or (800) 252-8239, press 1.

$100 REWARD OFFERED !

...to the laboratory staff who submit/s the 1st Texas isolate confirmed as vancomycin RESISTANT *S. aureus*[*]

* Reward funded by private donation

Figure 1. Infection Control Review Report for 3/27/96 to 3/27/96*

Patient Name: Aureus, Stephanie
Patient Number: 000110011
Location: ICU, St. Anywhere Texas Hospital
Phys-Service: Ima Cure

>> CULTURE, URINE-CATHERIZED <<
Source: urine

Coll. Time:	3/24/96	In at:	3/24/96 1300	Acct #:	XYZABC
Order Phys:	Cure, Ima			Techs:	XXIX2IX
Out at:	3/27/96	Final	[XXXX]	Techs:	IDLAB

CULTURE
>100,000 CFU/cc

STAPHYLOCOCCUS AUREUS (S. aureus)
confirmed VRSA
gram positive cocci

(MIC - ug/ml)	S. aureus		Dosage	Ach. Level Urine
Amox/K Clav'ate:	R	8/4	PO 1-2 tabs q 8H	750
Ampicillin:	R	>8	PO 250-500 mg q 6H	350
			IV 1-2 gm q 4H	
Cefazolin:	R	>16	IM 0.5 - 1 gm q 8H	
			IV 1-2 gm q 8H	
Cefotaxime:	R	>32	IV 1-2 gm q 8-12H	
Cephalothin:	R	>16	PO 250-500 mg q 6H	800
			IV 0.5-2 gm q 4-6H	
Ciprofloxacin:	R	>2	PO 250-750 mg q 12H	200-400
			IV 200-400 mg q 12H	200-400
Clindamycin:	R	>2	PO 150-300 mg q 6H	
			IV 600-900 mg q 8H	
Erythromycin:	R	>4	PO 250-500 mg q 6H	
Gentamicin:	R	>6	IM/IV 1-1.7 mg/kg 1 8H	
Imipenem:	R	>8	IV 0.5-1 gm q 6-8H	
Nitrofurantoin:	I	64	PO 50-100 mg q 6H	150
Norfloxacin:	R	>8	PO 400 mg q 12H	200
Oxacillin:	R	>4	IV 0.5-2 gm q 4H	
Penicillin:	R	>8	PO 250-500 mg q 6H	300
			IM 900,000-1.2 mil q 6-12	
			IV 1-3 million units q 4H	
Rifampin:	M	2	PO 300 mg q 12H	
Tetracycline:	R	128	PO 250-500 mg q 6H	500
Trimethoprim/Sulf:	R	>2/38	PO 1-2 tabs q 12H	80/400
			IV 3.3-6.6 mg/kg Tri q 8H	
Vancomycin:	**R**	**>16**	**IV 1 gm q 12H**	

* Only patient, hospital, and hospital staff identifiers have been altered in this report.

Endemic Arboviral Activity: By Region, 1995

Public Health Region	Eastern Equine Encephalitis	St. Louis Encephalitis	Western Equine Encephalitis	Dengue Fever
1				
3				
4				
5				
6				
7				
10				
11				

For regional boundaries, see map on page 7.

New DPN Feature: Endemic Arboviral Activity Chart

In May of each year, a chart summarizing endemic arboviral activity for the previous year will be published. Subsequent charts will appear monthly from June through November showing current year cumulative totals of emus, horses, dogs, chickens, pigeons, mosquitos, and humans infected with various endemic arboviruses.

There were 22 cases of St. Louis encephalitis (SLE) cases reported in Texas for 1995. Six patients died. Most patients (20) had exposure to infected mosquitos in Dallas County. Onsets of illness occurred from July 15 through September 16, 1996. These 20 patients ranged in age from 20 through 93 years; 9 were 50 years of age or older. The single SLE case in Public Health Region 7 occurred in Brazos County. Infected mosquitos were collected near the patient's home, and samples taken from both of the patient's pet dogs were serologically positive for SLE.

Seven locally acquired dengue cases were identified in 1995. All 7 individuals resided in Cameron or Hidalgo Counties. Onsets of illness occurred from September 10 through November 13, 1996. Eastern equine encephalitis virus was identified in horses in several counties throughout East Texas. This virus also caused high mortality among emus on farms in East Texas.

Mar/Apr 1996

Bimonthly Statistical Summary of Selected Reportable Diseases

	HHSC Region											Selected Texas Counties								This Period		Cumulative[1]	
Selected Diseases/Conditions	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Bexar**	**Dallas**	**El Paso**	**Harris**	**Hidalgo**	**Nueces**	**Tarrant**	**Travis**	**1995**	**1996**	**1995**	**1996**
Sexually Transmitted Diseases[2]																							
Syphilis, primary and secondary	0	1	41	14	10	21	12	0	0	0	2	*0	25	*0	**21	1	0	12	*0	95	101	331	280
Congenital Syphilis	0	0	0	0	0	25	0	0	0	0	0	*0	0	*0	**25	0	0	0	*0	29	25	50	52
Resistant Neisseria gonorrhoeae	0	2	8	0	0	0	2	1	0	0	1	*0	0	*0	**0	0	0	0	*0	30	14	66	25
Enteric Diseases																							
Salmonellosis	7	1	7	5	8	11	10	13	5	9	8	~	3	9	3	+	6	^	5	184	84	350	257
Shigellosis	2	0	3	2	4	6	16	13	0	1	16	~	2	1	2	+	11	^	10	235	63	573	249
Hepatitis A	7	3	32	20	0	25	11	10	0	29	67	~	17	26	24	+2	8	^	9	477	204	956	687
Campylobacteriosis	4	3	7	1	4	9	25	3	0	6	4	~	4	6	5	+	3	^	17	124	66	257	152
Bacterial Infections																							
H. influenzae, invasive	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	1	6	1
Meningococcal, invasive	1	0	12	6	2	3	5	1	0	0	1	~	9	0	2	+	1	^2	4	65	31	121	101
Lyme disease	0	0	1	0	0	0	0	0	0	0	0	~	0	0	0	+	0	^	0	9	1	24	1
Vibrio species	0	0	0	0	0	0	0	0	0	0	0	~	0	0	0	+	0	^	0	1	0	2	0
Other Conditions																							
AIDS[4]	7	0	181	17	42	268	65	69	11	18	22	61	146	18	259	3	10	36	36	981	700	1709	1351
Hepatitis B	6	4	13	1	5	13	2	3	1	3	5	~	7	3	4	+	3	^	0	184	56	422	201
Adult elevated blood lead levels	0	0	24	0	1	0	1	21	0	0	0	21	20	0	0	0	0	1	0	98	47	199	80
Animal rabies - total	0	7	1	0	0	1	25	18	25	3	12	1	0	1	1	3	2	0	3	197	92	329	157
Animal rabies - dogs and cats	0	0	0	0	0	0	1	1	1	1	4	0	0	0	0	0	2	0	0	26	8	53	12
Tuberculosis Disease[2]																							
Children (0-14 years)	1	0	6	3	0	12	7	3	1	0	3	3	4	0	8	0	2	1	1	28	36	42	53
Adults (>14 years)	5	3	61	13	3	124	25	35	2	7	41	21	39	7	93	7	11	19	12	362	319	555	523
Injuries[2]																							
Spinal Cord Injuries	24	1	15	1	0	0	3	3	9	0	1	1	2	0	0	0	0	8	1	96	57	124	111

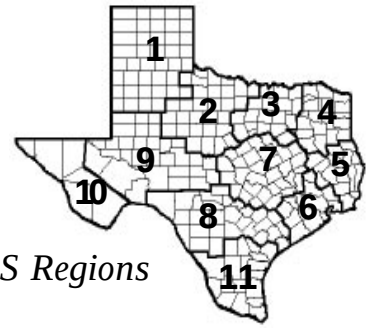
1. Cumulative to this month. 2. Data for the STD's, Tuberculosis, and spinal cord injuries are provided by date of report, rather than date of onset. 3. Voluntary reporting. 4. AIDS totals include reported cases from Texas Department of Corrections, which are not included in the regional and county totals. * County data not available. ** Partial data. ~ 1996 data unavailable from local health dept. + Weeks 7-18 unavailable from local health dept. ^ Weeks 11-18 unavailable from local health dept.

Call 1-800-705-8868 to report

1994 POPULATION ESTIMATES

HHSC REGIONS							
1	751,822	4	931,379	7	1,844,240	10	684,580
2	530,445	5	680,001	8	1,919,939	11	1,499,969
3	4,724,463	6	4,184,163	9	537,820		
STATEWIDE TOTAL	**18,286,827**						

SELECTED TEXAS COUNTIES			
Bexar	1,268,744	Hidalgo	442,346
Dallas	1,987,680	Nueces	306,499
El Paso	658,498	Tarrant	1,314,613
Harris	3,004,010	Travis	605,804



DHHS Regions

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Vaccine Preventable Disease Update
Confirmed cases with onset from 3/1/96-4/30/96

Condition	County	Number of Cases	Date of Onset
Measles	Cameron	1	3/15
	Wichita	1	4/18
Mumps	Hidalgo	1	3/18
	Cameron	2	4/6
	Liberty	1	4/9
	Fort Bend	1	4/10
	Galveston	1	4/14
Pertussis	Bexar	1	3/5
Pertussis	Harris	1	3/5
	Jim Hogg	1	3/9
	Harris	1	3/11
	Bexar	1	3/15
	Brazos	1	3/17
	Tarrant	1	3/18
	Brazos	1	3/27
Rubella	Harris	1	3/1

YTD	Measles	Mumps	Pertussis	Rubella
	2	**13**	**29**	**6**