



West Virginia

EPI-LOG

Acute hepatitis B viral infection associated with mass dental clinic

In November 2009, the West Virginia Department of Health and Human Resources (WVDHHR) was notified by the nurse director at the Berkeley County Health Department (BCHD) that a cluster of patients with acute hepatitis B infections was associated with a mass dental clinic. The dental clinic was held in June 2009. Over 700 volunteers and oral health professionals provided free dental services to more than 1,000 persons in West Virginia and neighboring states.

Because of concern regarding possible nosocomial transmission of hepatitis B at the mass dental clinic, an outbreak investigation was initiated by WVDHHR.

An investigation team was established and an active surveillance plan initiated. The investigation included active surveillance to identify additional cases, patient and volunteer questionnaires to identify potential HBV exposures, and interviews with clinic coordinators to describe clinic procedures.

Two questionnaires were developed and administered to potential cases. The first questionnaire was designed to assess risk factors for hepatitis B transmission outside of the dental clinic and was administered to four cases; two volunteers and two patients.

Of the interviews conducted, 3 cases did not have any identifiable

(See *Dental Clinic*, page 2)



Statewide Disease Facts & Comparisons

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& Prevention Services

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Office of Epidemiology & Prevention Services

AIDS Surveillance	(304) 558-2987
AIDS Prevention	(304) 558-2195
Cancer Epidemiology	(304) 558-6421
Infectious Disease Epidemiology	(304) 558-5358
Immunization Services	(304) 558-2188
Sexually Transmitted Diseases	(304) 558-2950
TB Elimination	(304) 558-3669



Joe Manchin III, Governor
Patsy A. Hardy, Cabinet Secretary

(Dental Clinic, continued from page 1)

risk factors other than participation at the mass dental clinic. One case reported using a telephone that had a neighbor's blood on it which indicated this patient may have risk factors for HBV transmission beyond the dental clinic. One case did not respond to numerous phone calls and letters from BCHD requesting an interview.

The second questionnaire was created to obtain more specific information from potential case patients and volunteers regarding potential exposures at the dental clinic. Patients were asked about the type and extent of dental services they received. Dental clinic volunteers were asked about their role and job duties at the clinic.

Cases were defined based on clinical and laboratory criteria for acute hepatitis B.

Using the case definition, 5 cases of hepatitis B were identified among patients and volunteers at the dental clinic. Three (60%) were patients and two (40%) were volunteers.

Based on information from the cases' HBV case reports, five of five (100%) had elevated liver enzymes, posi-

tive hepatitis B surface antigen (HBsAg) and IgM antibody to hepatitis B core antigen (IgM anti-HBc). Four of the five (80%) were also jaundiced. Based on information from the dental clinic records, all three patients had extractions, one patient received restorative dental services, and one patient received prophylaxis dental services. Of the two volunteers, one worked in logistics and maintenance and the other worked in the dental triage section escorting patients. All five cases either worked or received treatment at the dental clinic on Friday, June 26, 2009. The two volunteers also worked on Saturday.

In December, the BCHD sent blood specimens from three of the potential cases to the Office of Laboratory Services (OLS) who then sent them to the Centers for Disease Control and Prevention (CDC) where the HBV genotype was identified.

The dental clinic patient database was compared with the state's hepatitis registries. An HIV registry cross-match was also performed by the HIV surveillance program epidemiologist.

(See Dental Clinic, page 7)



The old Hedgesville High School gymnasium, shown here, was converted into dental cleaning stations, numbing stations and surgical stations for the Mission of Mercy dental clinic. Photo by Ron Agnir, courtesy of The Journal newspaper, Martinsburg, WV.

Join us for the Lab/Epi Section presentation at Canaan Valley on September 23, 2010!

The Lab/Epi Section of WV Public Health Association (WVPHA) will have great presentations again at this year WVPHA annual meeting that will be held from September 22-24, 2010 in Canaan Valley Resort and Conference Center in Davis, WV. Everyone is welcome to attend for free of charge on Thursday, September 23, 2010 in Birch Room from 9:00 AM to 4:30 PM. You are also invited to join the Lab/Epi Section of WVPHA (Must be the current WVPHA member). For detailed information about the WVPHA and the annual meeting, please visit: <http://www.wvdhhr.org/wvpha/>

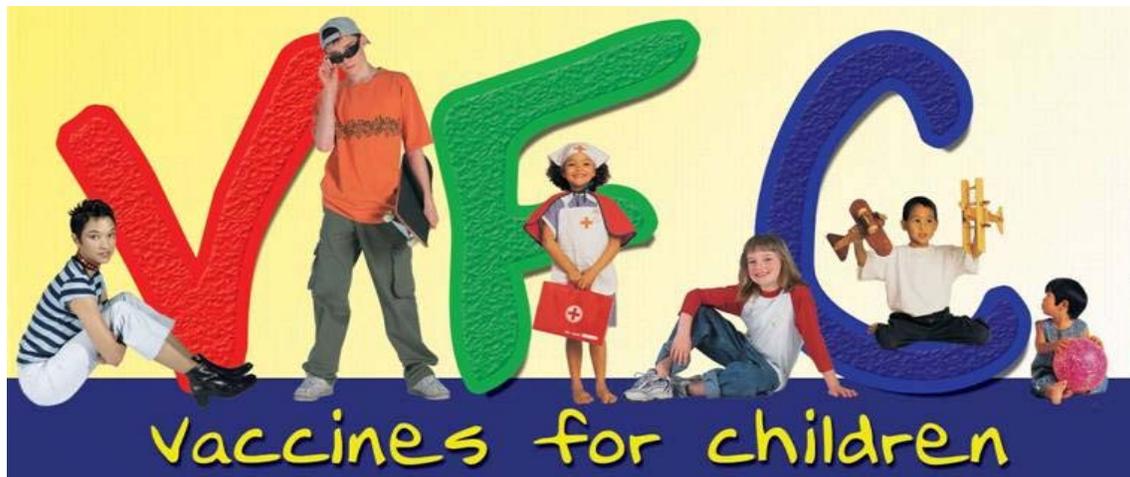
- 9:00 - 9:10 am **Welcome**
Loretta Haddy, Director of Office of Epidemiology & Prevention Services/ State Epidemiologist
- 9:10 - 10:00 am **Building Epidemiological Capacity in Kentucky Initiative**
Doug Thoroughman, CDC/ Kentucky Department of Public Health
- 10:00 - 10:30 am **BREAK**
- 10:30 - 10:50 am **Quanti-FERON TB Gold in Tube**
Angie Gray, Berkeley County Health Department
- 10:50 - 11:10 am **General TB Testing at OLS**
Nicole Haddox, Office of Laboratory Services
- 11:10 - 11:35 am **"Two Outbreaks...Same Culprit?" Outbreaks of *Salmonella Enteritidis* Associated with a Chain Restaurant**
Suzanne Wilson, Office of Epidemiology and Prevention Services
- 11:35 - Noon **Diagnostic Immunology: What We Can Do for You**
Dondeena McGraw, Office of Laboratory Services
- Noon - 1:30 pm **Luncheon and Business Meeting**
- 1:30 - 2:00 pm **Evaluation and Descriptive Epidemiology of Animal Bite/Exposure Reports: West Virginia, 2009**
Jonah Long, Office of Epidemiology and Prevention Services
- 2:00 - 2:30 pm **Molecular testing at WV Office of Laboratory Services**
Ed Dossantos, Office of Laboratory Services
- 2:30 - 3:00 pm **BREAK**
- 3:00 - 3:30 pm **Instant Atlas with WV data**
Neal Vance & Herbie Pauley, Office of Epidemiology and Prevention Services
- 3:30 - 4:10 pm **Acute Hepatitis B Viral Infection Associated with a Mass Dental Clinic, West Virginia, 2009**
Vickie Greenfield, Berkeley County Health Dept.
Vicki Hogan, Office of Epidemiology and Prevention Services
- 4:10 - 4:30 pm **Influenza Testing at Hospital Laboratories, West Virginia, 2009**
Rachel Radcliffe, Office of Epidemiology and Prevention Services
- 4:30 - 5:00 pm **Game Show with Audience Participation**
- 5:00 pm **Meeting adjourn**

Poster Presentations

Factors Associated with Discharge Against Medical Advice from Emergency Departments Among Older Adults
Sarah Dee Geiger, M.S. PhD Student, Public Health Sciences, West Virginia University

Smoking during Pregnancy and Other Maternal Characteristics Associated with Low Birth Weight among Singleton Term Infants: West Virginia, 2005-2006
Rachel Radcliffe, Office of Epidemiology and Prevention Services/ CDC

***Staphylococcus Aureus* Infections Associated with Epidural Injections: West Virginia, 2009**
Rachel Radcliffe, Office of Epidemiology and Prevention Services/ CDC



VFC: Vaccines for Children

Successful strategies for improving immunization coverage rates

Childhood and adolescent vaccination is a significant resource in preventive care. West Virginia has made vaccinating all children appropriately as a priority. In 1994 West Virginia became one of the first states to enroll in the federally funded Vaccines for Children (VFC) program. Through this program approximately 400 medical providers throughout the state receive vaccines, at no cost, that can be administered to children through 18 years of age who meet one of the following criteria: Medicaid eligible, Uninsured, Indian (American Indian or Alaska Native) or are Underinsured.

The program is designed to remove financial barriers and to assure that all children have access to vaccinations. Providing vaccine alone is not enough to improve vaccination coverage rates and keep children safe and healthy, outreach is also needed to ensure children and adolescents receive those vaccines that are recommended by the Centers for Disease Control & Prevention (CDC) in a safe and effective manner.

This has been a major factor in planning efforts in the West Virginia Division of Immunization Services in recent years. Significant efforts have been made to increase the number of VFC providers who receive educational visits on an annual basis. These educational visits utilize guidelines from the Advisory Committee on Immunization Practices (ACIP) as well as the Standards for Pediatric Practice. Conducting these visits serves as an opportunity for VFC staff to share new vaccine related information and to obtain feedback from providers about

ways to improve upon childhood vaccinations.

The state has increased site visits from barely 38% in 2004 to 100% of eligible providers receiving a visit in 2009. By making VFC staff available to providers on a more frequent basis West Virginia anticipates improvements in immunization coverage rates. Though a significant rate increase has not been seen to date it is important to acknowledge that rates are calculated for children aged 19-35 months and, for that reason, it will likely take at least three years to see the increase in provider visits impact the immunization coverage rates.

Accomplishing the goal of 100% provider visits required a great deal of work on the part of the VFC staff. Cross training and efficiency practices were implemented in order to increase the quantity while also improving quality of visits. Using the West Virginia Statewide Immunization Information System (WVSIIS) to conduct a portion of visits added to the ability to enhance VFC visits. In June 2010, West Virginia was invited to share the practices implemented in incorporating WVSIIS into these visits at Vaccine University. This biennial three-day training is planned and organized by CDC for grantees and provides the opportunity for practical learning about the VFC Program from peers and subject-matter experts.

Although much improvement has occurred toward improving vaccine safety and immunization coverage rates in recent years, additional efforts are needed to further improve outcomes and protect children and adolescents. ☒

Invasive Pneumococcal Disease in West Virginia, 2009

Surveillance and Case Definition: Invasive pneumococcal disease is reportable in West Virginia. The case definition of invasive pneumococcal disease surveillance is isolation of *Streptococcus pneumoniae* from a normally sterile site in a resident of West Virginia in 2009. Isolates of *S. pneumoniae* from a normally sterile site should be forwarded to West Virginia Office of Laboratory Services (304-558-3530) for serotyping. This report includes the cases of all invasive pneumococcal disease by onset date or diagnosis date in 2009.

Demographic Data (N=309)

Gender	No.	%
Female	166	54
Male	143	46

Race	No.	%
White	277	89.6
Unknown	18	5.8
Black	12	3.9
American Indian	1	0.3

Ethnicity	No.	%
Non-Hispanic	261	84.5
Unknown	48	15.2
Hispanic	1	0.3

Age-group(years)	Cases		Death	
	No.	Rate*	No.	Rate*
<1	6	2.9	1	0.48
1-4	15	1.9	0	0
5-14	12	0.5	0	0
15-24	6	0.2	1	0.04
25-34	14	0.6	2	0.09
35-44	15	0.6	1	0.04
45-54	51	1.8	6	0.21
55-64	57	2.6	6	0.28
e"65	133	4.8	25	0.9
Total	309	1.7	42	0.23

(* Cases or deaths per 100,000 population)

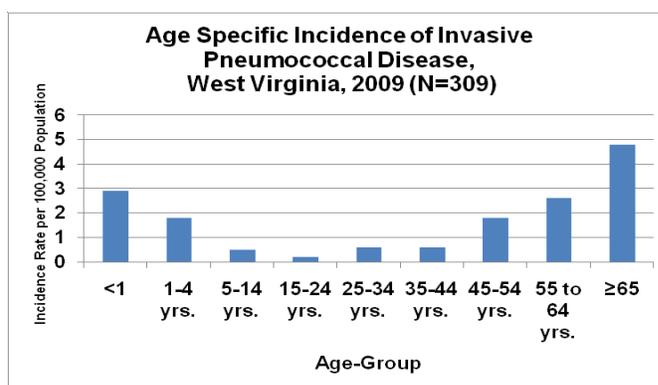
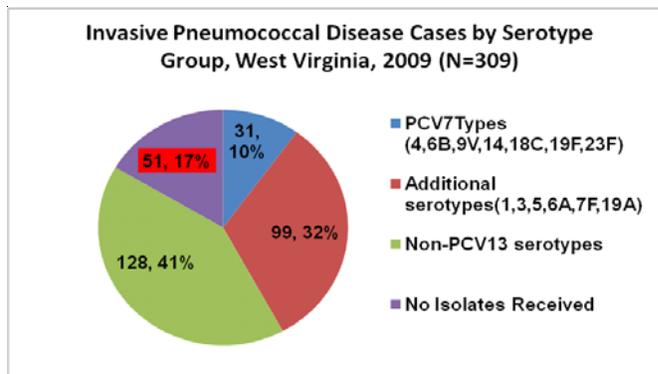
Syndrome	No	%
Meningitis	12	3.9
Bacteremia without focus	89	28.9
Pneumonia with bacteremia	208	67.2

Antibiotic Susceptibility (Hospital and reference lab testing)

Antibiotic	Susceptible		Intermediate		Resistant		Unknown		Total
	No.	%	No.	%	No.	%	No.	%	
Penicillin	210	71.4	43	14.6	39	13.3	2	0.7	294
Cefotaxime	155	90.1	11	6.4	3	1.7	3	1.7	172
Erythromycin	158	65.3	6	2.5	75	31	3	1.2	242
TMP/Sulfa	191	74.6	12	4.7	53	20.7	0	0	256
Tetracycline	159	80.7	6	3	30	15.2	2	1	197
Levofloxacin	252	98.8	0	0	3	1.2	0	0	255
Vancomycin	240	97.6	0	0	1	0.4	5	2	246

Serotypes for All Age-Group (WV Office of Laboratory Services testing)

PCV13 Serotypes													Non-PCV13 Serotypes	No Isolates Received
PCV7 Types						Additional serotypes								
4	6B	9V	14	18C	19F	23F	1	3	5	6A	7F	19A		
6	4	7	2	3	6	3	7	17	0	0	44	31	128	51



**West Virginia AIDS and HIV Infection Cases Diagnosed by
Age Group, Gender, Race and Exposure Category
Cumulative through June 30, 2010**

Characteristic	AIDS		HIV		Total	
	No.	%	No.	%	No.	%
Age at Diagnosis						
<13	12	1	11	1	23	1
13-24	186	11	164	21	350	14
25-34	561	33	281	37	842	34
35-44	601	36	204	27	805	33
45-54	233	14	87	11	320	13
55-64	79	5	15	2	94	4
65+	20	1	6	1	26	1
Gender						
Males	1,391	82	557	73	1,948	79
Females	301	18	211	27	512	21
Race/Ethnicity						
White	1,267	75	490	64	1,757	71
Black	386	23	250	33	636	26
Other/Unknown*	39	2	28	4	67	3
Exposure Category						
Male-to-male sex (MSM)	904	53	353	46	1,257	51
Injection drug use (IDU)	272	16	125	16	397	16
MSM/IDU	85	5	19	2	104	4
Heterosexual contact	214	13	129	17	343	14
Perinatal	11	1	11	1	22	1
Other/Unknown**	206	12	131	17	337	14
Total	1,692	100	768	100	2,460	100

Notes. These are actual numbers of cases of HIV/AIDS that were reported to the West Virginia Health Department as of June 30, 2010. No adjustments were made for reporting delays. AIDS data includes reports from April 1984 through June 30, 2010; HIV data includes reports from January 1989 through June 30, 2010. Numbers include persons diagnosed with HIV infection (not AIDS), HIV infection and later AIDS, and concurrent diagnoses of HIV infection and AIDS. Percentages may not add to 100% due to rounding.

*"Other" race category includes Hispanic, Asian, Native Hawaiian, Pacific Islander, American Indian, Alaskan Native, Multiple Races, and Unknown race.

**"Other" risk category includes hemophilia, blood transfusion, and risk not reported or not identified.

(Dental Clinic, continued from page 2)

In order to investigate the clinical practices of the mass dental clinic, a questionnaire was developed to collect data on infection control training, flow of patients and equipment, and protocols used in each area of the clinic. Section supervisors from the sterilization area, numbing station, surgical dental services, restorative dental services, and safety were also interviewed.

Results from CDC indicated a full HBV genome sequence from the first specimen and determined it to belong to hepatitis B genotype D. Viral molecular analysis concluded that the four cases had hepatitis B genotype D. Molecular sequencing was done on a full hepatitis B viral genome available from the first specimen and only a partial genome available from the other specimens. All four specimens were identical in the available S gene region.

Multiple opportunities were identified to improve procedures at clinics; policies and practices should be re-evaluated in light of this unusual cluster of disease.

Based on the findings of the interviews with the dental professionals who worked the clinic, the following recommendations were made and provided to dental clinic organizers:

1. No mass dental clinic should be held in WV until a culture of patient and occupational health and safety is fully established.
2. Documentation - Medical records should

include complete and accurate information regarding medications administered along with names of persons who participated with the procedure.

3. Infection control practices - Written policy and procedures for infection control should be developed and regularly assessed and updated. Additionally, ensure all staff are aware and comply with all infection control policies.

4. Environmental cleaning and disinfection - Adhere to CDC / HICPAC Guidelines

5. Informed consent - Each patient should be aware of the clinic services provided and counseled about signs and symptoms to watch for after each procedure.

Based on the results of the investigation, notifications were sent to all patients and volunteers recommending testing for bloodborne pathogens. A mass testing clinic was held in Berkeley County in June 2010 for patients and volunteers of the dental clinic. Participants of the dental clinic could also go to their county health department for hepatitis testing.

To date, 361 participants have been tested for hepatitis B, C and HIV. Of the 361 tested, zero positive hepatitis B or HIV tests have been detected and only eight positive hepatitis C results were reported.

In summary, the investigation indicated that 3 patients and 2 volunteers were likely exposed to HBV during participation in the dental clinic; however the exact mode of transmission has not been determined. ☒

The West Virginia EPI-LOG is published quarterly by the West Virginia Department of Health and Human Resources, Bureau for Public Health, Office of Epidemiology & Prevention Services. Graphic layout by Chuck Anziulewicz. Please call the Office of Epidemiology & Prevention Services at (304) 558-5358 if you need additional information regarding any article or information in this issue, or if you have suggested ideas you would like to contribute for a future issue.