

Blood Borne Pathogens

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Examples of Blood Borne Pathogens

- Hepatitis B
- Hepatitis C
- Other Hepatitis
- HIV

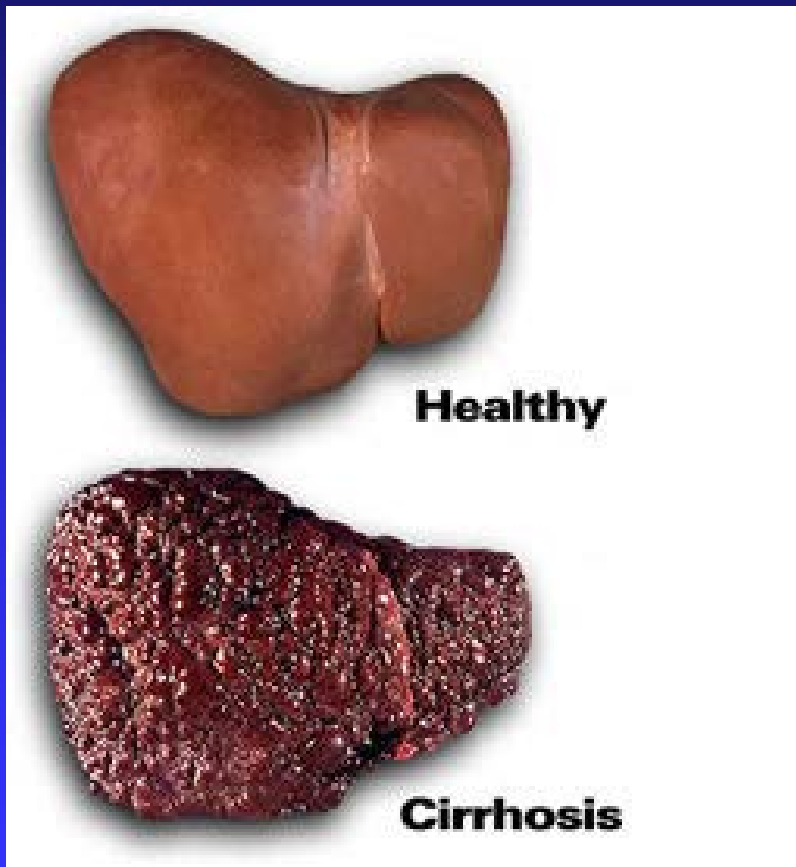
Hepatitis



Hepatitis means inflammation of the liver. Hepatitis is a serious disease that affects the liver and can cause long term damage.

Portal hypertension D/T
hepatocellular carcinoma 2° to
Hep B.

Chronic hepatitis



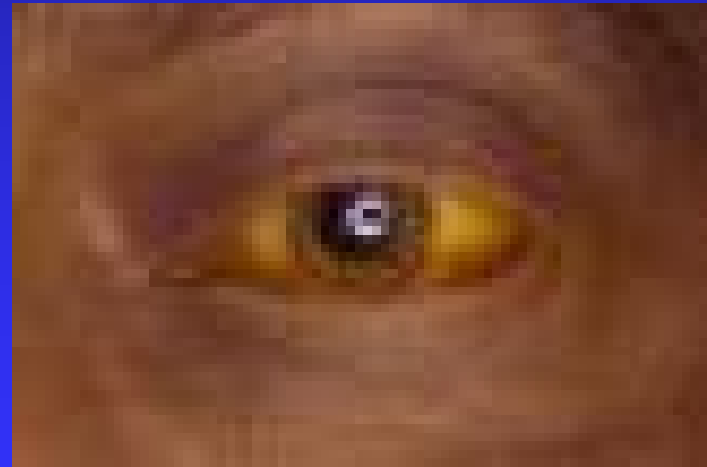
- Chronic hepatitis can lead to scarring of the liver (cirrhosis), liver failure, and may lead to liver cancer.

Signs of viral hepatitis



- Asymptomatic
- Low grade fever
- Muscle aches
- Tiredness
- Loss of appetite
- Nausea/vomiting/diarrhea
- Dark urine, pale BM
- Pain in stomach
- Jaundice

Jaundice of sclera



Viral Hepatitis - Overview

Type of Hepatitis

	A	B	C	D	E
Source of virus	feces	blood/ blood-derived body fluids	blood/ Blood-derived body fluids	blood/ Blood-derived body fluids	feces
Route of transmission	fecal-oral	Percutaneous permucosal	Percutaneous permucosal	Percutaneous permucosal	fecal-oral
Chronic infection	no	yes	yes	yes	no
Prevention	pre/post- exposure immunization	pre/post- exposure immunization	blood donor screening; risk behavior modification	pre/post- exposure immunization; risk behavior modification	ensure safe drinking water

Estimates of Acute and Chronic Disease Burden for Viral Hepatitis, United States

	HAV	HBV	HCV	HDV
Acute infections (x 1000)/year*	125-200	140-320	35-180	6-13
Fulminant deaths/year	100	150	?	35
Chronic infections	0	1-1.25 million	3.5 million	70,000
Chronic liver disease deaths/year	0	5,000	8-10,000	1,000

* Range based on estimated annual incidence, 1984-1994.

What is Hepatitis B (HBV)?

- HBV is a virus that causes acute and sometimes chronic inflammation of the liver causing liver damage that can lead to cirrhosis, cancer, and death.
- HBV infections may either lead to complete recovery with lifelong immunity (acute illness) or it may result in a lifelong infection.
- Chronic illness is defined as illness that is not resolved within (6) months.

Who is at risk?

- Persons whose sex partner has chronic hepatitis.
- People who live with someone who has chronic hepatitis.
- Persons recently diagnosed with an STD.
- Persons with multiple sex partners.
- IV drug users.
- People whose jobs expose them to human blood.

How is HBV transmitted?

- HBV is transmitted primarily through contact with infected blood and body fluids.
 - ◆ unprotected sex with an infected person,
 - ◆ mother to newborn during childbirth,
 - ◆ sharing needles,
 - ◆ accidental needle sticks, and
 - ◆ contact with infected fluids through broken skin or mucous membranes.

Concentration of Hepatitis B Virus in Various Body Fluids

High	Moderate	Low/Not Detectable
blood	semen	urine
serum	vaginal fluid	feces
wound exudates	saliva	sweat
		tears
		breast milk

Prevention

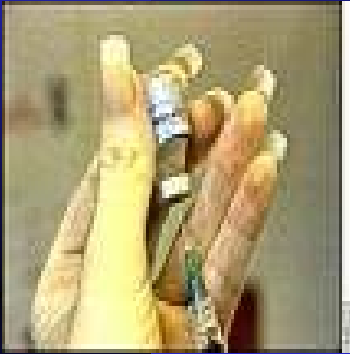
- Practice safe sex.
- No IV drug usage.
- Use PPE for clean up.
- Never share your razor or toothbrush.
- Get vaccinated.

Hepatitis B Vaccine



- The vaccine will impart immunity in over 95% of individuals who receive it, no vaccine is 100% effective.
- Thus, adhering to standard precautions is also fundamentally important.

Hepatitis B Vaccine



- **The vaccine is given in three stages:**
 1. The initial injection
 2. A second injection one month later
 3. A third injection 6 months after the first injection
- All three injections are necessary to ensure immunity. There is no evidence that the vaccine has ever caused Hepatitis B, and the incidence of side effects is low.

Hepatitis C

- Hepatitis C is spread by direct contact with hepatitis C-infected blood. For example, if infected blood came into contact with an open sore or a cut in your hands, you may become infected. Hepatitis C is not spread by casual contact.
- There is no vaccine to protect against Hep C.

Who should get tested for Hepatitis C?

- Persons who have used injection drugs not prescribed by a doctor, even once
- Persons who received blood before 1992
- Persons who have received an organ transplant before 1992
- Persons who have received long-term hemodialysis
- Persons who were treated for clotting problems with a blood product made before 1987 (hemophiliacs)

Who should get tested for Hepatitis C?

- Persons who have signs and symptoms of liver disease (e.g., abnormal liver enzyme tests)
- Healthcare workers after accidental exposure to blood (e.g., needle sticks or splash to the eye)
- Cocaine use, sharing straws.
- Children born to hepatitis C virus-positive women.
- Long term house hold contacts and sex partners of Hep C.



Hepatitis C...
Isn't that the one
I have been
vaccinated for?

NO

What is the treatment for Hepatitis C?

- There is no vaccine for hepatitis C.
- Antiviral drugs, such as interferon used alone or in combination with ribavirin, are approved for treatment. Some infections respond better to treatment than others. Overall, treatment works well in 30-50 percent of those who complete antiviral treatment.

How long after you are exposed to the hepatitis C virus should you be tested?

- If you are exposed to HCV, have a baseline blood test done immediately. Second, get retested after 6 months. It can take up to 6 months before antibodies appear.

Hepatitis D,E, and G

- ❑ Hepatitis D (Delta) is a virus that causes inflammation of the liver. Unlike the other hepatitis viruses, HDV cannot sustain an infection without the help of HBV.
- Hepatitis E is a viral disease that causes inflammation of the liver. HEV does not cause chronic disease and in the United States, HEV is rarely found.
- HGV is a virus that causes chronic inflammation of the liver. As this virus is very rare, very little is known. As it appears to be associated with individuals who have an HCV infection, it is thought to be spread in much the same manner as HCV.

H.I.V. and A.I.D.S.

- H.I.V. –Human Immunodeficiency Virus
- A.I.D.S.- Acquired Immunodeficiency Syndrome
- Heterosexual people ages 18-25 are at increasing risk for H.I.V.
- People usually have no symptoms for about 10 years. (attacks immune system)

Symptoms, Prevention and Treatment

- People can have no symptoms. They are usually diagnosed when they get an infection that can easily be treated.
- Education, universal precautions, no needle sharing, and safe sex
- Medications for life, experimental drugs, holistic therapy, comfort care.

Transmission

- Needle stick or sharps injury
- Nose, mouth, or eye contact
- Mucous membrane and non intact skin exposure
- Blood or other potentially infectious materials (scratched, cuts, wounds, or bites)

Risk of infection after a needle stick

- HIV is 0.3%.
- Hepatitis C is 3%.
- Hepatitis B is 30%.

Prevention

- Exposure control plan
- Standard Precautions
- Engineering controls: sharps containers, self sheathing needles.
- Work place practices: prompt sharps disposal, no recapping needles.
- Personal protective equipment

Standard Precautions

- Treat every patient as if they are infected with a blood borne pathogen.
- Treat all blood and body fluids as infectious.
- Use personal protective equipment (PPE).
- Wash hands frequently

PPE

- PPE = personal protective equipment
 - ◆ Gloves
 - ◆ Eye protection
 - ◆ Gowns

PPE



- The best proven effective PPE attire.
- Recommended by the Knights of the Round Table.

PPE



- Gloves



- Eye protection

Needle Safety

- Properly dispose of sharps in labeled sharps container.
- Do not recap needles
- Replace sharps container when full.
- Sharps containers should be easily accessible.



Hand washing is #1 defense.



- Before you eat
- Before, during, and after preparing food
- After you use the restroom
- After changing a diaper
- After you cough or sneeze
- After caring for someone sick or injured
- After handling garbage
- After removing gloves (PPE)

Hand washing procedure:



1. Wet hands



2. Use liquid soap



3. Lather, rub and count to 15



4. Rinse



5. Towel or air dry hands



6. Turn off taps with towel or your sleeve

Blood cleanup procedure

- Put on PPE gloves.
- Cover spill with absorbent paper towels.
- Clean by wiping from edge to middle (avoid cuts from sharps).
- Clean spill area again with 10% bleach solution.
- Rinse area with water.
- Let area air dry.

Bloody noses, scrapes, and bruises



- Put on PPE gloves.
- Cover or wipe injury with tissue or gauze.
- Apply pressure.
- Clean with soap and water.
- Bandage injury.
- Wash hands after removing gloves.

Work Place Practices / Reducing Exposure

- Wash hands after removing gloves.
- Wash hands ASAP after contact w/ body fluids.
- Provide eye irrigation station.
- Discard contaminated needles in sharps container.
- Do not smoke, eat, drink, apply cosmetics or contact lenses in an area of potential exposure.
- Do not store food or drink in refrigerator where blood or infectious materials are kept.

Work Place Practices / Reducing Exposure



- Hep B vaccine must be made available to all employees that have a risk for exposure at no cost.
- Employees who decline must sign a declination sheet.

What do you do if you are
exposed to blood or body fluids?

Employer's Exposure Incident Plan

- Wash your hands and any other potentially contaminated skin area immediately with soap and water.
- Use eye wash station for eyes and rinse 20 minutes with water only.
- Immediately report incident to supervisor and follow protocol (incident reports, Dr visit, baseline labs, testing of source blood, post exposure prophylaxis)
- All medical evaluations and follow up must be made available at no cost to the employee.

Follow-up checkup

- ❑ Repeat testing needs to be done per your healthcare or workers compensation provider.

Has this same exposure happened before and can we prevent this from reoccurring in the future?

Questions?