Hepatitis C in the CEE and NIS Countries: A Prevention Perspective

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Global Epidemiology of HCV Infection

- HCV infection is endemic in most parts of the world.
- Substantial geographic differences exist in the endemicity of HCV infection
- Injection drug use, unscreened transfusions, and unsafe medical practices and injections account for most HCV infections worldwide

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What Surveillance Data are Needed to Monitor Hepatitis C Prevention ?

Parameter	Acute Disease	Serologic	Chronic Disease
Disease incidence	X		
Risk factors for infection	X	Special populations	
Prevalence of infection/disease		X	X
Prevention effectiveness	X	X	X

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Prevalence (Burden) of Infection

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Global Prevalence of HCV Infection

- Approximately 2.2% worldwide
- Regional estimates contain much uncertainty
  - 33% = blood donor data
  - 25% = community surveys

Source: J Clin Pharmacol 2004; 44:20-29

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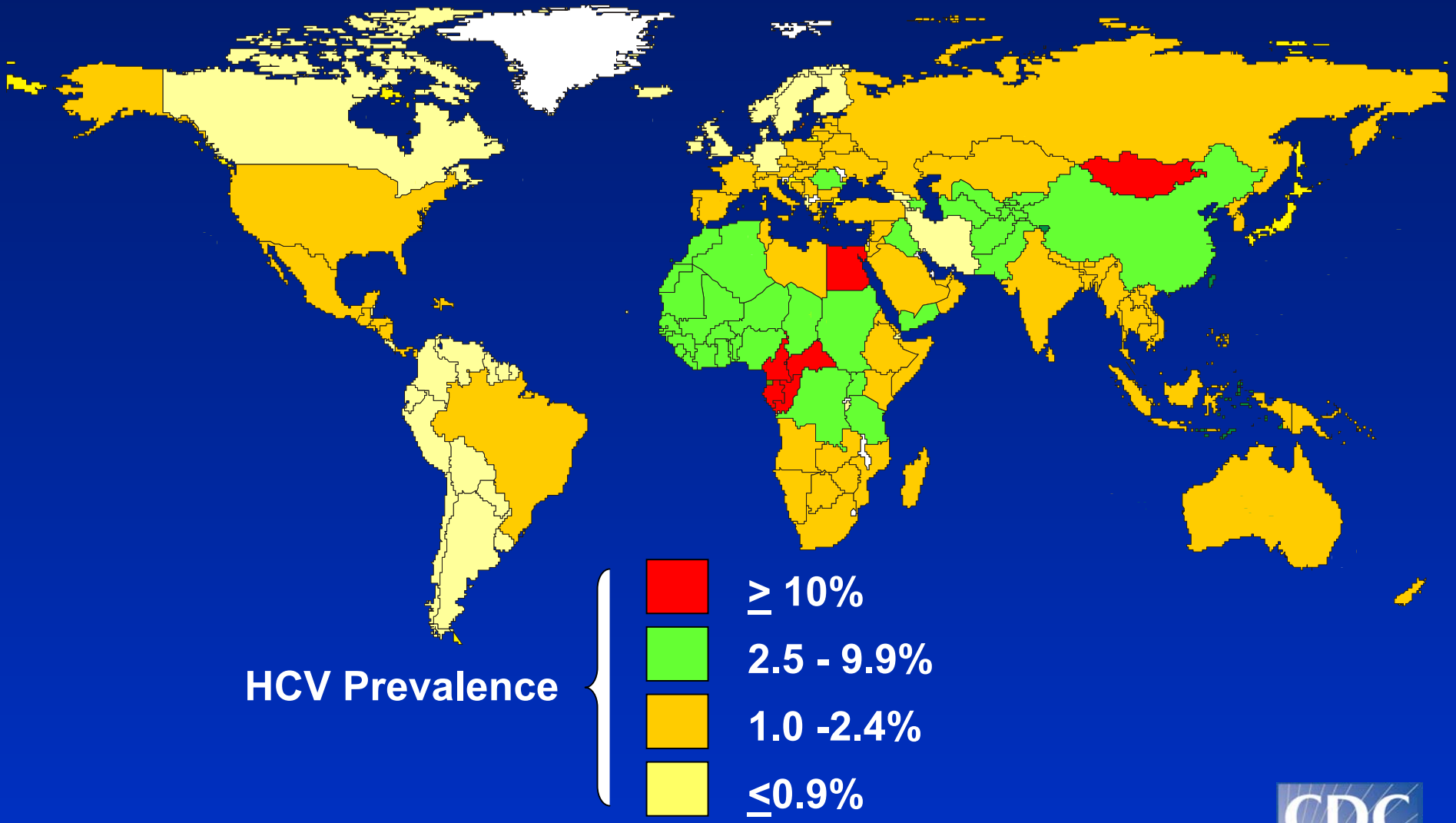
Prevalence of HCV Infection



Source: WHO, International Travel and Health
http://www.who.int/ith/index.html

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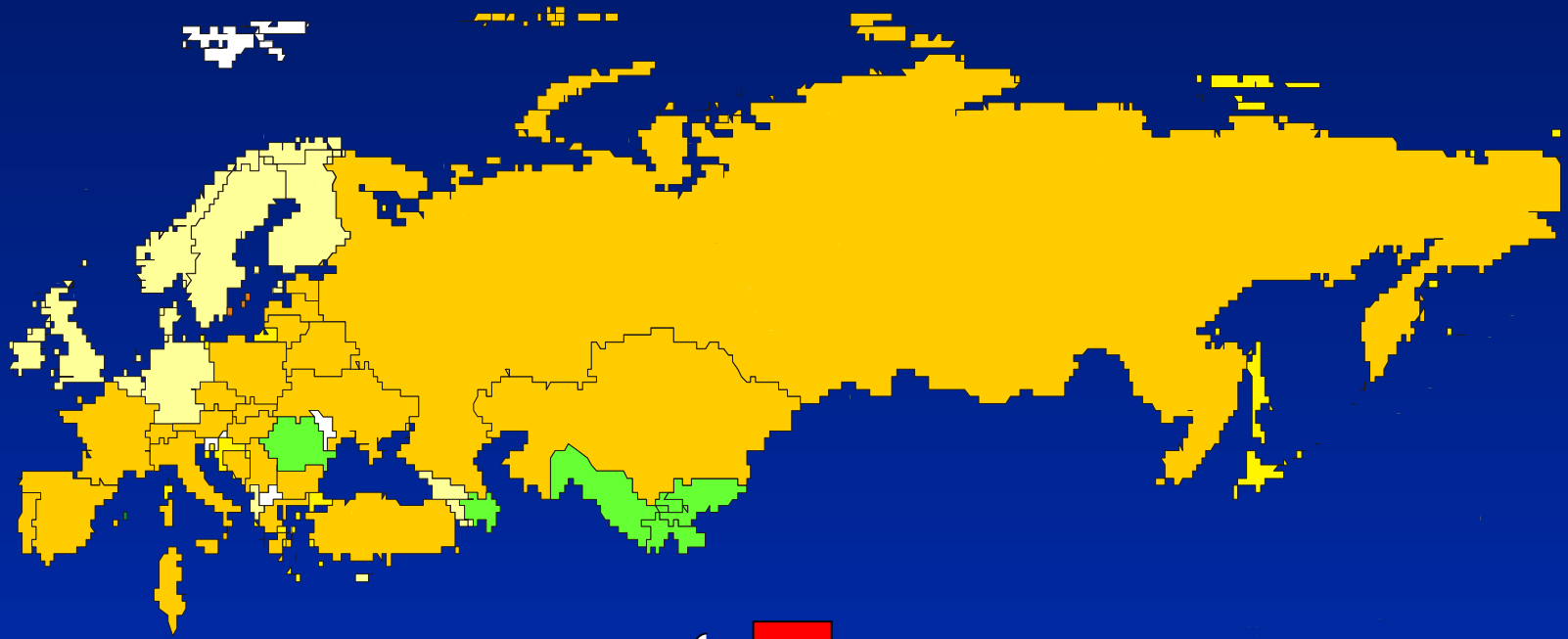
Prevalence of HCV Infection



Source: WHO, International Travel and Health
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Need for Better Data

- Need to be representative of general population
  - male : female ratios
  - racial/ethnic groups
  - persons in risk groups
  - children and young adults
- Blood donor data generally not representative of population

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Anti-HCV Prevalence, Kazakhstan, 2003

Group	Karaganda	Pavlodar	Shimkent	Uralsk
Injection Drug Users	59% (160/270)	68% (170/250)	39% (105/270)	62% (155/250)
Sex Workers	30% (45/150)	23% (23/100)	8% (17/221)	17% (11/64)
Prisoners	37% (185/500)	40% (175/440)	29% (116/400)	30% (60/200)
Pregnant Women	0.6% (3/470)	1.5% (9/600)	0.2% (1/600)	0.8% (4/500)
STD Clinics	1% (1/100)	4.8% (22/460)	0.3% (1/339)	3.8% (19/500)

Source: CDC-USAID Central Asia Program, M.O. Favarov, unpublished

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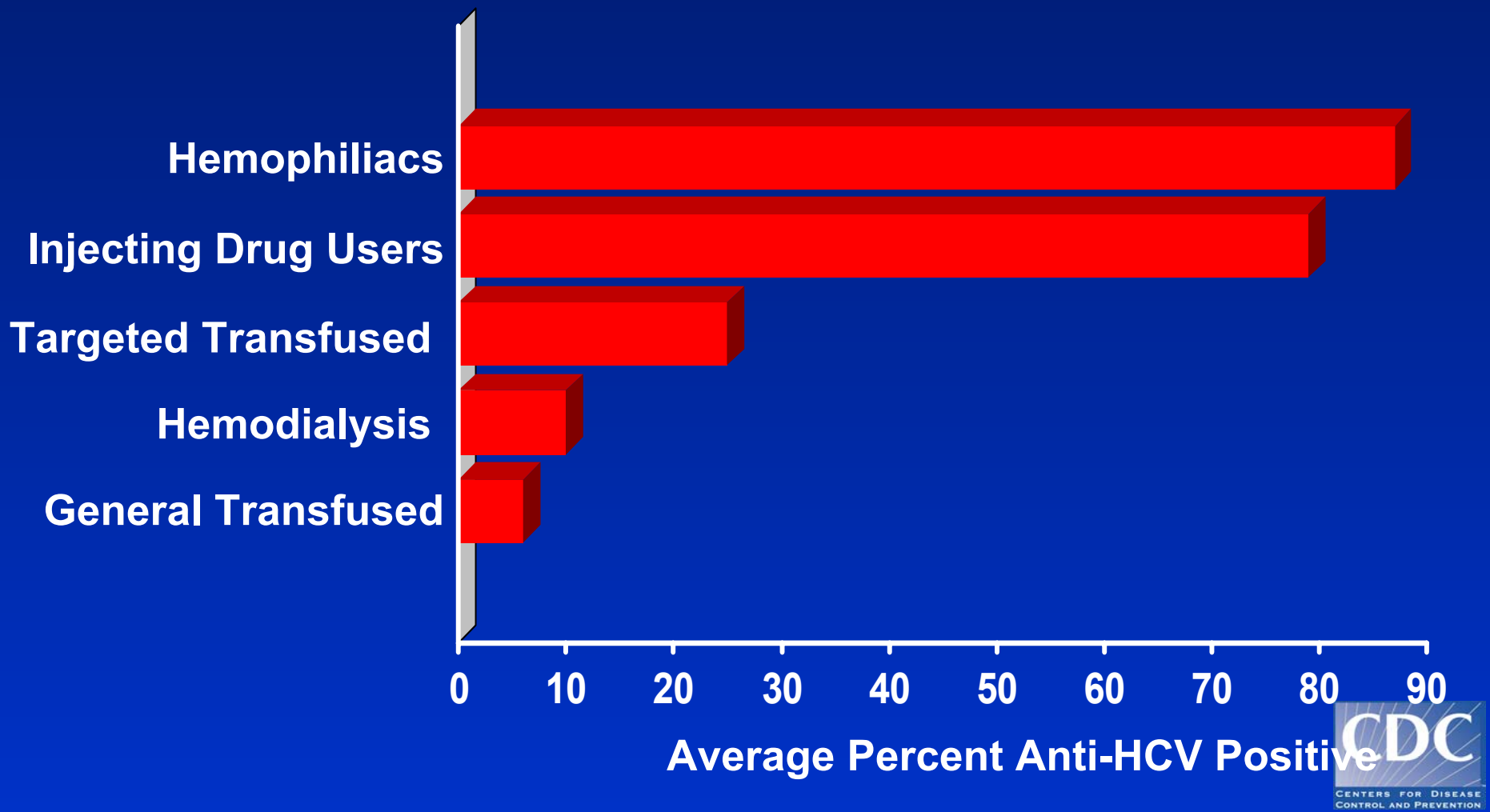
HCV Prevalence by Selected Groups United States



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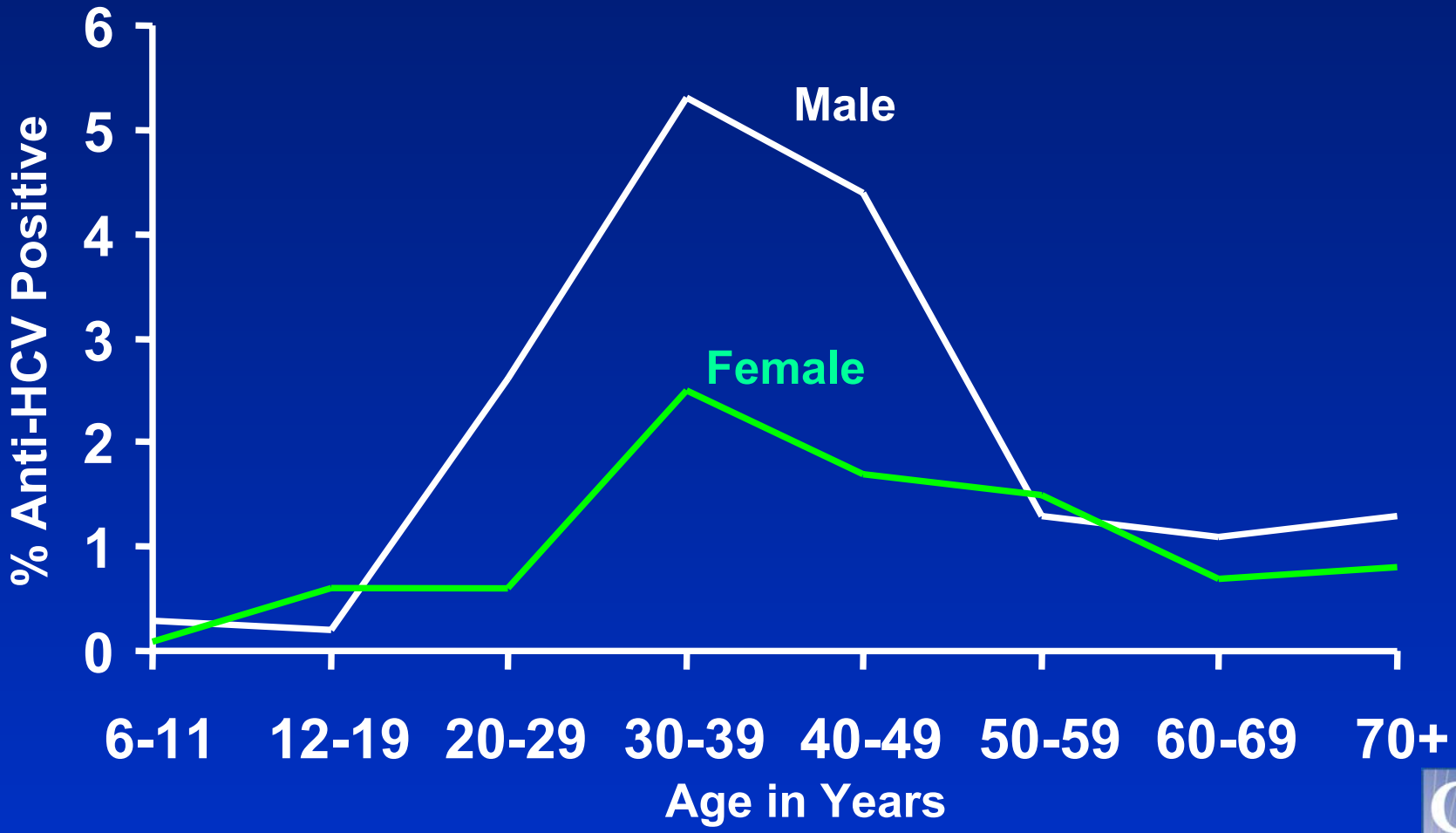
HCV Infection Prevalence, United States 1988-1994



Source: NEJM 1999;341:556-62

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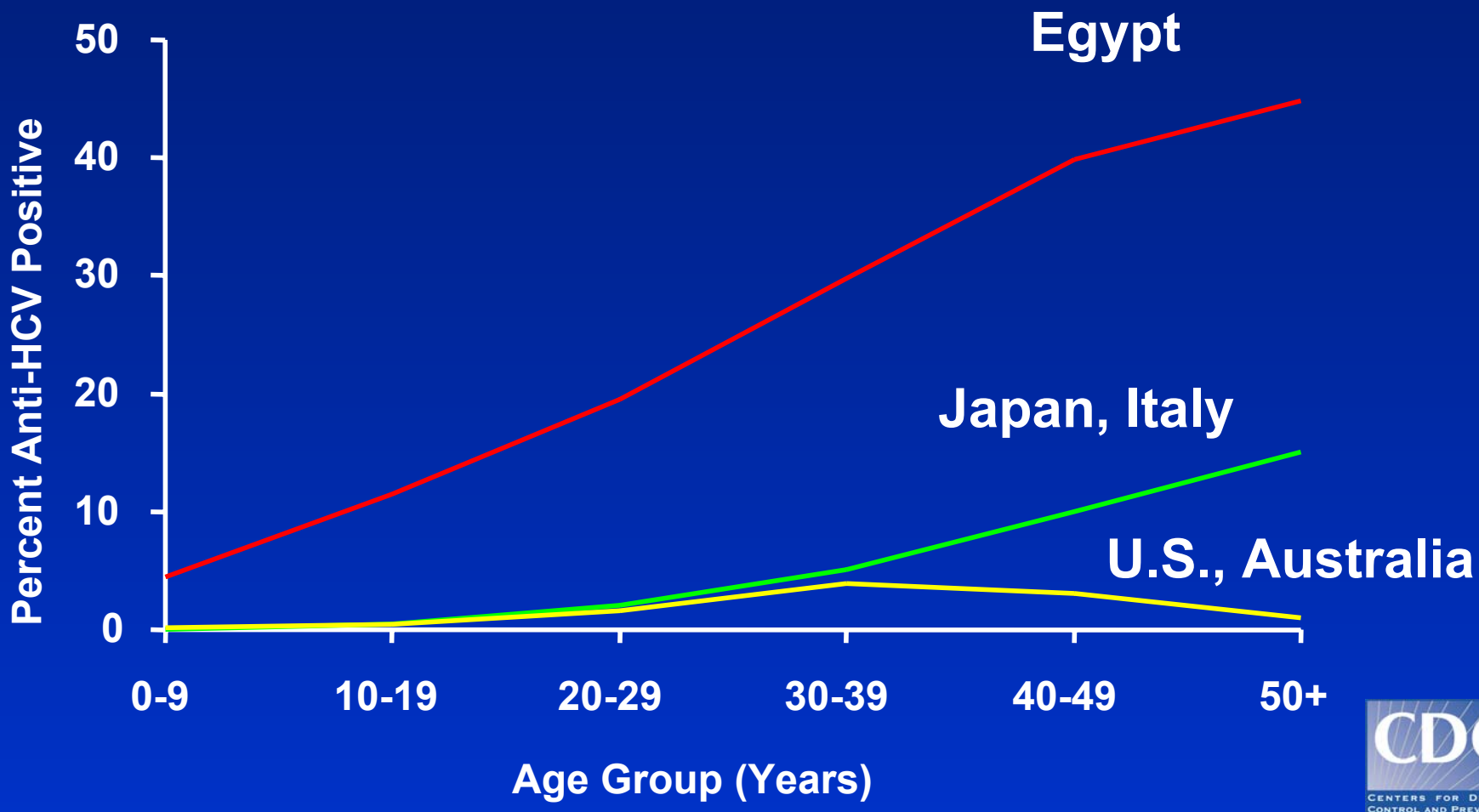
Geographic Patterns of Age-Specific Prevalence of HCV Infection



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Incidence of Infection
Risk Factors for Infection

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Lack of Global Incidence Data

- Diagnostic testing to differentiate types of hepatitis (jaundice) generally not available
- No specific test for acute hepatitis C
- Most anti-HCV positive persons with jaundice represent chronic disease
- Population-based sentinel surveillance sites in some countries (e.g., U.S., Romania, Central Asian republics, Canada)

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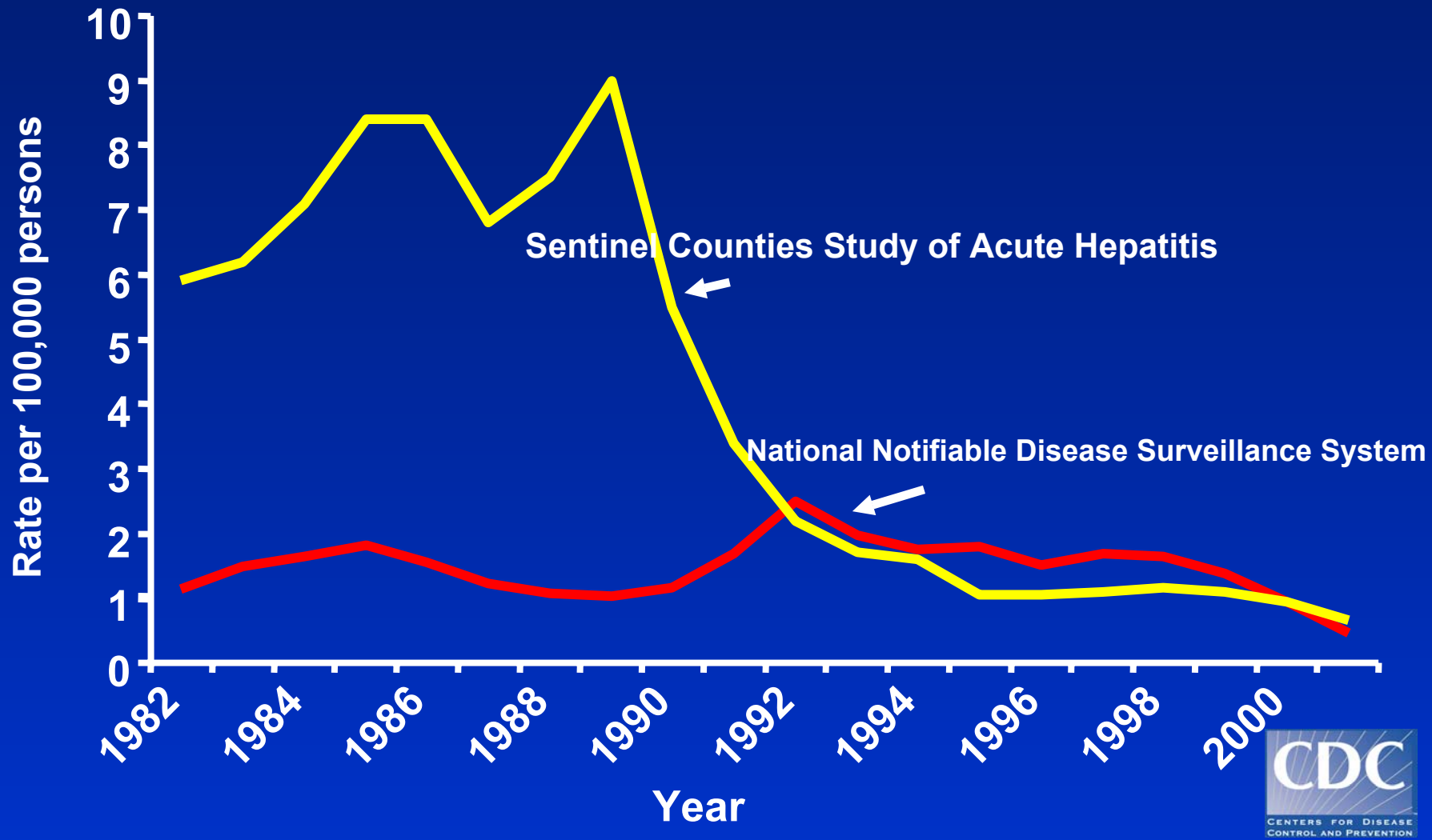
Incidence of Reported Acute Hepatitis C United States, 1982-2001



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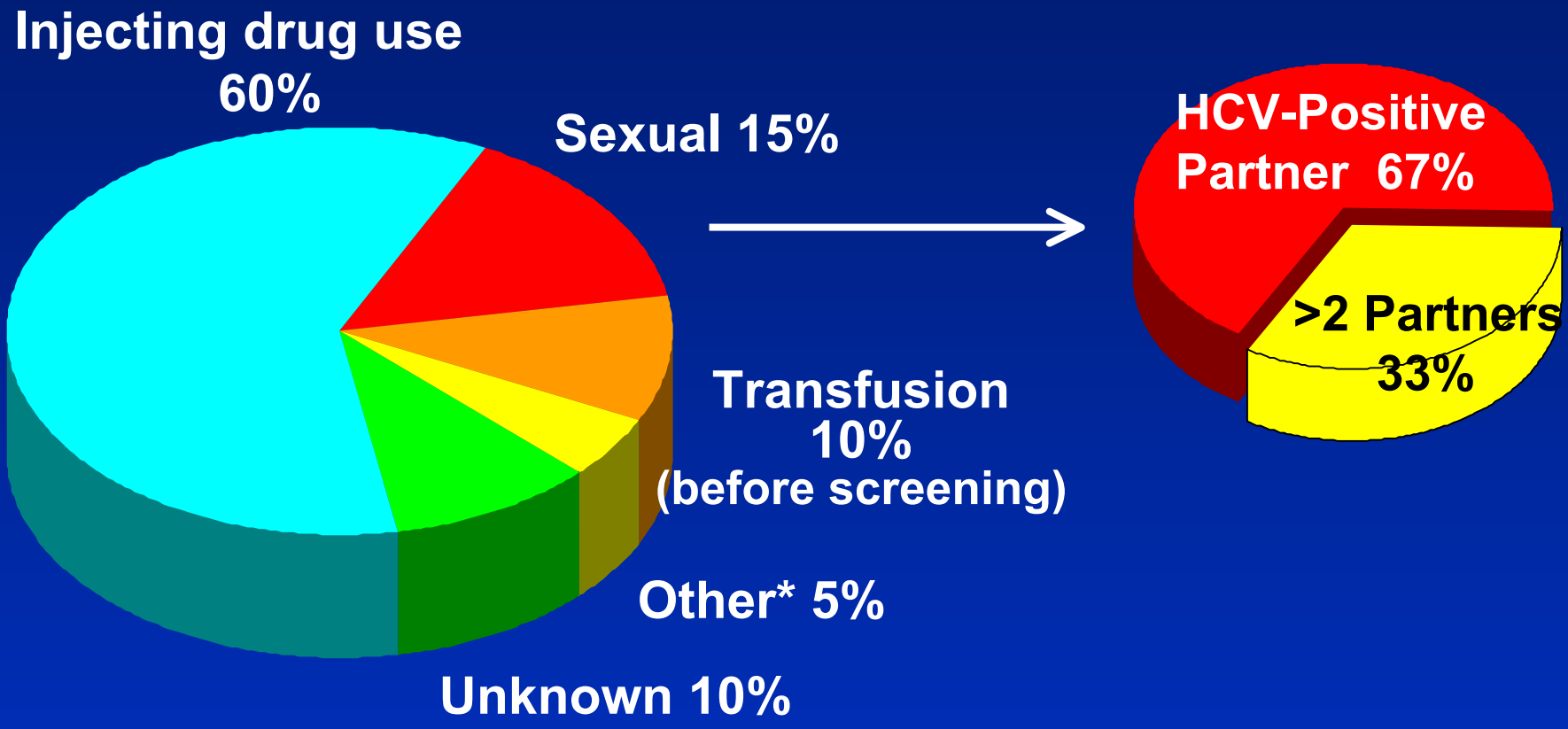
Sources of Infection for Persons with Hepatitis C



*Nosocomial; Health-care work; Perinatal

Source: Sentinel Counties Study of Viral Hepatitis, CDC

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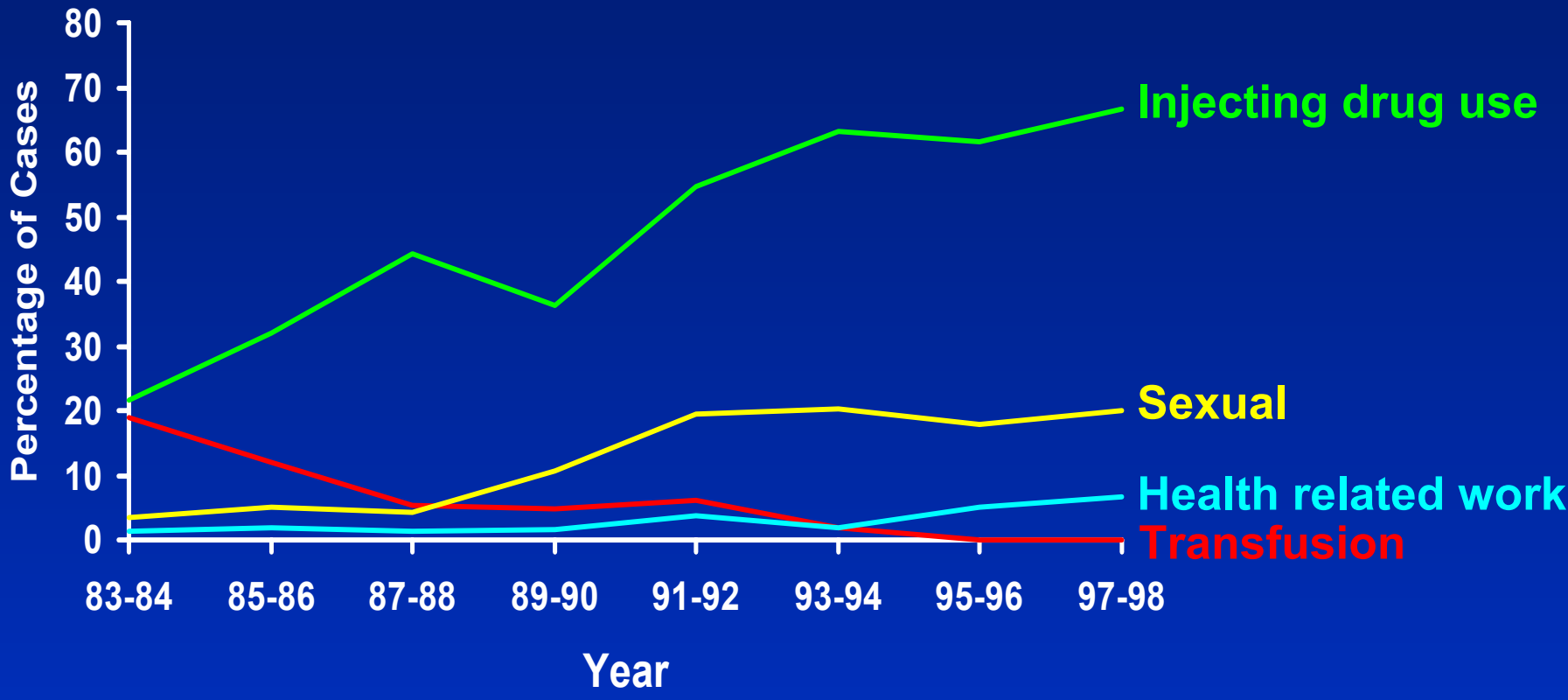
Risk Factors for Acute Hepatitis C United States, 1983-1998*



* 1983-1990 based on non-A, non-B hepatitis

Source: CDC Sentinel Counties Study

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Geographic Differences in Risk Factors for HCV Transmission

Importance of Exposures by HCV Endemicity

Exposure	Low	Medium	High
Injecting drug use	++++	++	+/-
Transfusions	+ (past)	+++	+++
Health-care related	+/-	++++	++++
Unsafe injections	+/-	+++	++++
Folk medicine	?	+	++

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Injecting Drug Use and HCV Infection

- Rapidly acquired after initiation
- Four times more common than HIV
- Prevalence 50-90% after 5 years
- Predominant risk factor in low prevalence countries
- Emerging risk factor in moderate/high endemic countries
  - sentinel event for emergence of injecting drug use
  - 50% of persons with acute hepatitis C (Italy, Russia)
  - 40% of HCV-positive persons <40 yrs old vs. 0% >40 (Italy)
  - 2/3 of HCV-positive commercial blood donors (Egypt)

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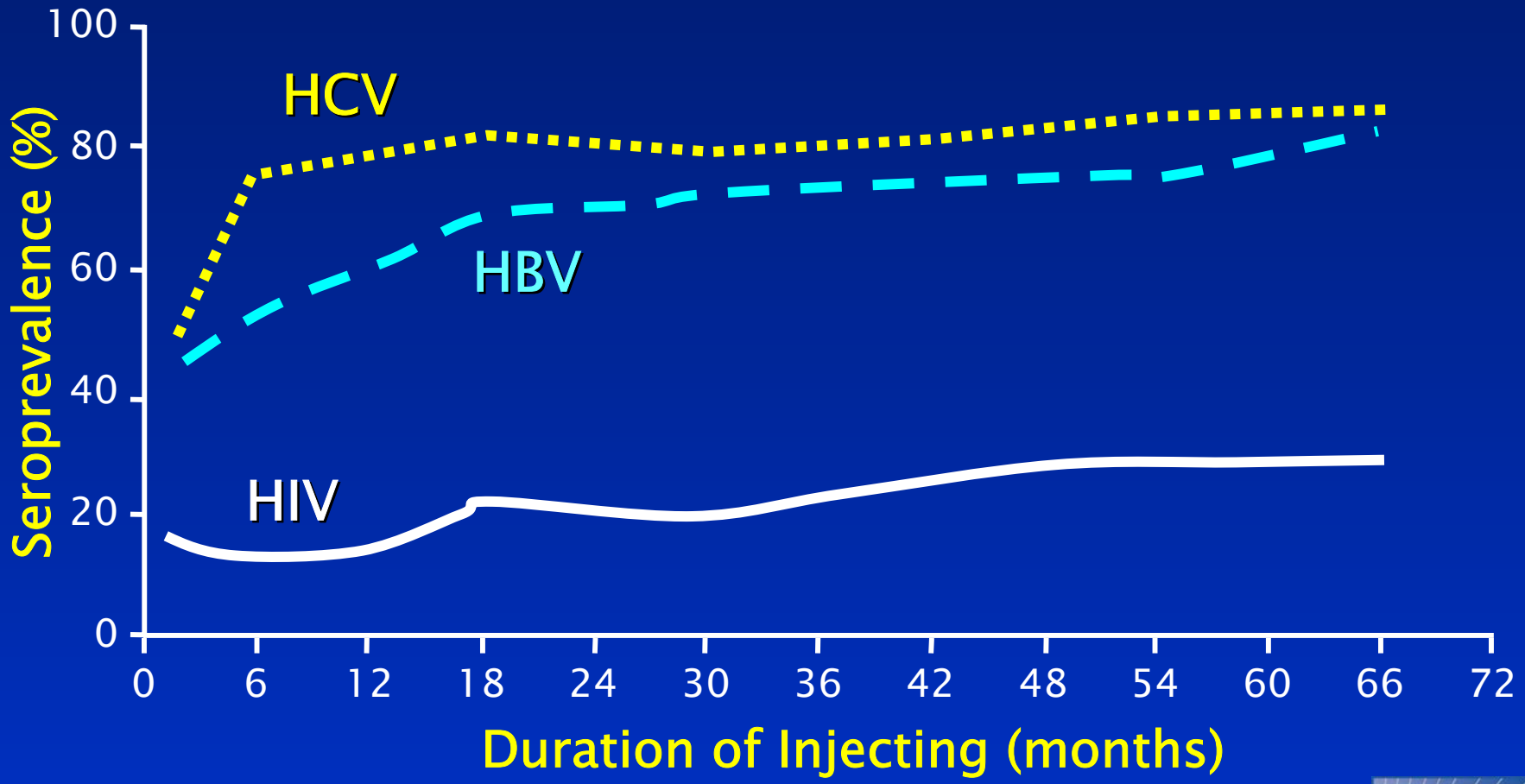
Risk of Bloodborne Virus Infections Injection Drug Users *Baltimore 1983–1988*



Garfein RS. Am J Public Health. 1996;86:655.

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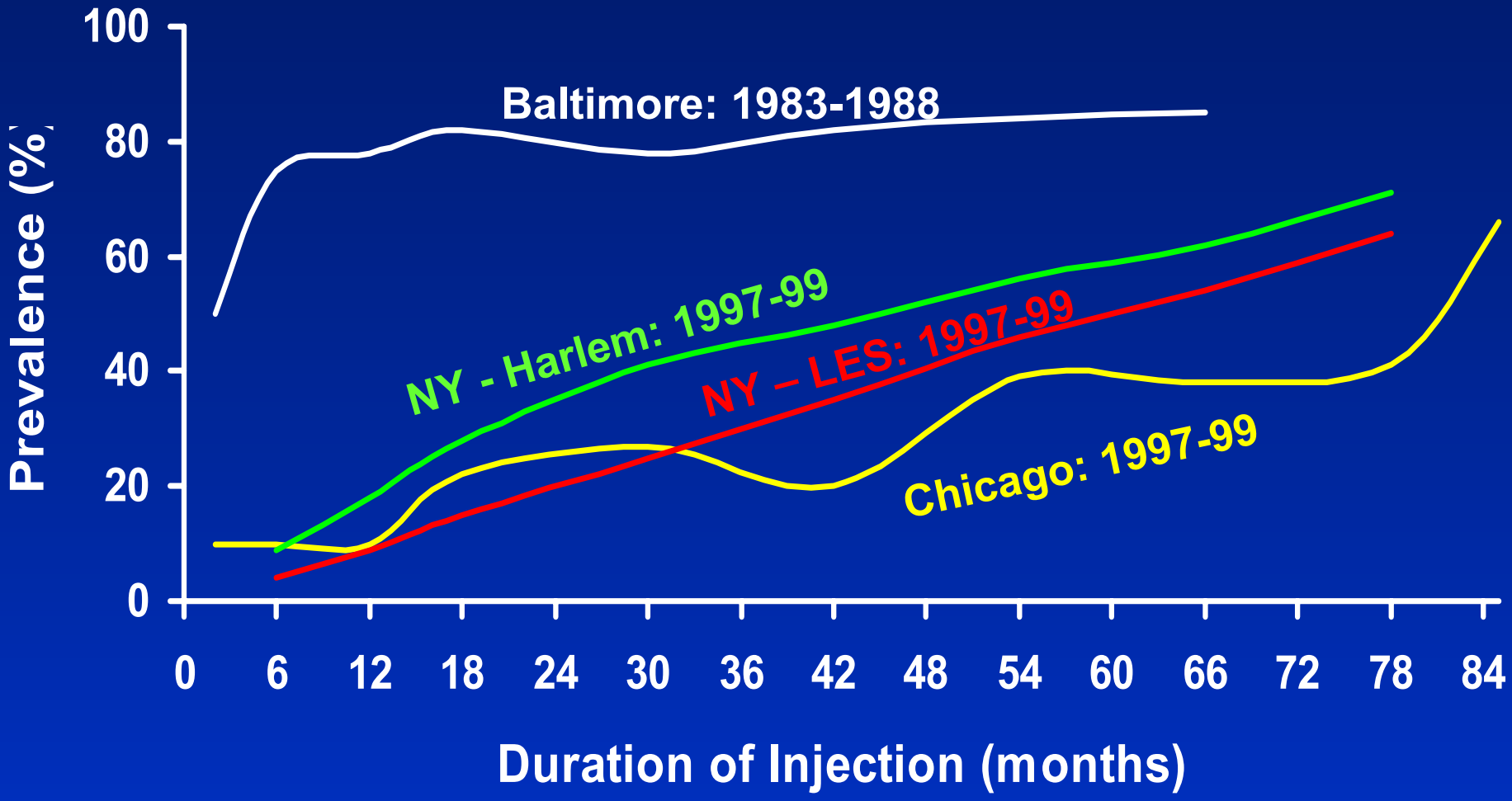
Risk of HCV Infection Among Injection Drug Users



Garfein RS *Am J Public Health* 1996; 86:655. Thorpe LE *JID* 2000;182:1588-94. Diaz T *Am J Public Health* 2001; 91(1): 23-30.

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Injecting Drug Use and HCV Infection

- Acquisition of HCV infection (not HIV) among injection drug users should become the ‘Indicator’ of effective prevention programs
- Prevention of HCV infection (and viral hepatitis A and B) should be integrated into all drug use prevention programs

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Reasons to Combine Viral Hepatitis and HIV/AIDS Prevention

- Major public health problems
- Routes of transmission overlap
- Effective prevention tools
  - Immunization, treatment, risk reduction
- Programs for HIV/AIDS and drug abuse prevention
- Lack of integrated prevention activities leads to transmission of viral hepatitis

Hepatitis C: the tipping point for a new direction in prevention

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Prevention Activities

- **Primary = prevent new HCV infections**
  - Identify high risk persons, test, counsel about harm and risk reduction, substance abuse treatment
- **Secondary = reduce risk of transmission**
  - Identify HCV positives, counsel about harm and risk reduction, substance abuse treatment
- **Tertiary = reduce risk of chronic liver disease**
  - Identify HCV positives, medical evaluation, antiviral therapy, counseling (harm and risk reduction), substance abuse treatment

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Transmission of Viral Hepatitis by Unsafe Injections and Medical Practices

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Post-transfusion Hepatitis in Developing Countries

- Often transfused units not tested for HBV or HCV
- Related donors often used – perception that less likely to be infected
- Inappropriate use of blood and blood products – single unit transfusions common
- Lack of organized transfusion services
- Paid donors continue to be used in many countries

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Health-Care Related HCV Transmission

- **Unsafe injection practices**
  - inadequate sterilization of reuseable needles and syringes
  - sharing of disposable needles and syringes
  - high frequency of injections
- **Contaminated equipment**
  - lack of ‘universal precautions’
  - inadequate cleaning and disinfection
    - in health care settings
    - alternative medicine practices, rituals

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Unsafe Injections and HCV Infection Moderate Endemic Countries

	History Reused Needles/Syringes		
Country	HCV Pos	HCV Neg	OR (95% CI)
Italy	63%	31%	3.8 (2.7, 5.3)
	89%	53%	7.0 (4.4, 11.2)
	76%	72%	1.2 (0.6, 2.5)
Taiwan	26%	8%	4.2 (1.2, 14.5)
Pakistan (≥5/yr)	36%	6%	8.2 (1.9, 41.4)

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HCV Prevention and Control
A Global Agenda

- Define global burden of disease
  - population-based surveillance for acute and chronic infection
- Reduce incidence of viral hepatitis in at-risk persons
  - Integrate viral hepatitis prevention into prevention programs for HIV/AIDS, STD, and drug abuse
  - implement harm-reduction activities (e.g., syringe and needle exchange) in all prevention programs that serves injection drug users
  - determine the effectiveness of various harm reduction strategies to prevent HCV infection

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HCV Prevention and Control
A Global Agenda

- Screen all transfused blood to reduce incidence of transfusion-transmitted hepatitis
- Significantly reduce incidence of HCV infection associated with medical procedures
  - Reduce frequency of injections and unsafe injections
  - Establish standard precautions in all health care settings

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