

Obstetric Complications in HIV-Infected Women

Jeanne S. Sheffield, MD

Maternal-Fetal Medicine

UT Southwestern Medical School

Obstetric Complications and HIV

- Obstetric complications are not increased in HIV infected women
- However, the management of a few complications may be altered based on the woman's HIV status
 - PPROM
 - Postpartum hemorrhage
- HIV and co-infections may become an issue during pregnancy
 - Hepatitis C and B

Preterm Premature Rupture of Membranes (PPROM)

- Spontaneous rupture of membranes before the onset of labor and prior to term
- Risk factors
 - Prior preterm birth
 - Occult amniotic fluid infection
 - Multiple fetuses
 - Placental abruption
- 10-15% delivery delayed more than 48 hours
- Latency inversely related to gestational age

Preterm Premature Rupture of Membranes (PPROM)

- Labor or infection warrants delivery at any gestation
- If undelivered, administer
 - antenatal steroids to enhance fetal maturation
 - Ampicillin and gentamicin for 48 hours to prolong latency
- Deliver at 34 weeks gestation

Preterm Premature Rupture of Membranes (PPROM) in HIV-Infected Women

- Increasing duration of membrane rupture is a risk factor for HIV transmission
- Infection is a risk factor for HIV transmission
- However, prematurity is also a risk factor for HIV transmission

“More study is needed”

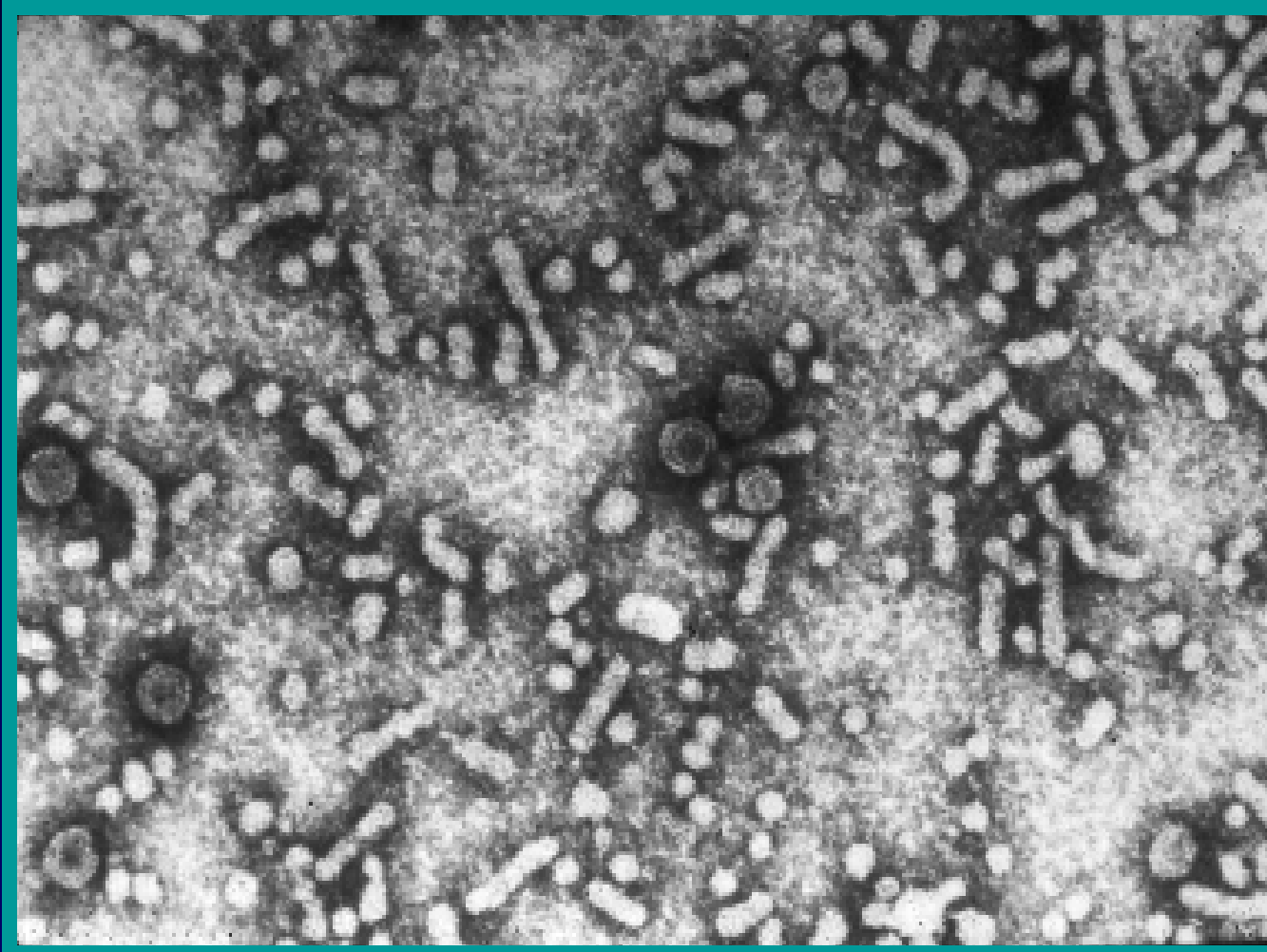
Postpartum Hemorrhage and Methergine

- Uterine atony leading to postpartum hemorrhage is common
 - Multiple gestation
 - Prolonged labor
 - Chorioamnionitis
 - Fibroid uterus
 - Polyhydramnios
 - High parity
 - Rapid labor

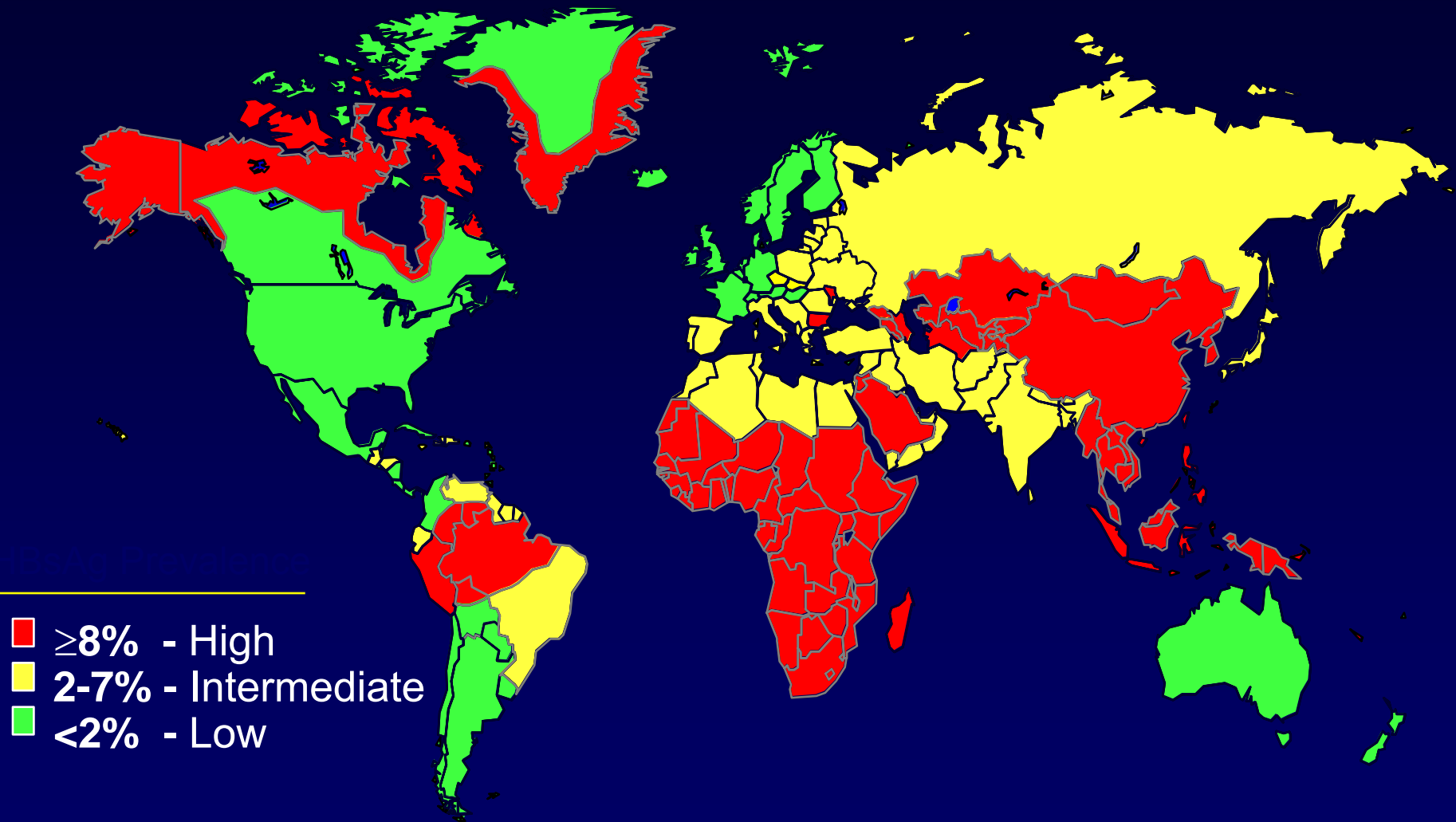
Postpartum Hemorrhage and Methergine

- Standard management is vigorous massage and oxytocin administration
- If no benefit, other pharmacologic agents are used
 - Prostaglandins
 - Ergot derivatives e.g. Methylergonovine
 - Do not co-administer with CYP3A4 enzyme inhibitors (Protease inhibitors , EFV and delavirdine)
 - Exaggerated vasoconstrictive response

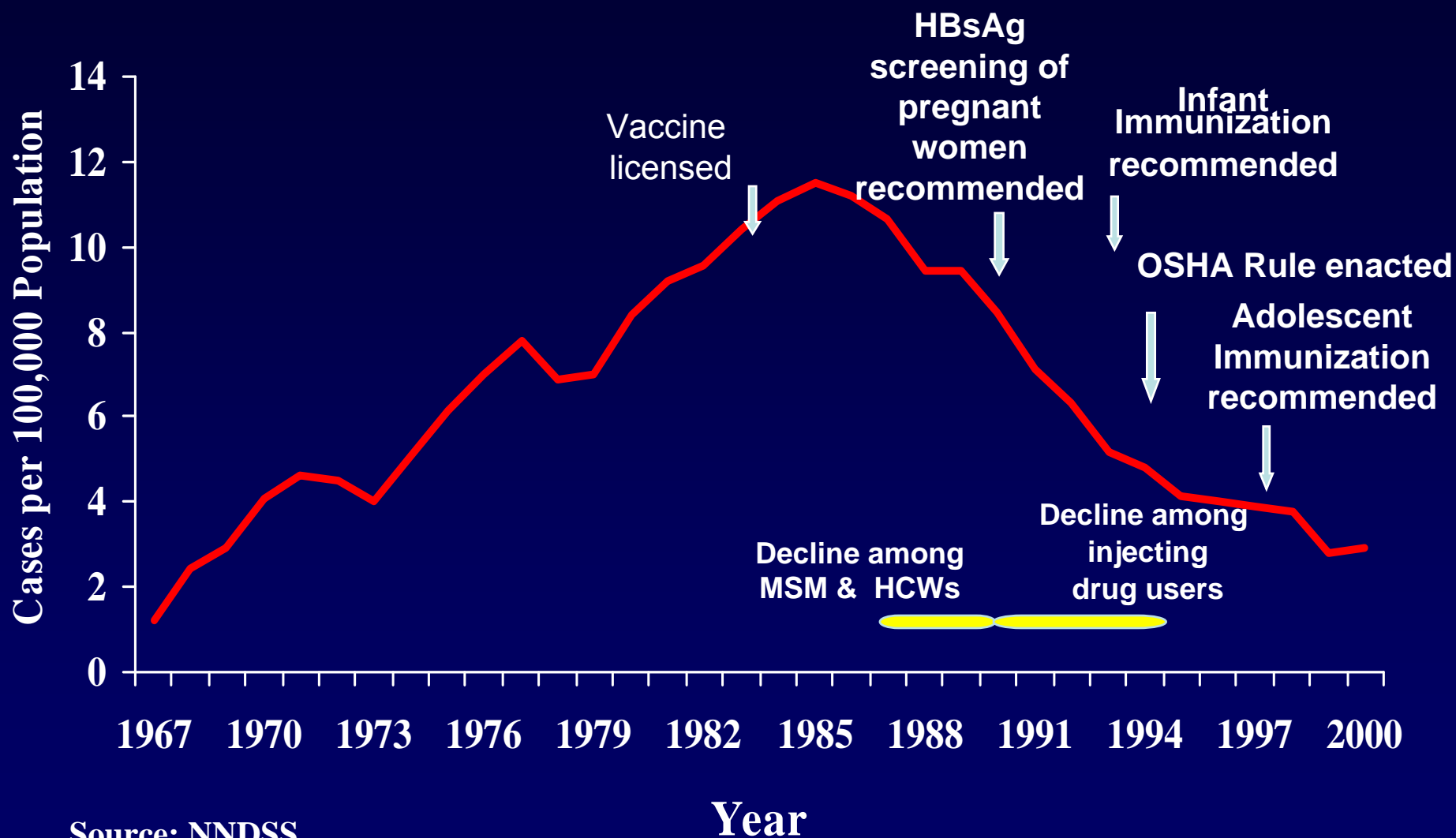
Hepatitis B Virus



Geographic Distribution of Chronic HBV Infection



Hepatitis B by Year, United States, 1966 - 2000

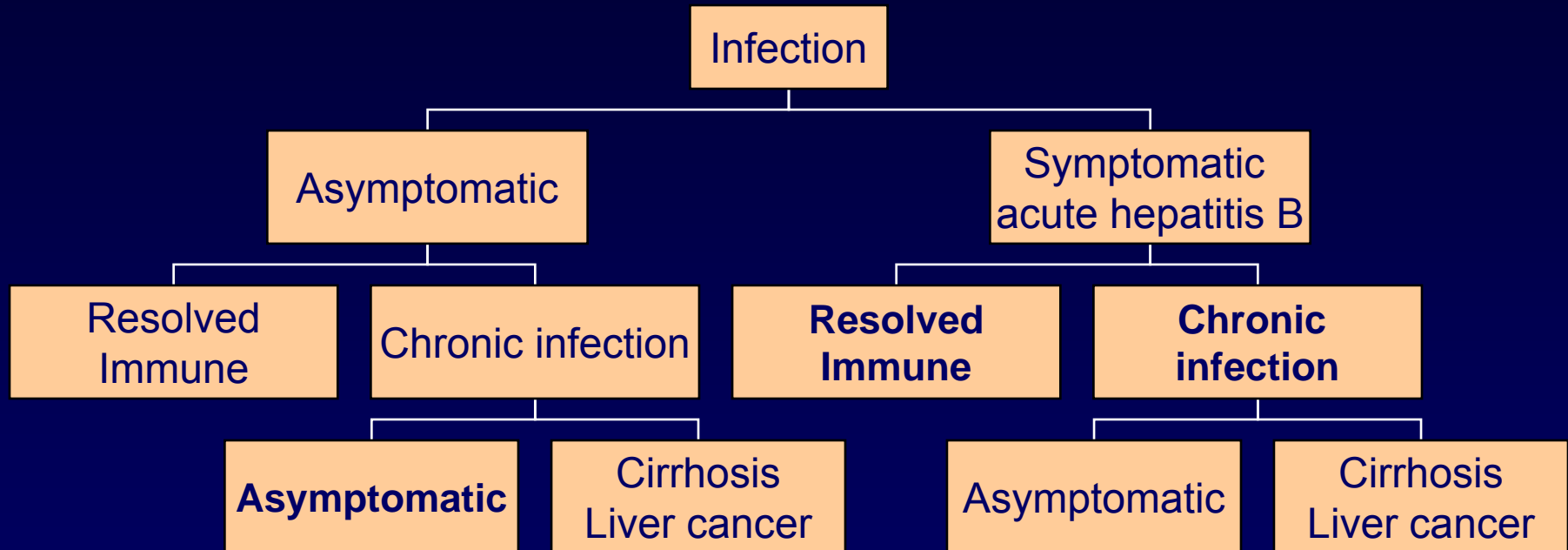


Source: NNDSS

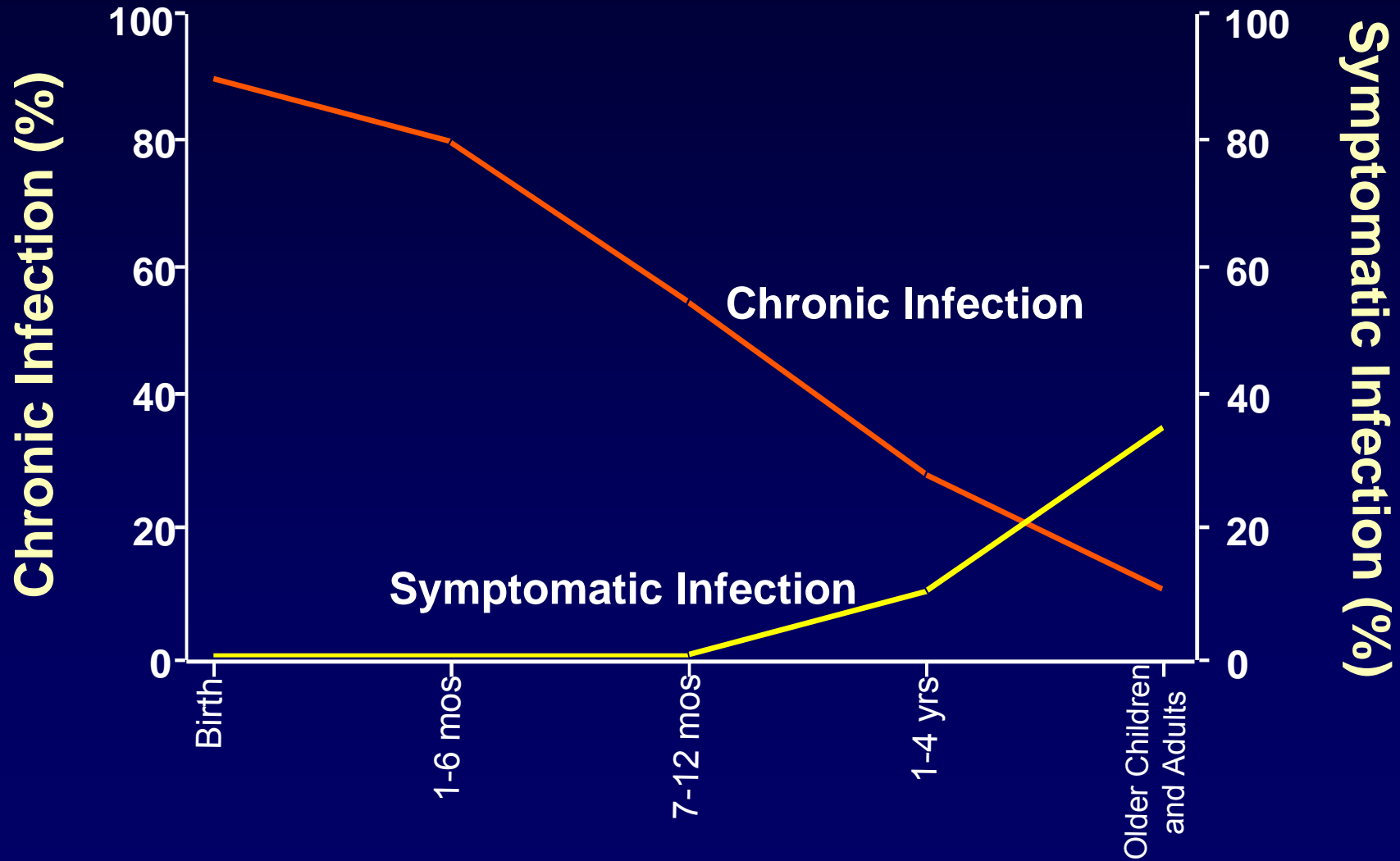
Hepatitis B – Clinical Features

- **Incubation period:** Average 60-90 days
Range 45-180 days
- **Clinical illness (jaundice):** <5 yrs, <10%
>5 yrs, 30%-50%
- **Acute case-fatality rate:** 0.5%-1%
- **Chronic infection:** <5 yrs, 30%-90%
>5 yrs, 2%-10%
- **Premature mortality from chronic liver disease:** 15%-25%

Outcome of HBV Infection

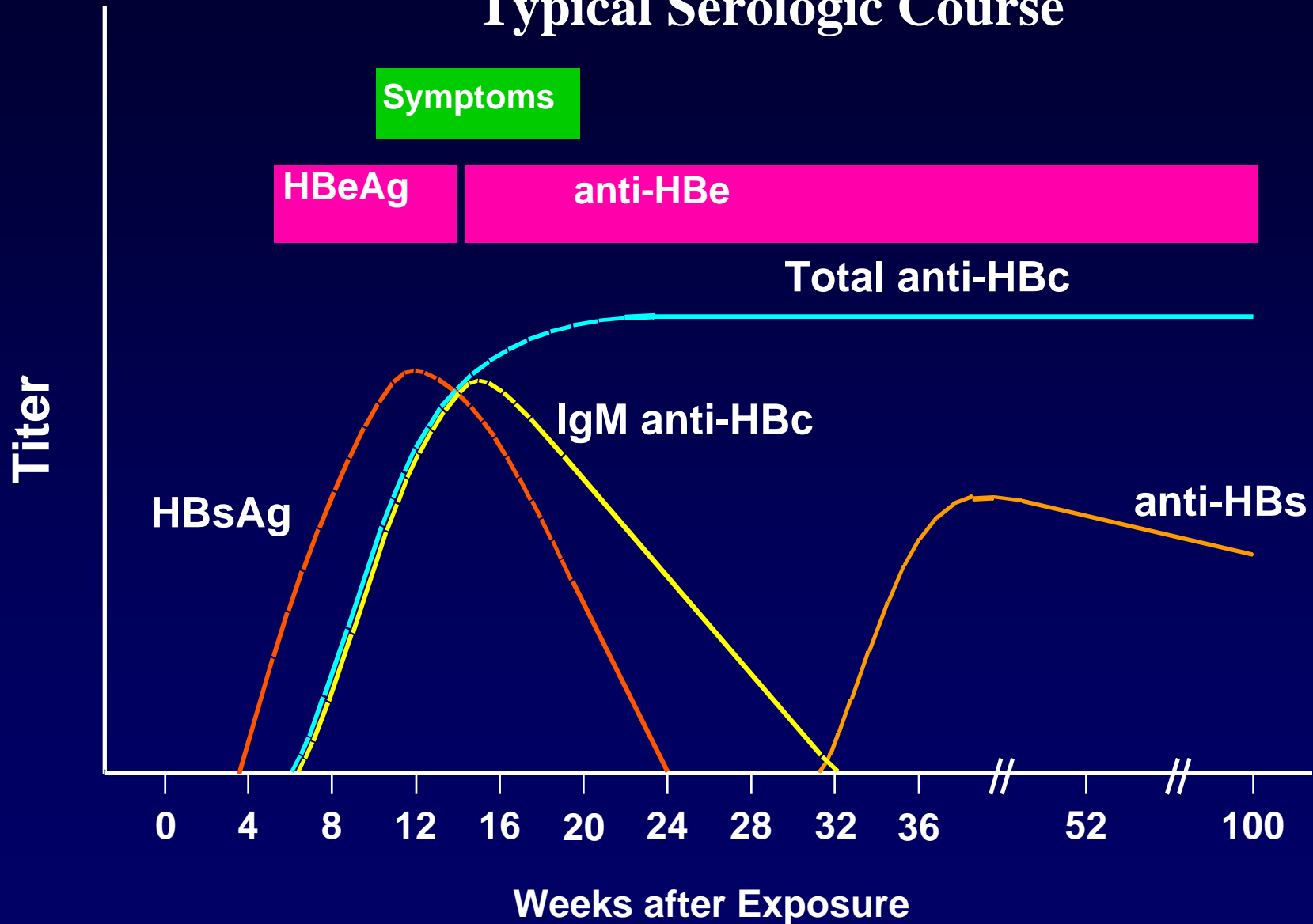


Outcome of Hepatitis B Virus Infection by Age at Infection



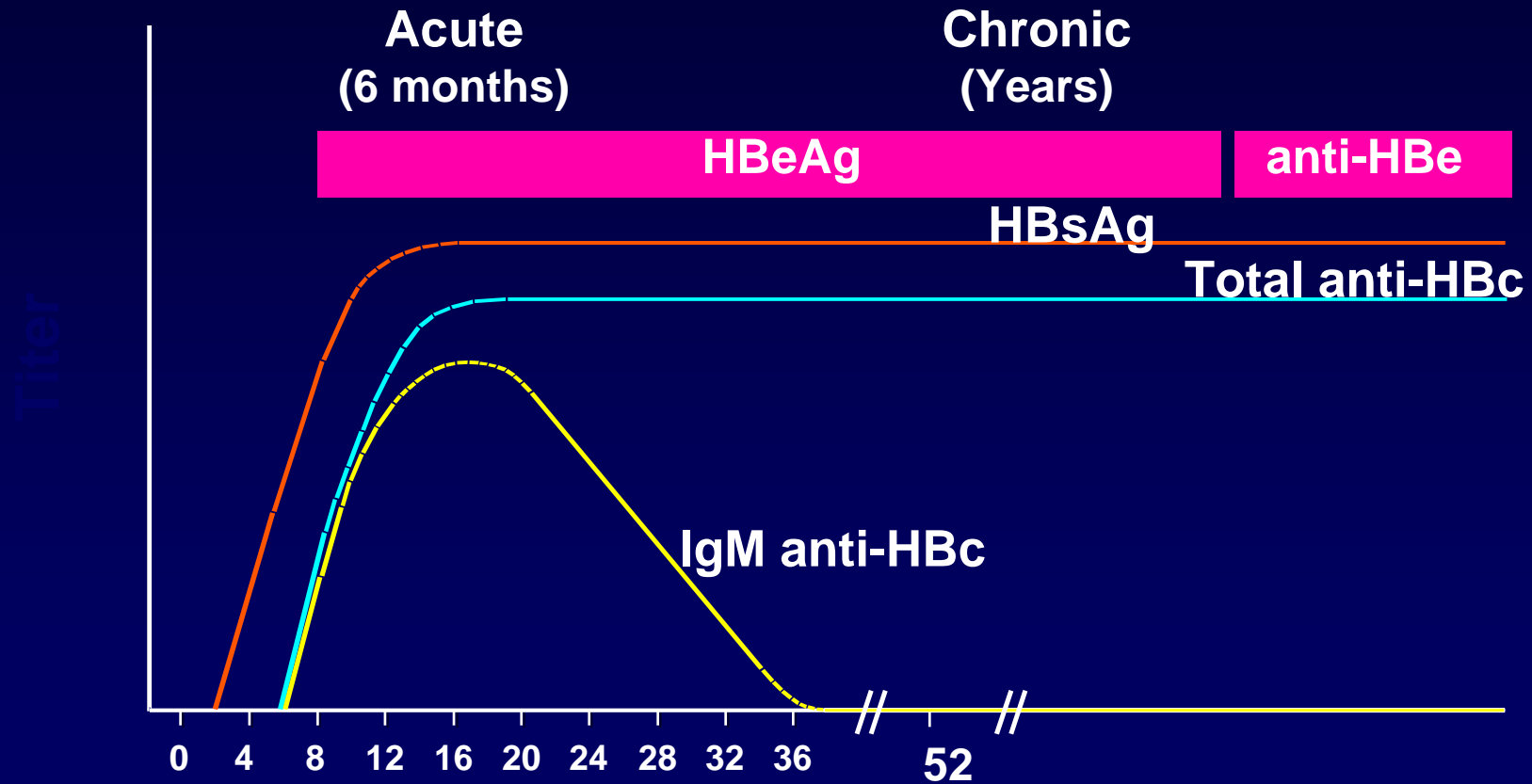
Acute Hepatitis B Virus Infection with Recovery

Typical Serologic Course



Progression to Chronic Hepatitis B Virus Infection

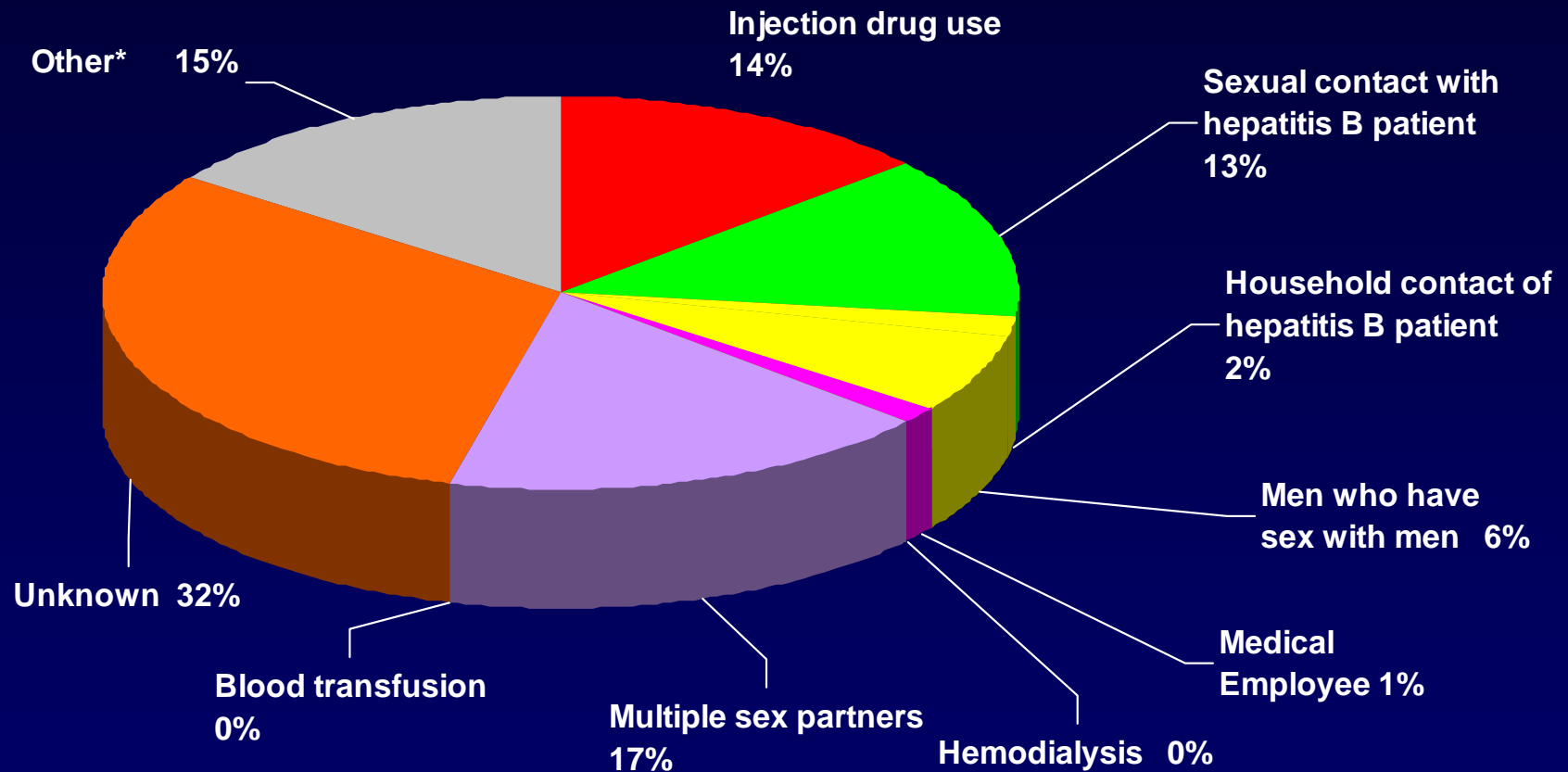
Typical Serologic Course



Concentration of HBV in Various Body Fluids

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

Risk Factors Associated with Reported Hepatitis B, 1990-2000, United States



*Other: Surgery, dental surgery, acupuncture, tattoo, other percutaneous injury

Hepatitis B and HIV Co-infection

- All HIV-infected pregnant women should be screened for HBsAg
- No good data on the safety of treating HBV during pregnancy and breastfeeding
- Tenofovir, 3TC and FTC all show activity against HBV
- For pregnant women with co-infection, Tenofovir plus 3TC or FTC and a PI is a good combination

Hepatitis B and HIV Co-infection

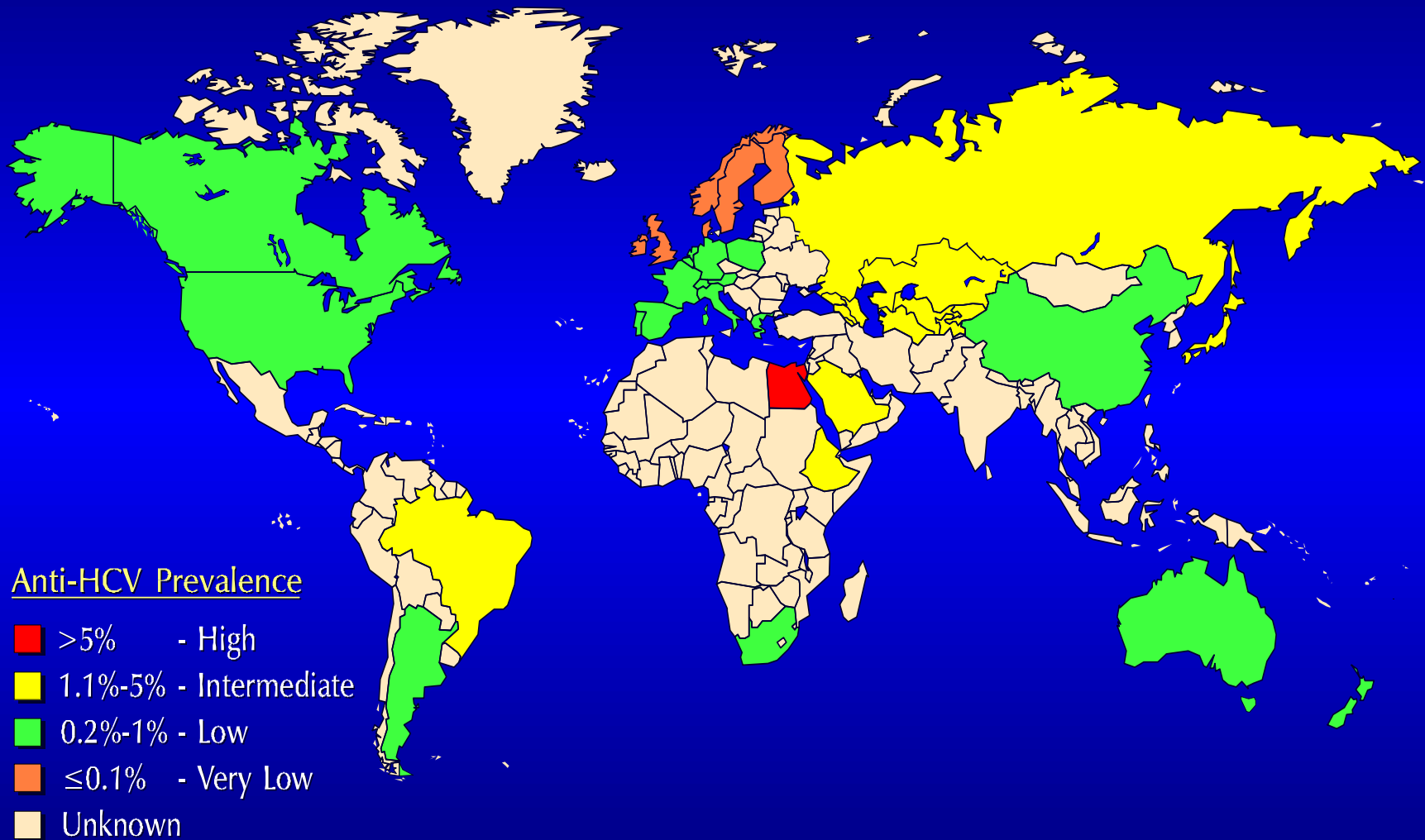
- HBV immune reconstitution inflammatory syndrome
 - HBV flare when effectively treating HIV
 - Usually only an issue in women that start with severe immunodeficiency
 - LFTs may rise secondary to immune mediated flare
- Co-treatment may decrease the transmission of Hepatitis B to the neonate

Hepatitis B and HIV Co-infection

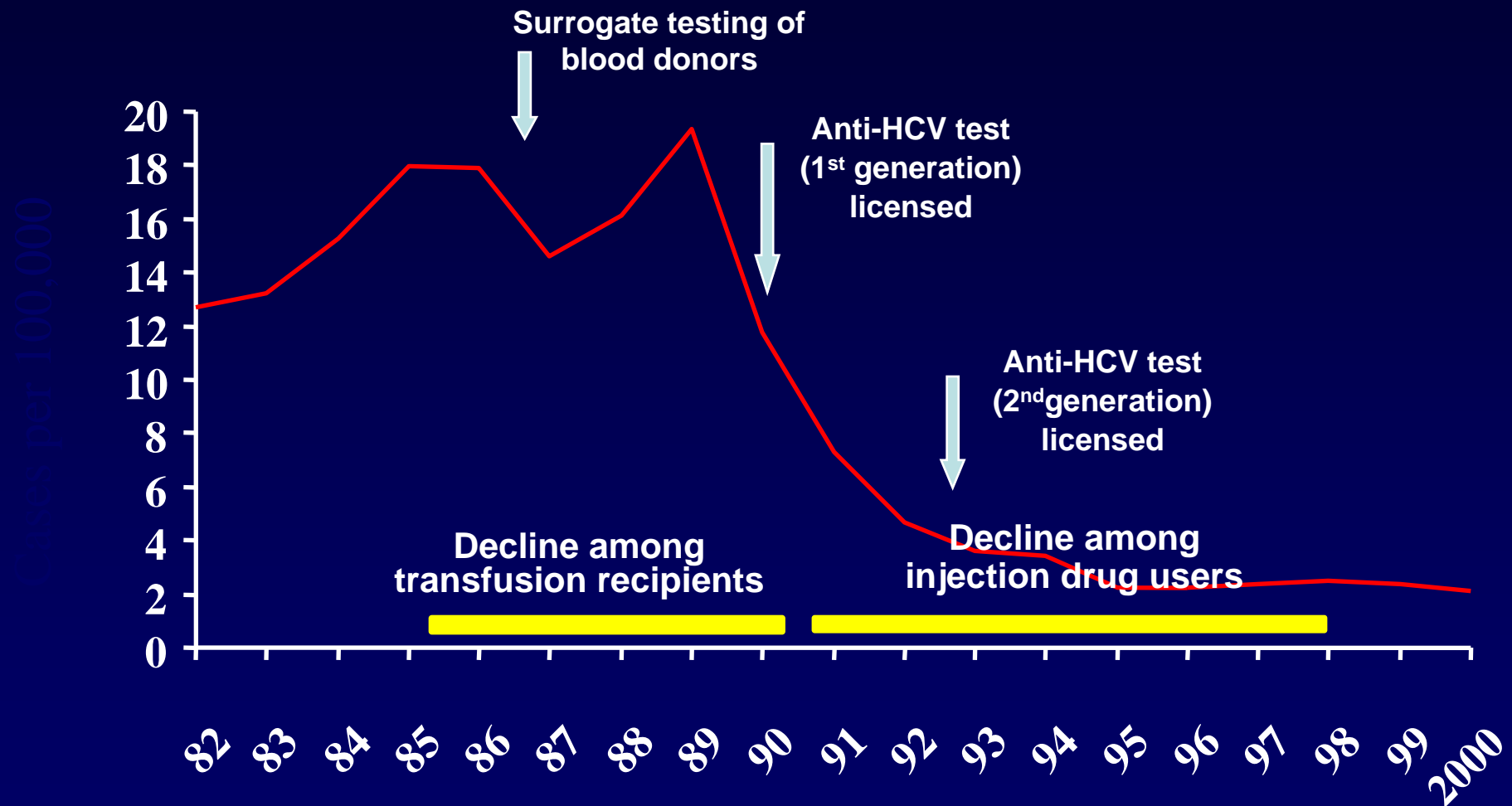
- HBV may increase hepatotoxic risk of certain antiretroviral medications
- Infants receive HBIG and the 3-dose hepatitis B vaccination series
 - >95% effective

Hepatitis C

Prevalence of HCV Infection Among Blood Donors



Estimated Incidence of Acute Hepatitis C United States, 1982-2000



Source: Sentinel Counties

Hepatitis C Virus Infection, United States

New infections (cases)/year 1985-89: 242,000

2001: 25,000

Deaths from acute liver failure: Rare

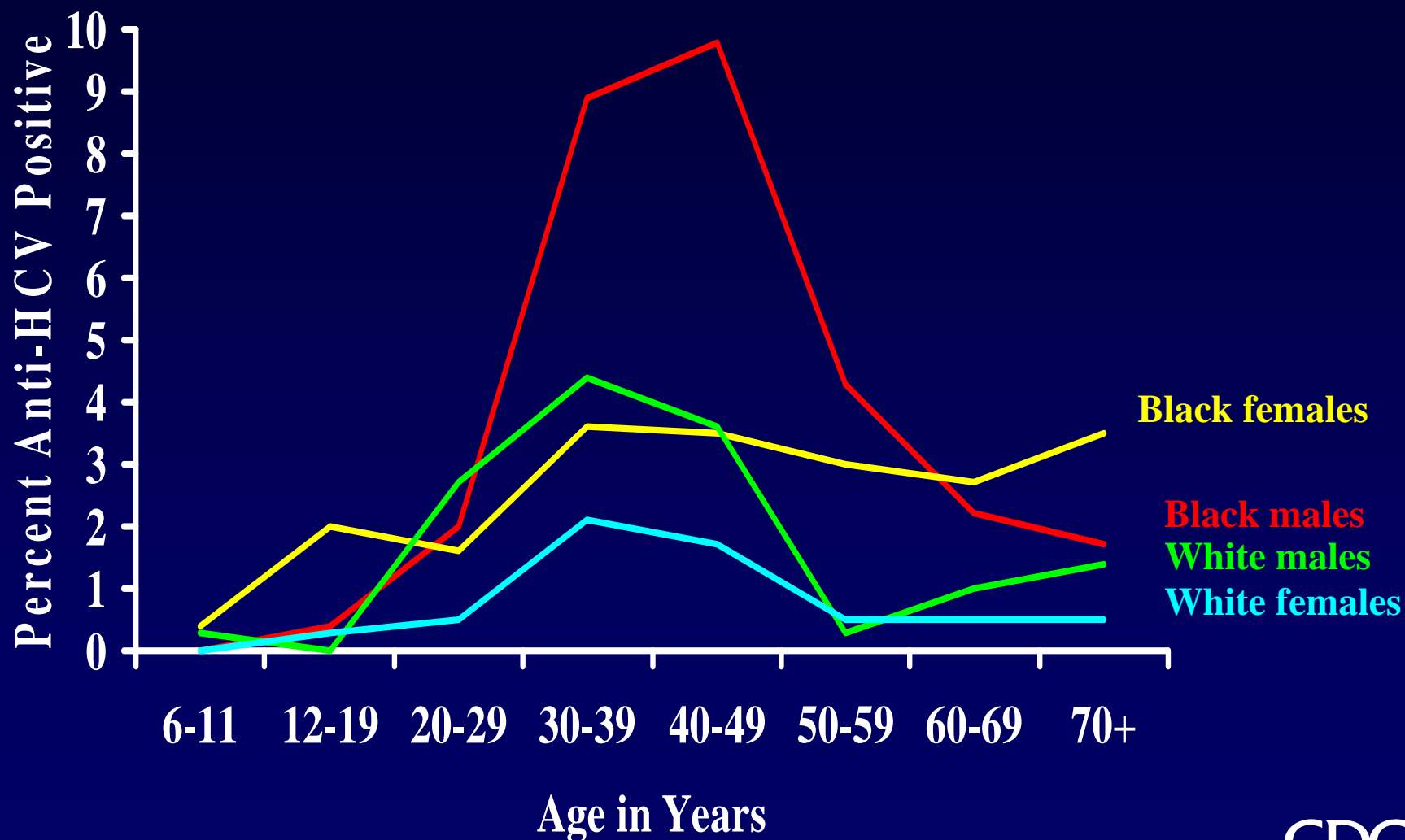
Persons ever infected (1.8%): 3.9 million

Persons with chronic infection: 2.7 million

HCV-related chronic liver disease: 40% - 60%

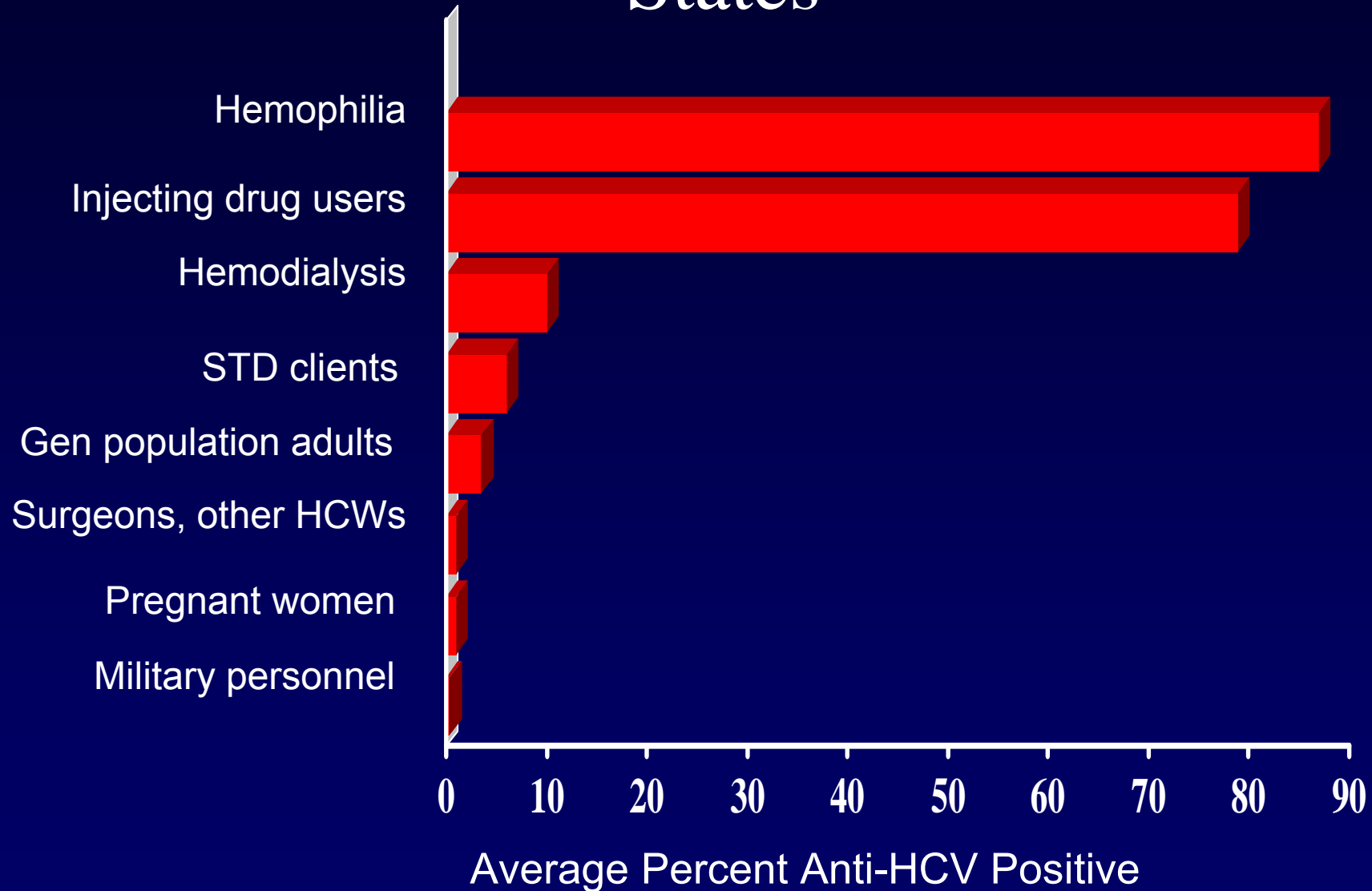
Deaths from chronic disease/year: 8,000-10,000

Prevalence of HCV Infection by Age, Race, and Gender, United States, 1988-1994



Source: NHANES III

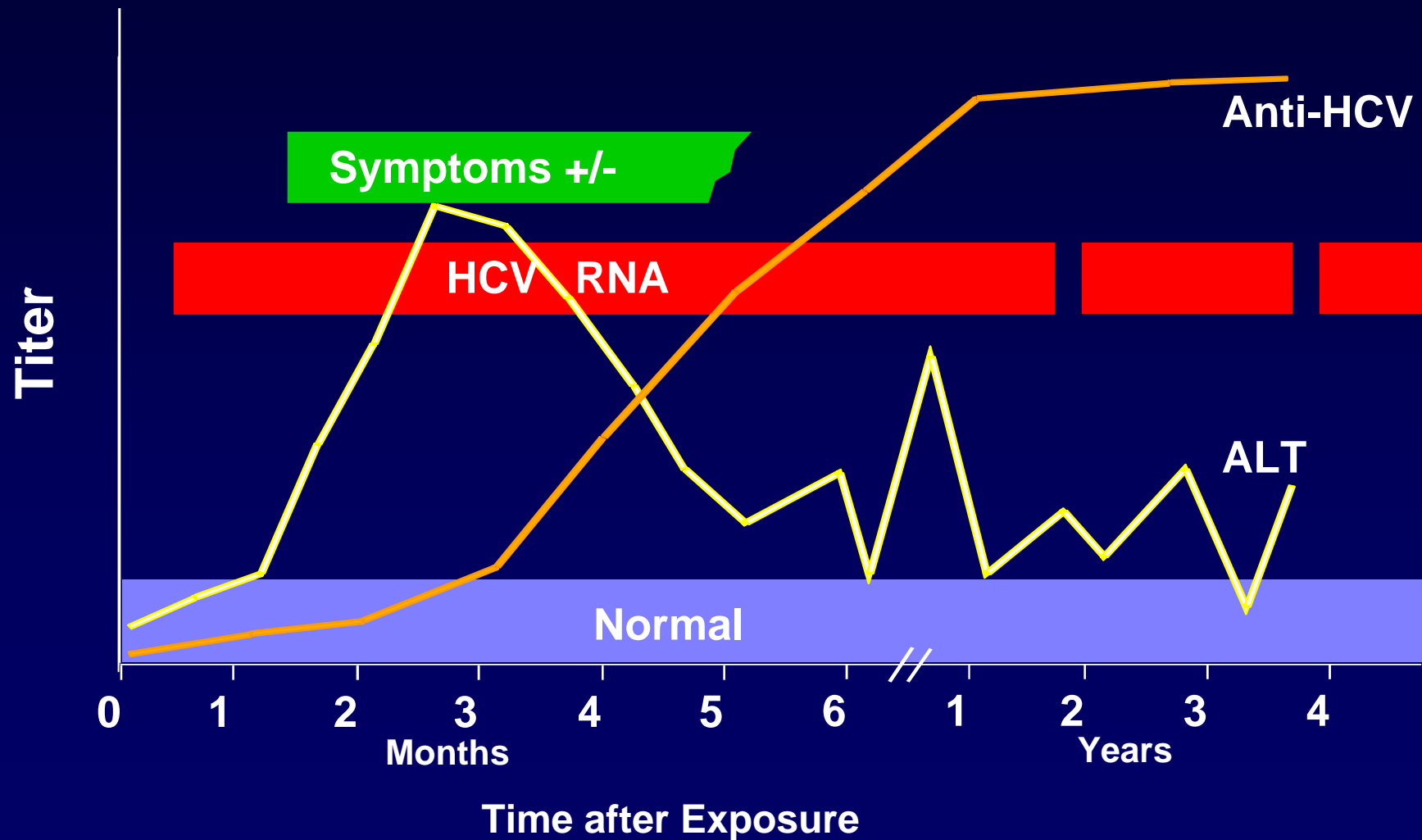
HCV Prevalence by Selected Groups United States



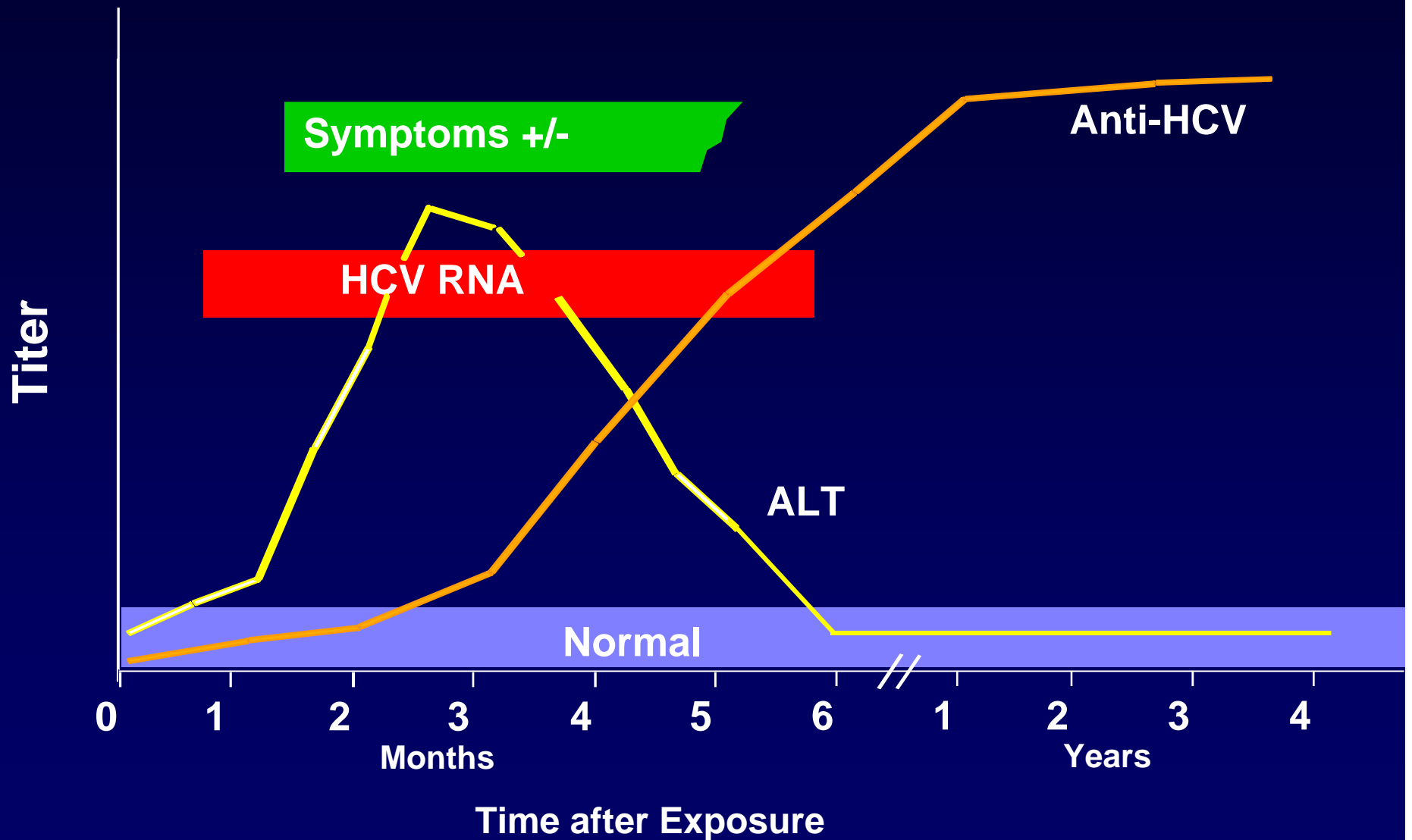
Hepatitis C – Clinical Features

- **Incubation period:** Average 6 - 7 wks
Range 2 - 26 wks
- **Acute illness (jaundice)** Mild ($\leq 20\%$)
- **Case fatality rate** Low
- **Chronic infection** 60%-85%
- **Chronic hepatitis** 70%
- **Cirrhosis** 5%-20%
- **Mortality from CLD :** 3%

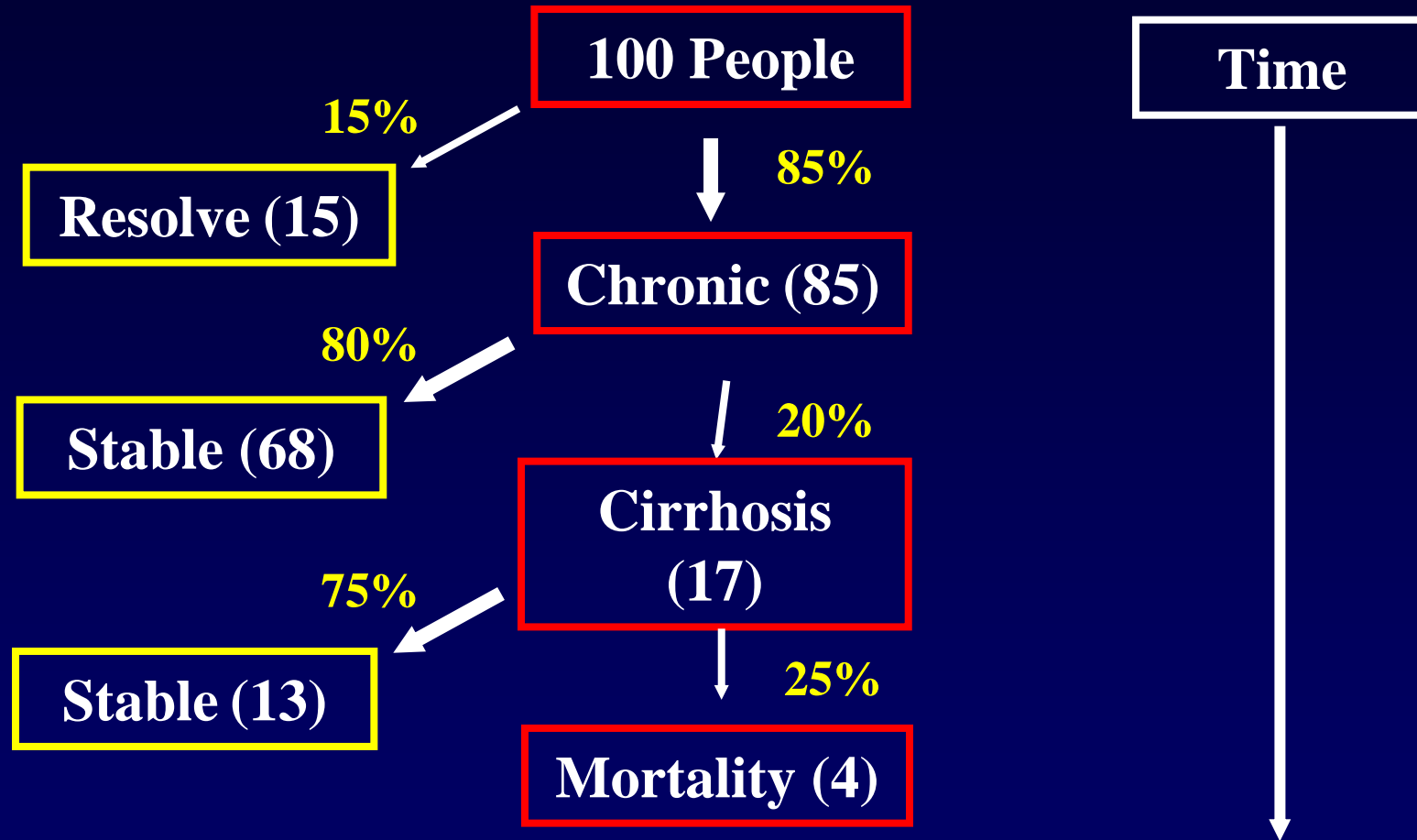
Serologic Pattern of Acute HCV Infection With Progression to Chronic Infection



Pattern of Acute HCV Infection with Recovery

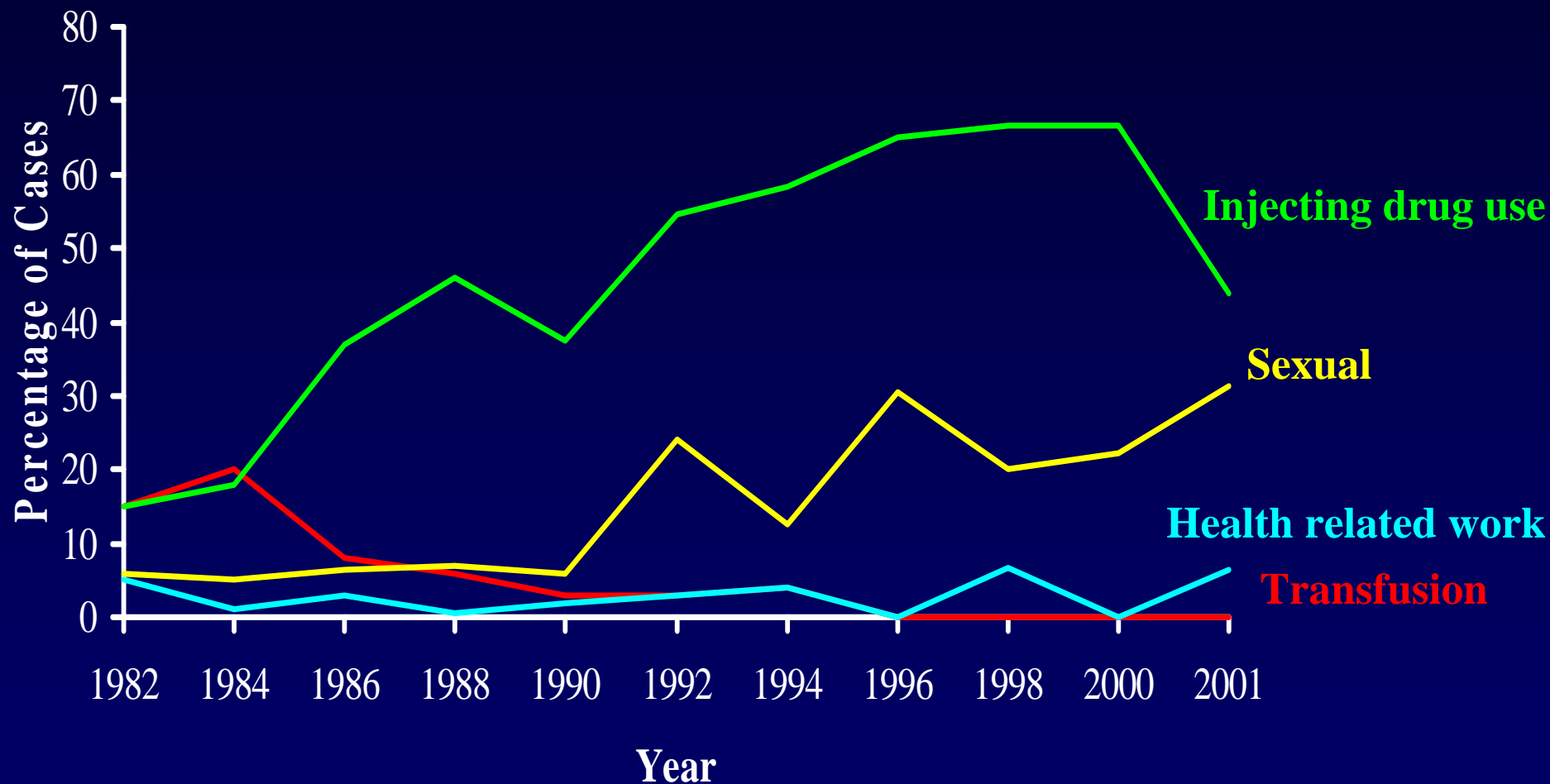


Natural History of HCV Infection



Leading Indication for Liver Transplant

Reported Cases of Acute Hepatitis C by Selected Risk Factors, United States, 1982-2001*



* 1982-1990 based on non-A, non-B hepatitis

Sexual Transmission of HCV

- **Occurs, but efficiency is low**
 - Rare between long-term steady partners (1.5-3%)
 - MSM 3% (1-18% in selected STD clinic settings) – same as heterosexuals
 - Factors that facilitate transmission between partners unknown (e.g., viral titer)
- **Accounts for 15-20% of acute and chronic infections in the United States**
 - Sex is a common behavior
 - Large chronic reservoir provides multiple opportunities for exposure to potentially infectious partners

Perinatal Transmission of HCV

- **Transmission only from women HCV-RNA positive at delivery**
 - Average rate of infection 6%
 - Higher (17%) if woman co-infected with HIV
 - Role of viral titer unclear
- **No association with delivery method**
- **Infected infants do well**
 - Severe hepatitis is rare



Mother-to-Infant Transmission of HCV

- **Post-exposure prophylaxis not available**
- **No need to avoid pregnancy or breastfeeding**
 - Consider bottle feeding if nipples cracked/bleeding
- **No need to determine mode of delivery based on HCV infection status**
- **Test infants born to HCV-positive women**
 - Consider testing any children born since woman became infected
 - Evaluate infected children for CLD

Hepatitis C and HIV Co-infection

- Co-infection occurs in 17-54% of pregnant women
- HCV screening recommended for all HIV infected pregnant women
 - False negative tests may occur, particularly in women with low CD4 counts
 - HCV RNA available
- No data on safety of interferon and peg-interferon in pregnancy
- Ribavirin is contraindicated (Category X)

Hepatitis C and HIV Co-infection

- HCV does not alter the course of pregnancy
- Pregnancy does not alter the course of Hepatitis C
- HIV infection markedly increases the risk of perinatal HCV transmission
 - HCV may increase the risk of perinatal HIV transmission also

Hepatitis C and HIV Co-infection

- Antiviral hepatotoxicity may be increased in co-infected patients
- No fetal scalp electrodes
- Prolonged ROM may increase HCV transmission (as well as HIV transmission)

Preconceptional Counseling in the HIV-Infected Woman

- Remember that 50% of pregnancies in the United States are unintended so start in routine health care visits
- Standard principles of preconceptional counseling are available at www.cdc.gov
 - Recommendations to improve Preconceptional Health and Health Care

Preconceptional Counseling in the HIV-Infected Woman

- Select effective and appropriate contraceptive methods
 - HAART may decrease the efficacy of certain hormonal contraception formulations
 - Ethinyl estradiol (Common OCP component)
 - Levels increased by indinivir, efavirenz and amprenavir
 - Levels decreased by ritonavir, nevirapine, Nelfinivir and lopinivir
 - DHHS 2006 Guidelines
 - Minimal data on other types of contraception (e.g. patch, vaginal ring)

Preconceptional Counseling in the HIV-Infected Woman

- Safe sexual practices to prevent HIV transmission to sexual partners and to decrease acquisition of other STDs
- Eliminate alcohol, illicit drug use and tobacco use
- Counsel women with regards to risk factors for HIV transmission

Preconceptional Counseling in the HIV-Infected Woman

- Antiviral regimen choices
 - Be aware of potential teratogenicity of certain HIV medications
 - Do not use a combination which incorporates efavirenz
 - Use a regimen effective in preventing perinatal transmission of HIV
- Optimize viral load and CD4 counts

Public Health Service Task Force

Recommendations for Use of Antiretroviral
Drugs in Pregnant HIV-Infected Women
for Maternal Health *and* Interventions to
Reduce Perinatal HIV Transmission in the
United States

November 2, 2007