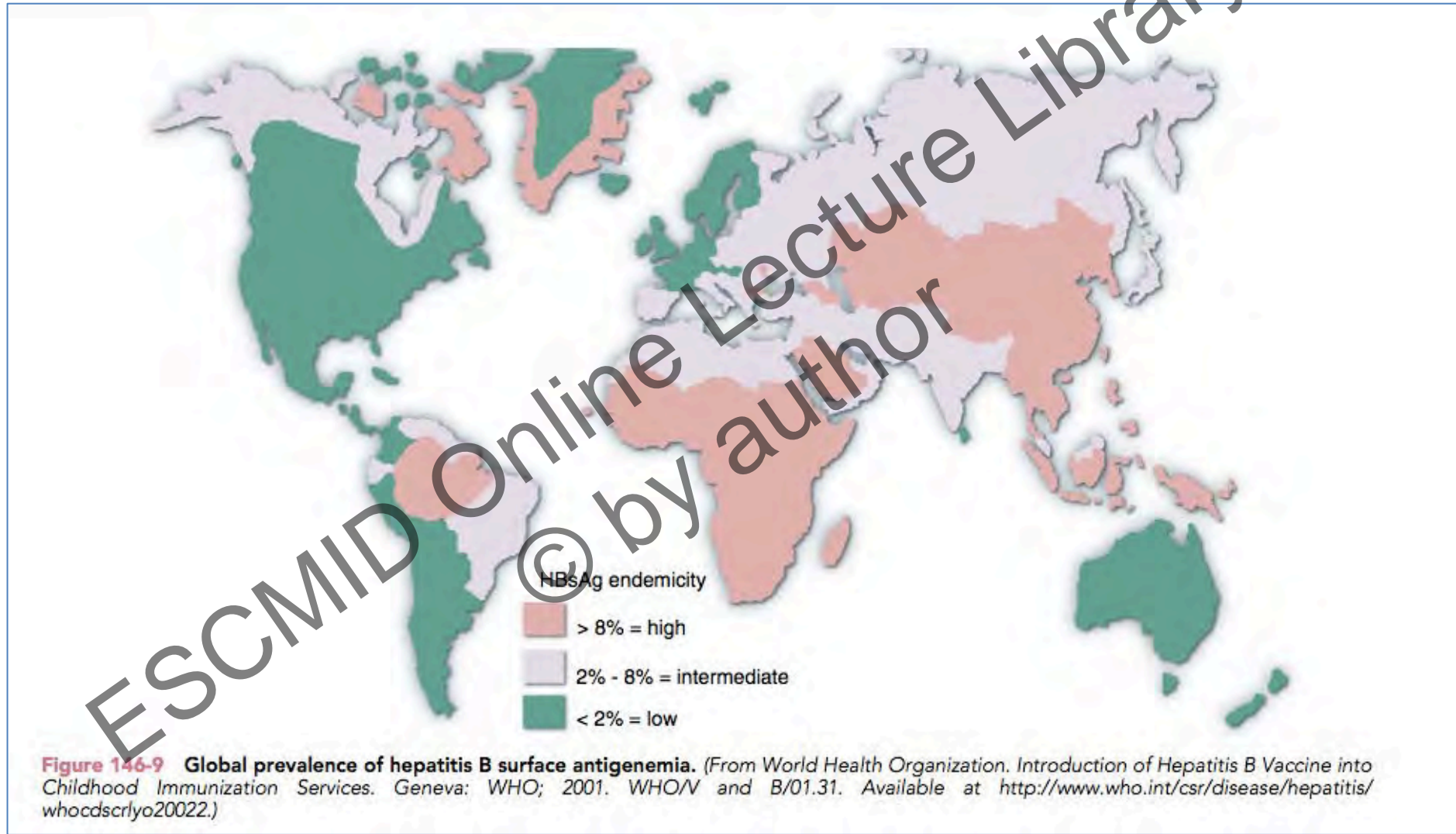


Sexually Transmitted Diseases

Hepatitis B

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- WHO has estimated that
 - >2 billion HBV infected people
 - 378 million chronic carriers worldwide.
 - There are approximately 620 000 HBV related deaths each year.
 - 4.5 million new HBV infections occur worldwide each year, of which a quarter progresses to liver disease.

Transmission

Mainly: IVDU, sexual contact, mother-infant

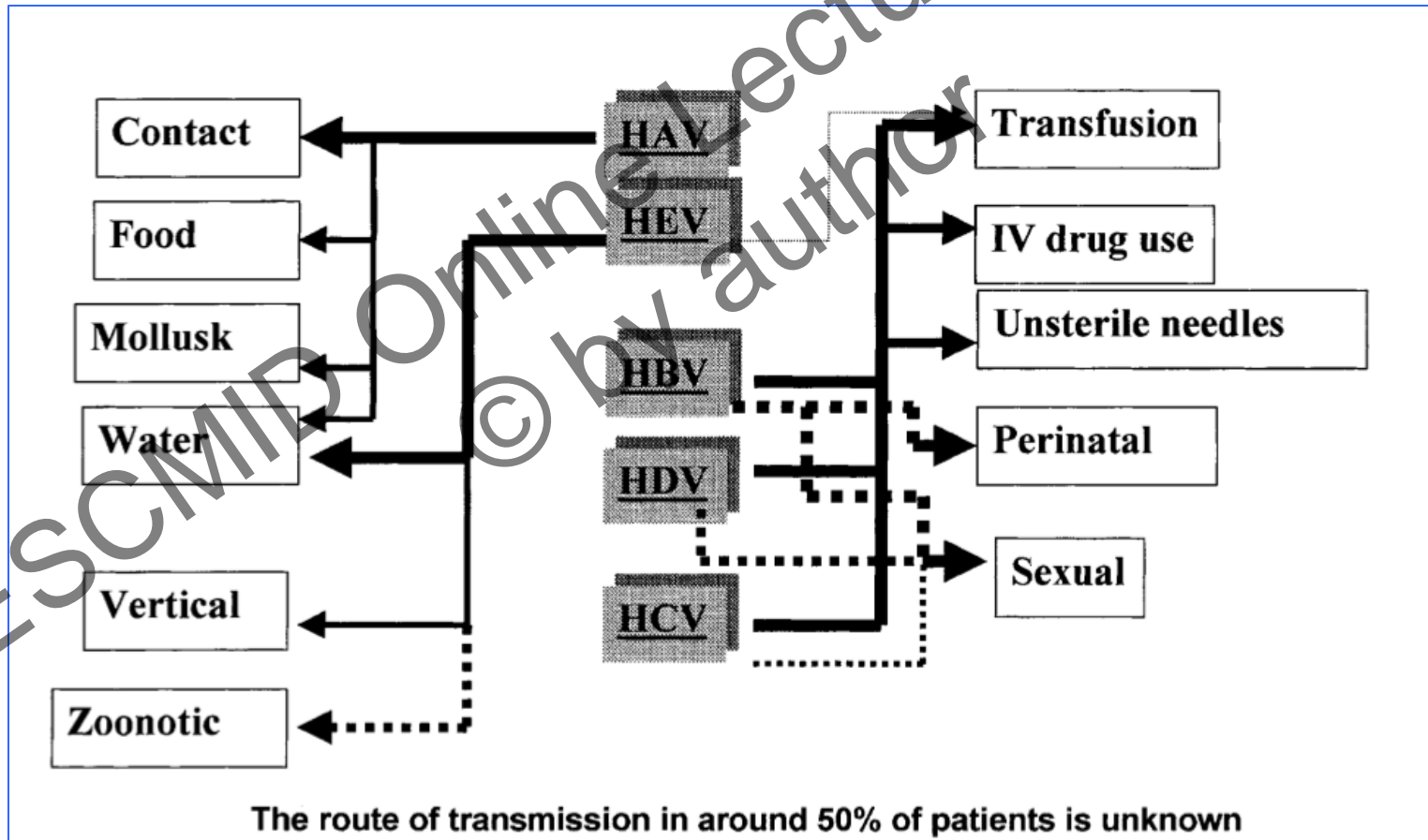
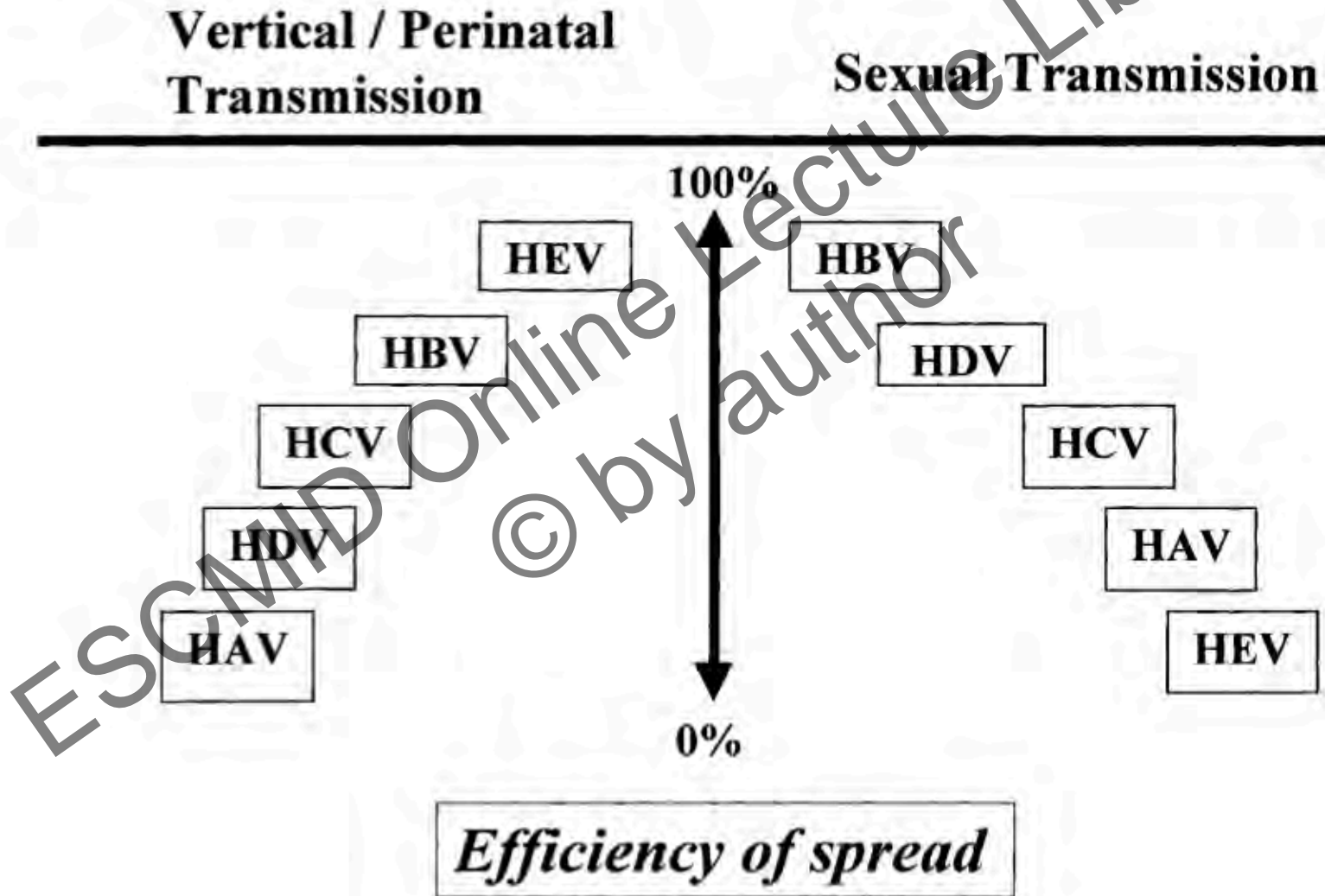


Fig. 2. Known modes of transmission of hepatitis viruses.



Surveillance for Acute Viral Hepatitis – United States, 2007

- In 2007, a total of 4,519 acute, symptomatic cases of hepatitis B were reported in US
- After asymptomatic infection and underreporting were taken into account, an estimated 43,000 new infections occurred in 2007

- Of persons for whom information regarding exposures during the incubation period was available,
 - 38% had multiple sex partners,
 - 11% were MSM, and
 - 6% had sexual contact with a person known to have hepatitis B.
- IDU was reported for 15% of persons. Having had surgery was reported for 12% of persons with hepatitis B; the percentage was higher for persons aged >45 years (17%).

TABLE 7. Number and percentage* of patients with acute hepatitis B who reported selected epidemiologic characteristics, by age group — United States, 2007

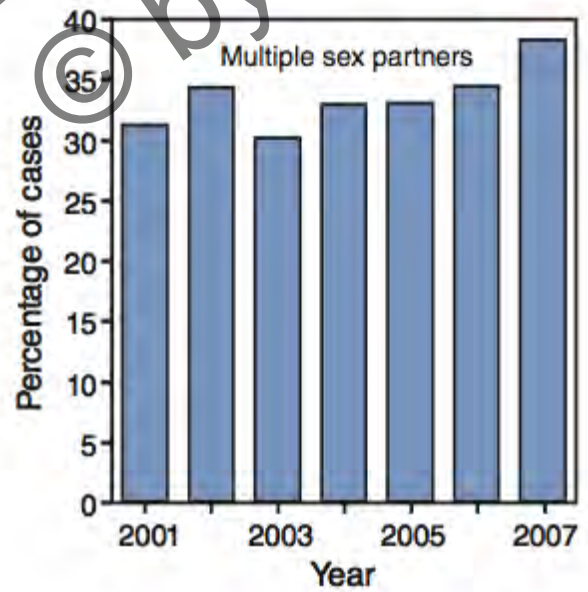
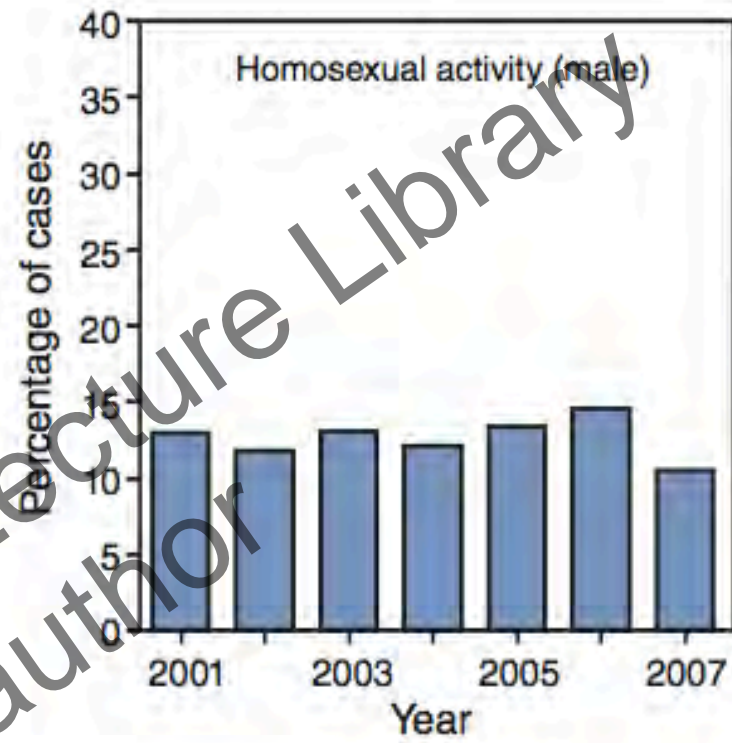
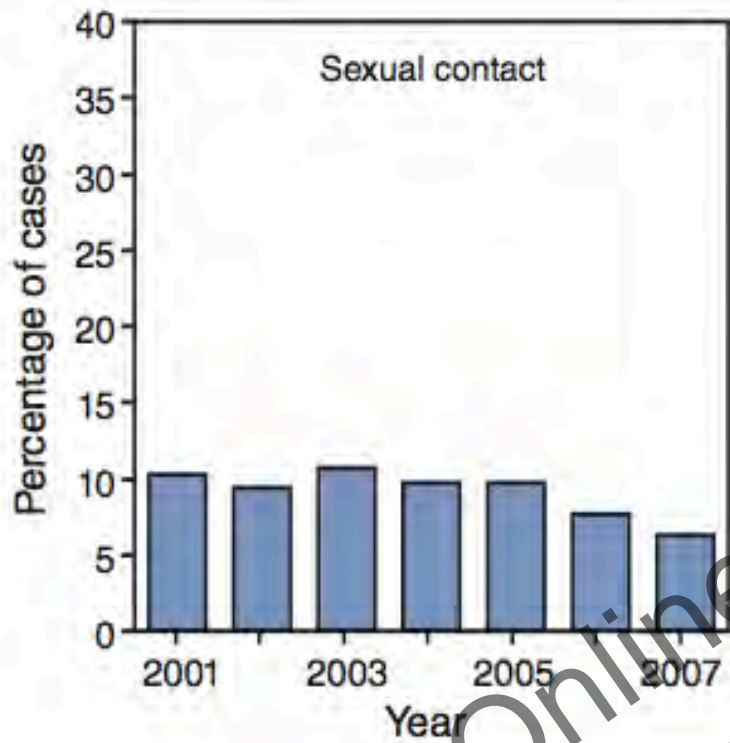
| Characteristic† | Age group (yrs) | | | | Total | |
|--|-----------------|--------|--------------|--------|--------------|--------|
| | <45 | | ≥45 | | No. | (%) |
| | No. | (%) | No. | (%) | No. | (%) |
| Cases reported with risk factor data | | | | | | |
| Injection-drug use | 229/1,200 | (19.1) | 55/688 | (8.0) | 284/1,888 | (15.0) |
| Sexual contact with hepatitis B patient | 62/851 | (7.3) | 22/505 | (4.4) | 84/1,356 | (6.2) |
| Household contact of hepatitis B patient | 19/851 | (2.2) | 12/505 | (2.4) | 31/1,356 | (2.3) |
| Homosexual activity (male)§ | 46/400 | (11.5) | 16/189 | (8.5) | 62/589 | (10.5) |
| Medical employee with blood contact | 5/1,236 | (0.4) | 8/719 | (0.8) | 11/1,955 | (0.6) |
| Hemodialysis | 1/1,032 | (0.1) | 2/589 | (0.3) | 3/1,621 | (0.2) |
| Had >1 sex partner | 322/744 | (43.3) | 118/405 | (29.1) | 440/1,149 | (38.3) |
| Heterosexual | 293/708 | (41.4) | 110/390 | (28.2) | 403/1,098 | (36.7) |
| Homosexual or bisexual (male) | 29/36 | (80.6) | 8/15 | (53.3) | 37/51 | (72.5) |
| Blood transfusion | 1/1,221 | (0.1) | 8/709 | (1.1) | 9/1,930 | (0.5) |
| Surgery | 102/1,165 | (8.8) | 112/671 | (16.7) | 214/1,836 | (11.7) |
| Percutaneous injury (e.g., needlestick) | 52/1,080 | (4.8) | 21/631 | (3.3) | 73/1,711 | (4.3) |
| Unknown | 757/1,363 | (55.5) | 483/775 | (62.3) | 1,240/2,138 | (58.0) |
| Cases reported with no risk factor data available | 1,468 | | 893 | | 2,361 | |
| Total cases reported | 2,831 | | 1,668 | | 4,499 | |

* The percentage of cases for which a specific risk factor was reported was calculated on the basis of the total number of cases for which any information for that exposure was reported. Percentages might not total 100% because multiple risk factors might have been reported for a single case.

† Exposures that occurred during the 6 weeks–6 months before onset of illness.

§ Among males, 18% reported homosexual behavior.

| | Hepatitis A (%) | Hepatitis B (%) | Hepatitis C (%) |
|---|-----------------|-----------------|-----------------|
| Injection-drug use | 1.2 | 15 | 47.7 |
| Sexual contact with hepatitis patient | 7.8 | 6.2 | 10.0 |
| Household contact of hepatitis patient | 7.8 | 2.3 | 5.6 |
| Homosexual activity (male) | 5.9 | 10.5 | 10.3 |
| Medical employee with blood contact | | 0.6 | 2.2 |
| Hemodialysis | | 0.2 | 0.6 |
| >1 sex partner | | 38.3 | 42.0 |
| Blood transfusion | | 0.5 | 0 |
| Surgery | | 11.7 | 20.4 |
| Percutaneous injury (e.g., needlestick) | | 4.3 | 7.6 |



- HBV spread 8.5 times more efficiently than HIV
- HBV is more contagious than HIV

Kingsley LA. JAMA 1990

- In HBV-infected men, 10^6 viral particle/mL semen

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- Hepatitis B is spread when blood, semen, or other body fluid infected with the Hepatitis B.
- In men who have sex with men, HBV is often transmitted through unprotected anal sex or receptive oral sex

HBV and Traveler

- Sexual
- Occupational

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- Reports of travelers acquiring HBV during travel
- Risk is higher
 - HBV prevalence intermediate-high
 - Expatriates, missionaries, long term aid workers

- Travel and tourism increases the probability of having sex with the casual partner
- Increase the risk of contracting sexually transmitted infections
- In some countries, a large proportion of STIs occur as a result of unprotected sex during international travel

- Abstinence is the safest way
- Safe sex
- Hepatitis B vaccination
- HPV vaccination (in some countries)
- Post exposure prophylaxis for accidental exposure
 - HBV
 - HIV

- Avoid injecting drugs
- Avoid sharing needles
- Blood transfusion: is there a good indication?
- Medical purposes: single-use needles and syringes

Measures

- Vaccination against HBV
 - All unvaccinated people traveling to intermediate-high prevalence areas ($\geq 2\%$)
 - Those working in health care settings that involve potential exposure to human blood
 - Children & adolescents
 - Those who may engage them at risk
 - MSM
 - IDU
 - those with STD
 - >1 sexual partner in the previous 6 months

Measures

- Vaccination

- 0, 1, 6-months or

- 0, 1, 2, 12-months

- HAV+HBV (Twinrix): 0, 1, 6-months

- (Licensed \geq 16 years)

A review of combined hepatitis A and hepatitis B vaccination for travelers

- A review of the English-language literature published from 1966 to 2002
- A combination HAV/HBV is well tolerated
- It decreases the time to immunity.

Table IV. Seroconversion (SC) and seroprotection (SP) rates in adults who received the combination hepatitis A and B vaccine in 6 worldwide studies.¹⁶

| Month | Anti-HAV | | | Anti-HBsAg | | |
|-------|----------|---------------------------|-----------------|------------|-------------------------|-----------------|
| | N | % SC (95% CI)* | GMT (mIU/mL) | N | % SP (95% CI)† | GMT (mIU/mL) |
| 1 | 774 | 94.3 (92.4–95.8) | 306 | 768 | 33.7 (30.4–37.2) | 10 |
| 2 | 764 | 99.5 (98.6–99.8) | 748 | 759 | 83.9 (81.0–86.4) | 62 |
| 6 | 757 | 99.3 (98.3–99.7) | 434 | 755 | 96.7 (95.1–97.8) | 236 |
| 7 | 741 | <u>100.0 (98.2–100.0)</u> | 5404 | 741 | <u>99.3 (98.3–99.7)</u> | 4814 |

Anti-HAV = antibody to hepatitis A virus; Anti-HBsAg = antibody to hepatitis B surface antigen; GMT = geometric mean titer.

*Initially seronegative subjects who achieved anti-HAV GMTs ≥ 33 mIU/mL.

†Initially seronegative subjects who achieved anti-HBsAg GMTs ≥ 10 mIU/mL.

Vaccination-Special Situations

- Ideally, vaccination should begin 6 months before travel
- Some protection is provided by 1-2 doses
- Accelerated schedules
 - Traveling at short notice
 - Facing imminent exposure
 - Emergency responders to disaster areas
- Twinrix: **0, 7 days, 21-30 days** (booster 12 months)



Viral hepatitis in international travellers: risks and prevention

Risk of hepatitis B in travellers and prevention

- (1) Risk of infection is negligible in travellers who have received hepatitis B vaccine (3 doses)
- (2) Risk of infection to unvaccinated travellers to Asia is 60/100 000/journey and to Africa and Latin America 20/100 000/journey
- (3) Short term traveller have low-risk of infection, risk increases in long-term residents



Viral hepatitis in international travellers: risks and prevention

Mohammad Sultan Khuroo

- (4) Traveller is usually infected through unsafe sex or through medical hazard or in disaster relief exercises
- (5) Hepatitis B vaccine should be given to all long term residents travellers (> 6 months) to endemic areas; short term travellers/residents to endemic areas should be vaccinated if they are involved in disaster relief teams and high-risk exposure practices

Vaccination-Special Situations

- HBV vaccine can be administered to pregnant women (although data are limited)
- Lactation is not a contraindication

Vaccine Safety

- Vaccines are safe for all ages
- Most common side effects
 - Fever
 - Pain at the injection site

Personal Protection Measures

- Give information about the risks of HBV (+other pathogens)
 - Contaminated medical equipments
 - Injection drug use
 - Unprotected sex

Personal Protection Measures

- Be careful when seeking
 - Medical care
 - Dental care
 - Cosmetic (tattoo, piercing)
- Sterilized or disinfected equipments
- Prevent re-use disposable needles, syringes

Original article

Online survey: knowledge about risks, prevention and consequences of infections with HBV among travellers from four European countries

- The Czech Republic, the Netherlands, Spain, and Sweden
- **4203** respondents
- The majority (62%) did not know the main travel destinations with moderate or high prevalence for HBV.
- 20% were somewhat or very unaware of the ways in which HBV can be caught
- Travellers aged 18-35 years were significantly more likely to have participated in at least one risky activity abroad.

Online survey: knowledge about risks, prevention and consequences of infections with HBV among travellers from four European countries.

- 75% thought they were somewhat or very aware of the health implications of contracting HBV,
- Only 12% selected more than three out of the six correct answers relating to conditions caused by HBV.
- Only 39% of those who knew their vaccination status had received vaccination against HBV within the previous 5 years

Hepatitis B risks and immunisation coverage amongst Australians travelling to southeast Asia and east Asia.

- A telephone survey amongst Australians, travelled to Southeast Asia and East Asia in the past three years for >3 nights.
- 309 travellers aged >14 years completed the interview,
 - 138 males (45%) and 171 females (55%).
- Respondents travelled for
 - leisure (64%), business (20%), and visiting friends and relatives (16%).

- The most common destinations were Indonesia (34%), Thailand (32%), and China (27%).
- 54% sought vaccination specific health advice before travel
 - 56% had sought this advice >6 weeks before travel.
- 28% reported receiving HBV vaccination
- 49% had participated in at least one activity with HBV risk during their last overseas trip.



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Drug and Alcohol Dependence 93 (2008) 43–50



www.elsevier.com/locate/drugalcdep

Traveling young injection drug users at high risk for acquisition and transmission of viral infections

Judith A. Hahn^{a,*}, Kimberly Page-Shafer^a, Jamye Ford^a, Alan Paciorek^b, Paula J. Lum^a

- Across-sectional study of young (<30 y.) IDU in San Francisco (2004-2006).
- Interview and testing for HBV, HCV, and HIV
- Whether travel was independently associated with drug, alcohol, sexual risk behaviors, and infection status

Results

- 62% reported past (3 months) travel outside of San Francisco (n=355).
- Travel was independently associated with heavy alcohol consumption, polysubstance use, more sexual and injecting partners, and receptive needle/syringe sharing, sharing drug preparation equipment

- HBsAg/anti-HBc: 10.3%
- Anti-HCV: 33.8%
- Anti-HIV: 2.3%
- Traveling young IDU are at exceptionally high risk for acquiring and transmitting viral infections, while their mobility makes it challenging to effectively deliver interventions.

Predictors of first and second dose acceptance of hepatitis B vaccine among STD clinic patients

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- Indianapolis, USA.
- 431 adult sexually transmitted disease clinic patients
- No reported history of prior HBV vaccination or infection
- A computer-assisted questionnaire, then were offered free HBV vaccine.
- Those who accepted were scheduled for follow-up doses.

Predictors of first and second dose acceptance of hepatitis B vaccine among STD clinic patients.

- 29% received the first dose of vaccine.
- Of these individuals, 21% returned for the second dose.
- 7 participants received all three doses.
- HBV vaccination rates were low

Conclusion

- HBV transmissions during international travel have been reported
- The safest way is vaccination
- Vaccine is safe and effective
- Awareness of the HBV, its mode of transmission and preventive measures among travelers is not satisfactory



The only positive thing about me is my HBsAg test, honey!