



West Virginia

EPI-LOG

Increasing incidence of hepatitis B in West Virginia underscores importance of neonatal hep B vaccination

Hepatitis B is a viral infectious disease that attacks the liver and is most often associated with unsafe sexual practices and intravenous drug use. The disease burden in the United States is considerable, as more than 1 million persons are current carriers of the virus and it contributes to the deaths of approximately 5,000 persons each year¹. Although national hepatitis B surveillance data reveal a decrease in overall acute hepatitis B rates over the past 15 years, disease rates in West Virginia have steadily increased with the rate of acute hepatitis B rising by 5-fold during the past 10 years (Figure 1). Based upon 2007 Centers for Disease Control and Prevention (CDC) surveillance data, West Virginia has the highest rate of acute hepatitis B in the United States².

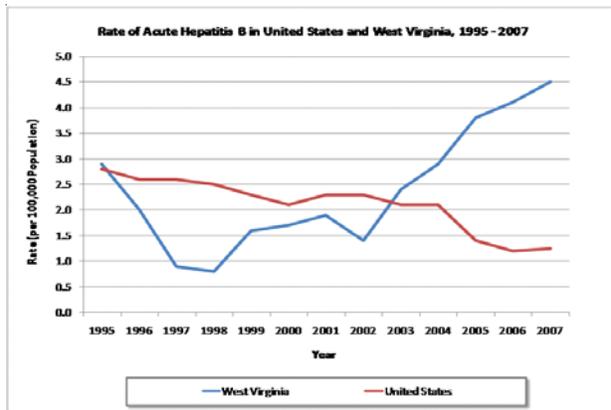


Figure 1. Comparison of the rate of acute hepatitis B in the United States and West Virginia from 1995 through 2007²

(See *Hepatitis*, page 4)

Statewide Disease Facts & Comparisons

A quarterly publication of the West Virginia Office of Epidemiology & Prevention Services

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Joe Manchin III, Governor
Martha Y. Walker, Secretary (DHHR)

**West Virginia AIDS and HIV Infection Cases Diagnosed
by Age Group, Gender, Race and Risk Behavior**

Cumulative through June 30, 2009*

Characteristic	AIDS		HIV		Total	
	#	%	#	%	#	%
Age Group ~						
Under 5	9	1	6	1	15	1
5-12	3	<1	2	0	5	<1
13-19	17	1	47	6	64	3
20-29	251	15	273	35	524	22
30-39	664	41	251	32	915	38
40-49	478	30	134	17	612	26
50 and Over	198	12	61	8	259	11
Total	1620	100	774	100	2394	100
Gender						
Male	1351	83	544	70	1895	79
Female	269	17	230	30	499	21
Total	1620	100	774	100	2394	100
Race						
White	1264	78	478	62	1742	73
Black	333	21	275	36	608	25
Other/Unknown	23	1	21	3	44	2
Total	1620	100	774	100	2394	100
Risk Behavior						
Adult						
MSM	869	54	342	45	1211	51
IDU	250	16	130	17	380	16
M SM/IDU	82	5	16	2	98	4
Coagulation Disorder	41	3	3	0	44	2
Heterosexual Contact with Transfusion/Transplant	197	12	134	17	331	14
	32	2	4	1	36	2
No Identified Risk/Other**	136	8	137	18	273	12
Subtotal	1607	100	766	100	2373	100
Pediatric						
Coagulation Disorder	1	8	0	0	1	5
Mother HIV Positive^	12	92	7	88	19	90
No Identified Risk/Other**	0	0	1	13	1	5
Subtotal	13	100	8	100	21	100
Total Adults & Pediatrics	1620	100	774	100	2394	100

MSM = Men having Sex With Men; IDU = Injecting Drug User

* AIDS data includes April 1984 through June 30, 2009;
HIV data includes January 1989 through June 30, 2009.

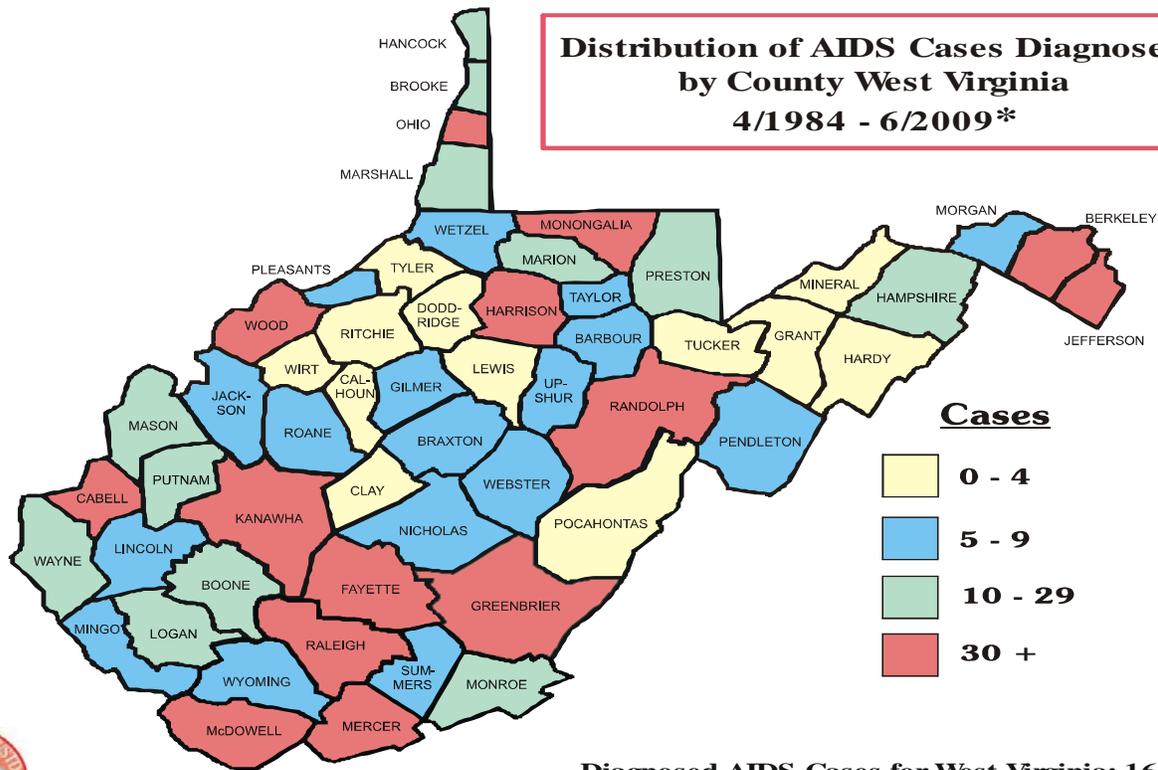
~ Age group intervals depicted in the table above may not be uniform due to:

- Small number of cases in the under 13 age groups.
- Cases twelve years of age and under are pediatric cases.

** Other risk behavior includes cases reported with no risk identified due to death or person moving away. These cases are closed due to inability to follow-up.

^ There was one reported case that is no longer a pediatric case but the only risk behavior reported was Mother HIV Positive.

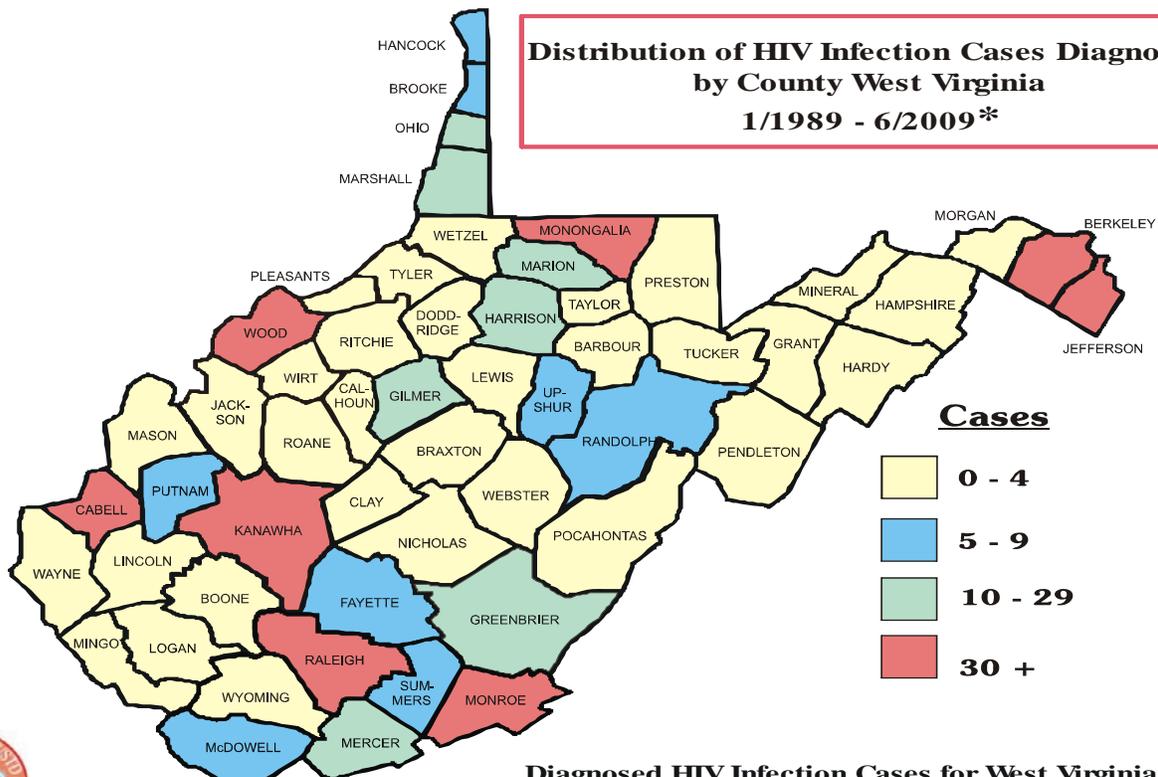
Note: Percent in columns may not add up to 100% due to rounding.



West Virginia Department of Health and Human Resources
 Division of Surveillance and Disease Control
 West Virginia HIV/AIDS/STD Program

Diagnosed AIDS Cases for West Virginia: 1620

* AIDS data includes April 1984 through June 30, 2009



West Virginia Department of Health and Human Resources
 Division of Surveillance and Disease Control
 West Virginia HIV/AIDS/STD Program

Diagnosed HIV Infection Cases for West Virginia: 774

* HIV data includes January 1989 through June 30, 2009

(Hepatitis, continued from page 1)

One of the most troubling yet preventable aspects of hepatitis B disease is the tremendous risk for perinatal transmission to children born to infected women. For pregnant females with active hepatitis B infection, 10% to 90% (depending on the infectivity of each case) will give birth to a child infected with hepatitis B. Furthermore, as many as 90% of newborns infected at birth, if not given post-exposure prophylaxis within 12 hours of birth, will go on to develop chronic hepatitis B disease¹.

Hepatitis B vaccine was introduced in 1981, and became an integral part of the child and adolescent immunization schedules in 1991 as one component of a national strategy to reduce hepatitis B transmission in the United States. Currently, children are to receive 3 doses of hepatitis B vaccine by 18 months of age. The first dose is given at birth, with dose 2 given at month 1 or 2 and dose 3 given any time from month 6 through 18.

The birth dose of hepatitis B serves several important purposes. It is administered to babies born to mothers of positive hepatitis B disease status in conjunction with hepatitis B immune globulin (HBIG) as post-exposure prophylaxis, which is a potentially life-saving and highly effective strategy to prevent potential perinatal transmission to the newborn. It also serves as a "safety net" and provides protection to infants born to mothers that have hepatitis B disease but were not identified prior to delivery due to not being screened or misinterpretation of hepatitis B laboratory tests. In addition, the birth dose of hepatitis B may serve as a predictor for future immunization status, as several studies have shown that children not receiving the birth dose of hepatitis B vaccine were more likely to be underimmunized for hepatitis B and thus the overall childhood immunization series at age 24 months³⁻⁵.

The West Virginia Statewide Immunization Information System (WVSIIS) was used to evaluate the timeliness of hepatitis B vaccine birth dose administration to West Virginia children born 2002 – 2007. WVSIIS was initiated in 1999 as a means of collecting and aggregating immunization data on West Virginia residents to create a repository of immunization records, with a focus on children. Currently, WVSIIS receives approximately 25,000 vaccinations reported by healthcare providers each week and stores over 6,000,000 vaccinations on nearly 1,000,000 persons.

The Advisory Committee on Immunization Practices (ACIP) recommends that all healthy infants weighing at least 2.0 kg at birth receive one dose of hepatitis B prior to hospital discharge. CDC further recommends that all birthing facilities institute standing orders for the administration of hepatitis B vaccine to all healthy newborn children weighing at least 2.0 kg as a component of regular medical care⁶. Data reported from the National Hospital Discharge Survey in 2006 indicate that for all child births (Cesarean and vaginal), the average length of stay following delivery was 2.6

days⁷. Additionally, based on data on 2006 births in the West Virginia, approximately 9.5% of children born were classified as low birth weight (<2.5 kg)⁸. Based on these data in conjunction with ACIP and CDC recommendations, one would expect most children in West Virginia should receive their first dose of hepatitis B vaccine within 3 days of birth.

As shown in Figure 2 above, WVSIIS data indicate that the proportion of children with a reported dose of hepatitis B vaccine administered within 3 days of birth rose consistently from birth year 2002 to birth year 2007, but is still well below the programmatic goal of 90%⁹. However, it should be noted that the data reported to

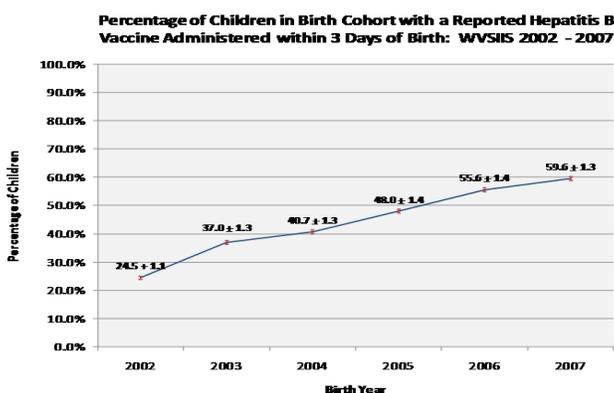


Figure 2. Percentage of newborn children with a reported hepatitis B vaccine administered within 3 days of birth from 2002 - 2007. Associated 95% confidence intervals are also shown. Data obtained from the West Virginia Statewide Immunization Information System (WVSIIS). Figure 2. Percentage of newborn children with a reported hepatitis B vaccine administered within 3 days of birth from 2002 - 2007. Associated 95% confidence intervals are also shown. Data obtained from the West Virginia Statewide Immunization Information System (WVSIIS).

(See Hepatitis, page 5)

(Hepatitis, continued from page 4)

WVSIIS on hepatitis B vaccination within 3 days of birth compare favorably with National Immunization Survey data reported for West Virginia for the years 2006 and 2007 (the only years during which this particular statistic has been reported). In addition, both NIS-West Virginia and WVSIIS data are on par with NIS-National data for the proportion children with one dose of hepatitis B vaccine within 3 days of birth (see Table 1). They key difference between the NIS data and WVSIIS data are that NIS data are based on a sample of persons but all immunizations are physically documented, whereas WVSIIS data are population-based but limited to data as reported by healthcare providers.

Administration of the birth dose of hepatitis B vaccine is an opportunistic and highly effective prevention measure that has many benefits, particularly in light of West Virginia’s nation-leading status of acute hepatitis B disease. Although much improvement has occurred regarding timely administration of hepatitis B vaccine following birth in West Virginia in recent years, additional efforts are needed to further improve outcomes and protect potentially susceptible infants.

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9. CDC. 2008-2012 Immunization Program Operations Manual (IPOM). Available at: <http://www.cdc.gov/vaccines/vac-gen/policies/ipom/default.htm>

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Table 1. Comparison of NIS and WVSIIS data for proportion of newborn children with hepatitis B vaccine administered within 3 days of birth.

Birth Cohort Year	Percentage of Children with a <i>Documented</i> Dose of Hepatitis B Vaccine Administered within 3 Days of Birth		Percentage of Children with a <i>Reported</i> Dose of Hepatitis B Vaccine Administered within 3 Days of Birth
	<i>NIS – U.S. (95% CI)^a</i>	<i>NIS^a – West Virginia (95% CI)^a</i>	<i>WVSIIS^c (95%CI)^c</i>
2002	- ^d	- ^d	24.5% (23.9 – 25.1)
2003	- ^d	- ^d	37.0% (36.3 - 37.6)
2004	- ^d	- ^d	40.7% (40.1 - 41.4)
2005	- ^d	- ^d	48.0% (47.3 - 48.7)
2006	50.1% (49.0 – 51.2)	49.6% (42.1 - 57.1)	55.6% (55.0 - 56.3)
2007	53.2% (51.9 – 54.5)	52.5% (45.7 - 59.3)	59.6% (58.9 - 60.2)

*a*NIS=National Immunization Survey¹⁰

*b*CI=Confidence Interval

*c*WVSIIS=West Virginia Statewide Immunization System

*d*NIS data for hepatitis B administered within 3 days of birth are not available prior to 2006

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