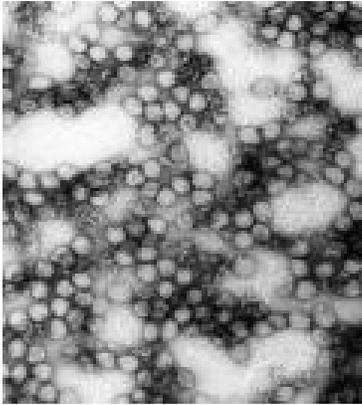


- Hepatitis Surveillance and Its Role in Outbreak Investigation
- Perinatal Hepatitis B Prevention Program

HEPATITIS SURVEILLANCE AND ITS ROLE IN OUTBREAK INVESTIGATION

May 2008 marked the 13th anniversary of Hepatitis Awareness Month in the United States. May 19 was World Hepatitis Day.



"Hepatitis" is a general term for inflammatory conditions of the liver. It is characterized by jaundice, hepatomegaly, anorexia, abdominal and gastric discomfort, abnormal liver function, clay-colored stools and dark urine. Hepatitis may be caused by bacterial or viral

infection, parasitic infestation, alcohol, drugs, toxins or transfusion of incompatible blood. It may be asymptomatic, mild and brief, or severe, fulminant and life threatening. In Nevada, viral hepatitis (hepatitis A, B, C, delta, unspecified) is a reportable disease per Nevada Administrative Code (NAC) 441A.

Acute Viral Hepatitis Incidence in Washoe County, 2007

Viral Hepatitis Type	2007 Incidence* in Washoe	2006 Incidence* in US	Healthy People 2010 Objective*
A	1.0**	1.2	4.5
B	1.7	1.6	N/A
B - 19-24 years	0.0**	N/A	2.4
B - 25-39 years	2.4**	3.2	5.1
B - >39 years	0.6**	N/A	3.8
C	0.5**	0.23	1.0

* Cases per 100,000 population; N/A: Not available

** HP 2010 Objective was achieved

Chronic Viral Hepatitis Prevalence in Washoe County as of 2007

Nationwide, there are about 1.25 million Americans living with chronic hepatitis B. In the US, an estimate of prevalence for chronic hepatitis B is below 2% (www.cdc.gov/ncidod/diseases/hepatitis). Between 1990-2007, 1109 unique (non-duplicate) cases of chronic hepatitis B virus (HBV) infection have been reported in Washoe County. Forty-three percent

(43%) were Asian/Pacific Islanders. A total of 1055 household and sexual contacts were identified. Of 1055 contacts, 55% (577/1055) completed seroscreening and 60% of susceptible contacts (153/257) completed the hepatitis B vaccine series. All 19 infants born to women with chronic HBV infection in 2007 received HBIG and HBV vaccine within 12 hours of birth, as recommended.

Nationwide, there are about 3.9 million Americans living with chronic hepatitis C. In the US, an estimate of prevalence for chronic hepatitis C is 1.8% (www.cdc.gov/ncidod/diseases/hepatitis). Between May 1, 2002 and December 2007, a total of 4,116 unique cases of hepatitis C virus (HCV) infection were reported in Washoe County. This represents approximately 1% of the county population. Twenty-one percent (21%) of cases were identified through screening tests. Seventy-two percent (72%) of cases were ages 40-59 years, and 64% were male. African Americans and White non-Hispanics were disproportionately affected by chronic HCV infection. Six out of 10 cases had one or more risk factors, 65% had genotype 1 and 29% had genotype 2 or 3 infection. About 4% (103/2862) died. Hepatitis C was the primary cause of death in three of these cases, and the secondary cause of death in 90 cases.

An Outbreak of Acute Hepatitis C Infections Attributed to Unsafe Injection Practices at an Endoscopy Clinic

A recent investigation of eight (8) acute hepatitis C cases¹ in Las Vegas revealed that hepatitis C virus (HCV) transmission likely resulted from reuse of syringes on individual patients and use of single-use medication vials on multiple patients at the clinic. Approximately 40,000 persons were notified about their potential risk for exposure to HCV and other bloodborne pathogens. As of June 5, 2008, a total of 77 additional cases of hepatitis C infection have been identified as potentially linked to the Endoscopy Center of Southern Nevada since the initial notification.¹ The investigation is still ongoing.

¹ Brian Labus. Investigation of an Outbreak of Hepatitis C at an Outpatient Surgical Center. 2008 CSTE Annual Conference. June 8-12, Denver, Colorado.

Role of Washoe County Hepatitis Surveillance System in Recent HCV Outbreak Investigation

Surveillance systems for hepatitis B and C have been in place since 1990 and 2002, respectively. All hepatitis B and hepatitis C cases have been registered in the surveillance system. Of 40,000 persons notified by Southern Nevada Health District, a total of 45 moved to Washoe County since their procedure at this clinic. The existing system provided us a unique opportunity to check whether these 45 individuals were reported as having infection

previously and whether their infection was likely associated with exposure at this clinic. As a result, two of the 45 patients were already in the surveillance system. Neither was found to be associated with exposure at the Endoscopy Center of Southern Nevada. Timely and complete reporting for all laboratory-confirmed hepatitis is critical to the success of hepatitis surveillance. To report, please send your fax to 775-325-3764.

PERINATAL HEPATITIS B PREVENTION PROGRAM



Nationwide, there are an estimated 20,000 infants born to HBsAg-positive women in the U.S. each year. The infants born to these women are at high risk for

perinatal hepatitis B (HBV) infection, chronic HBV infection and associated complications of chronic liver disease, including cirrhosis and hepatocellular carcinoma.

Infants born to hepatitis B surface antigen (HBsAg)-positive mothers have a 70-90% chance of acquiring HBV perinatally. Appropriate administration of immunoprophylaxis [Hepatitis B Immune Globulin (HBIG) and hepatitis B vaccination] is almost 90% effective in preventing HBV infection in children born to HBsAg-positive mothers.

The Washoe County District Health Department Perinatal Hepatitis B Prevention Program works closely with obstetric, hospital and pediatric providers in Washoe County to prevent the transmission of HBV to newborns and to any household and/or sexual contacts of HBsAg-positive pregnant women through the following:

- ◆ Identification of HBsAg-positive pregnant women residing in Washoe County,
- ◆ Institution of appropriate and timely prophylaxis for infants born to HBsAg-positive women (see following table),
- ◆ Follow-up of post-vaccination testing for infants after the HBV vaccination series is completed to verify immunity, and
- ◆ Screening and vaccination of susceptible household, sexual and needle-sharing contacts.

In addition to intensive case management of HBsAg-positive pregnant women and their infants, the program also provides HBV education to HBsAg-

positive pregnant women and information to clinical staff on issues related to perinatal hepatitis B.

Hepatitis B vaccine schedules for newborn infants, by maternal HBsAg-status*

Maternal HBsAg Status	Vaccine	Timing	Vaccine	Timing
Positive	1†	Birth (≤12 hrs)	1†	Birth (≤12 hrs)
	HBIG§	Birth (≤12 hrs)	HBIG	Birth (≤12 hrs)
	2	1-2 mos	2	2 mos
	3 [¶]	6 mos	3	4 mos
Unknown**	1†	Birth (≤12 hrs)	1†	Birth (≤12 hrs)
	2	1-2 mos	2	2 mos
	3 [¶]	6 mos	3	4 mos
	4 [¶]	6 mos (Pediarix) or 12-15 mos (Comvax)	4 [¶]	6 mos (Pediarix) or 12-15 mos (Comvax)
Negative	1†,††	Birth (before discharge)	1†,††	Birth (before discharge)
	2	1-2 mos	2	2 mos
	3 [¶]	6-18 mos	3	4 mos
	4 [¶]	6 mos (Pediarix) or 12-15 mos (Comvax)	4 [¶]	6 mos (Pediarix) or 12-15 mos (Comvax)

* See Table 4 for vaccine schedules for preterm infants weighing <2,000 g.

† Recombivax HB or Engerix-B should be used for the birth dose. Comvax and Pediarix cannot be administered at birth or before age 6 weeks.

§ Hepatitis B immune globulin (0.5 mL) administered intramuscularly in a separate site from vaccine.

¶ The final dose in the vaccine series should not be administered before age 24 weeks (164 days).

** Mothers should have blood drawn and tested for HBsAg as soon as possible after admission for delivery; if the mother is found to be HBsAg positive, the infant should receive HBIG as soon as possible but no later than age 7 days.

†† On a case-by-case basis and only in rare circumstances, the first dose may be delayed until after hospital discharge for an infant who weighs ≥2,000 g and whose mother is HBsAg negative, but only if a physician's order to withhold the birth dose and a copy of the mother's original HBsAg-negative laboratory report are documented in the infant's medical record.

Full document: *MMWR*, Dec. 23, 2005, 54(RR16); 1-23, is available at

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5416a1.htm>.

Hepatitis is reportable by law in the state of Nevada. Health care providers and laboratories in Washoe County should fax reports to the Communicable Disease Program confidential reporting fax at (775) 328-3764. State law also requires the screening of pregnant women for HBsAg.

For additional questions regarding hepatitis surveillance and the Perinatal Hepatitis B Prevention Program, please contact the Communicable Disease Program at (775) 328-2447.

(Source of images in this article: CDC Public Health Image Library. www.cdc.gov)