



NORTHWEST AIDS EDUCATION AND TRAINING CENTER

HIV and Hepatitis B

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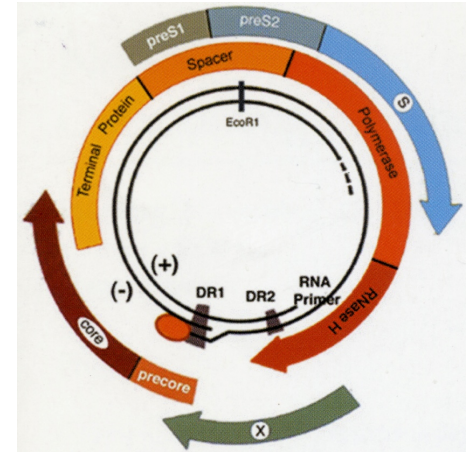
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Outline

- **Hepatitis B**
 - Basics
 - Epidemiology
 - Testing & Monitoring
 - Natural History
 - Treatment

Hepatitis B – The Basics

- Partially ds DNA virus
- Covalently closed circular (ccc) DNA
- Spread vertically, horizontally, percutaneously and sexually
- Can cause differing severity of disease or phases
- Safe and effective vaccine is available and is standard for children in US



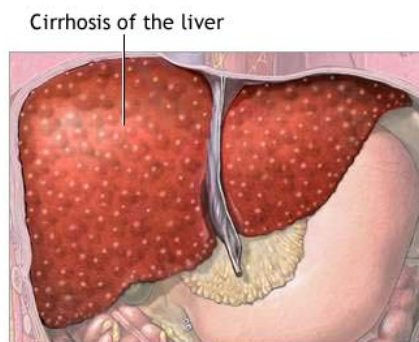
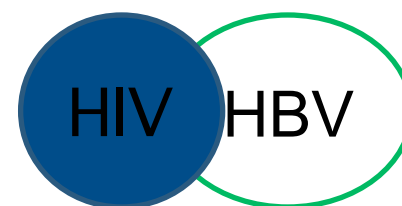
Hepatitis B – US Epidemiology

~700,000 Americans with chronic HBV

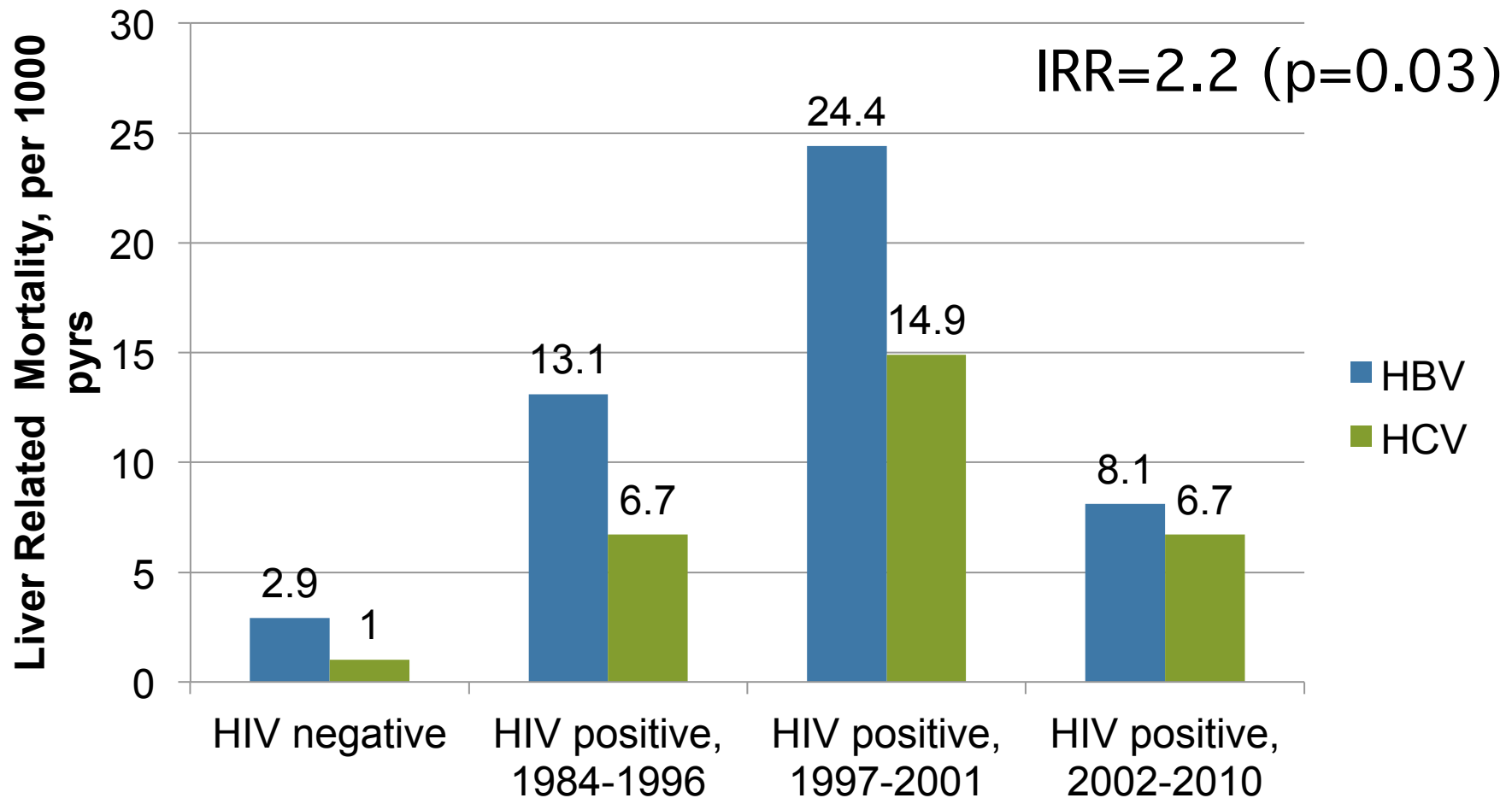


HIV and HBV: Epidemiology

- ✓ Shared routes of transmission (IDU, MSM)
- ✓ 5-10% of HIV+ also have chronic HBV
- ✓ Liver-related disease is a growing cause of death in HIV+ patients



Quick Quiz: What is worse, HIV/HCV or HIV/HBV?



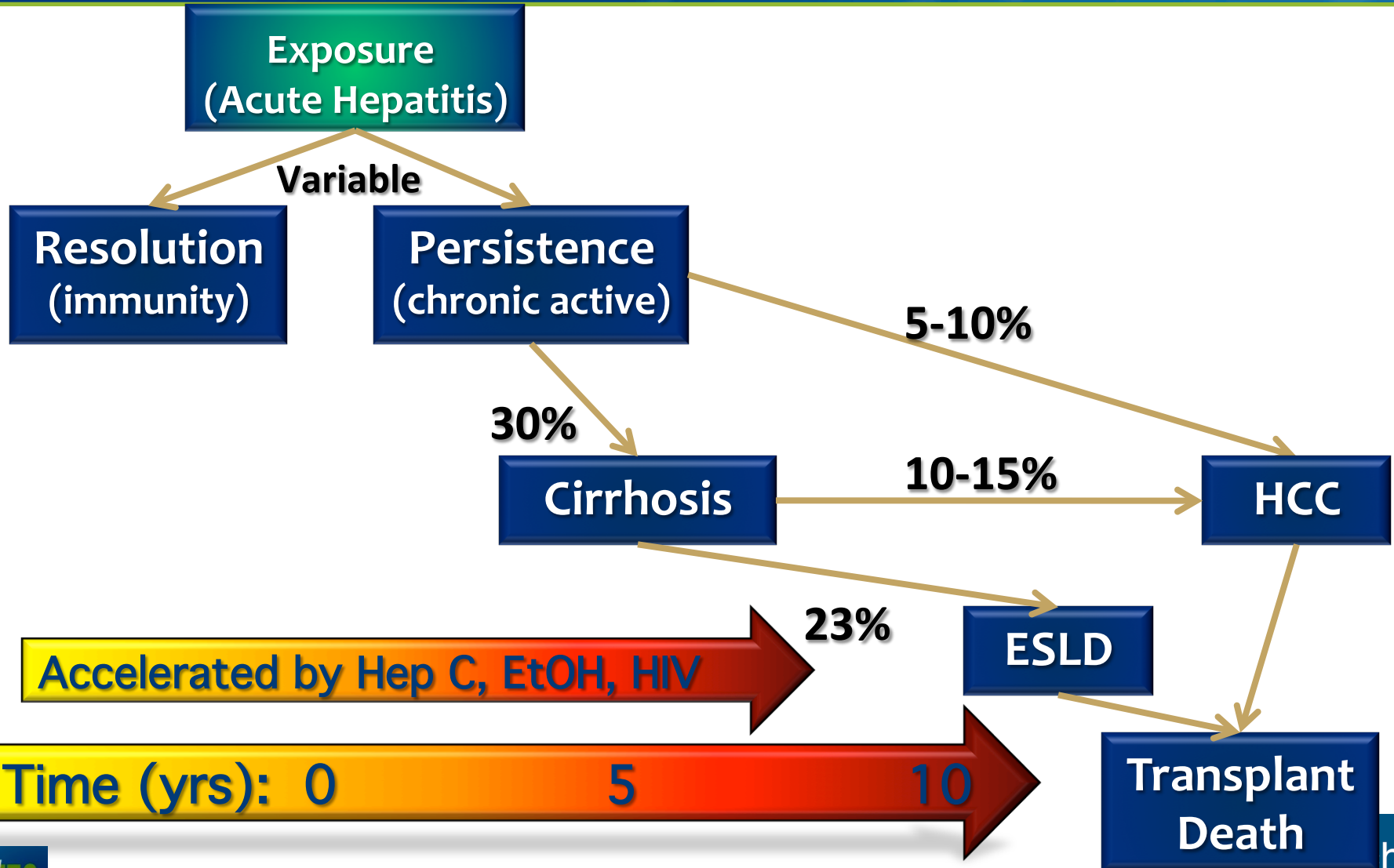
Testing: Interpreting HBV Serologies

Staging	IgM cAb	e Ag	e Ab	HBV DNA	ALT	Histology
Acute HBV	+	+	-	High	High	Acute inflammation
Chronic HBV - Immune Tolerant	-	+	-	High	Normal	Normal
Chronic HBV - Immune Active	-	+	+/-	High	High	Chronic inflammation
Chronic HBV - Immune Active (pre-core mutant)	-	-	+	High	Variable	Chronic inflammation
Chronic HBV - Inactive Carrier	-	-	+	Low	Normal	Normal

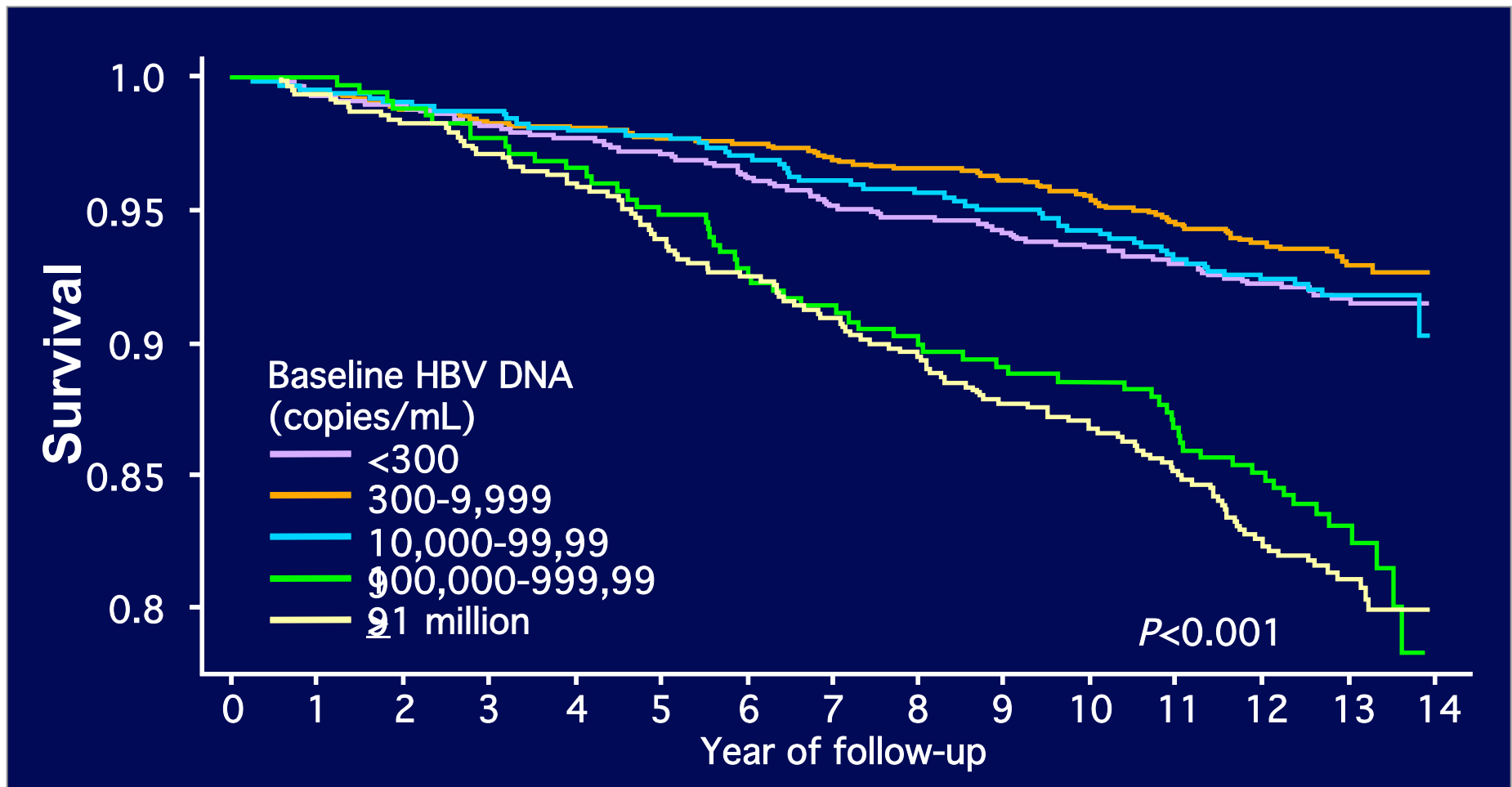
Monitoring

- If on therapy
 - HBV DNA q 3-6 mos
 - LFTs q 3-6 mos
 - eAg q 6 mos if baseline positive
 - sAg q 6-12 mos if eAg negative at baseline
- If not on therapy
 - LFTs q 6 mos
 - U/S for HCC surveillance (known cirrhosis, age >40 yo)

Natural History



Natural History: HBV DNA correlates with survival and HCC risk



HBV Therapy in Context of HIV

Medication	Trade Name	HBV Activity	HIV Activity	Selection of HIV Resistance Reported
Lamivudine	<i>Epivir-HBV</i> (100 mg) <i>Epivir</i>	Yes	Yes	Yes
Adefovir	<i>Hepsera</i>	Yes	No ^a	No
Entecavir	<i>Baraclude</i>	Yes	Partial	Yes
Emtricitabine	<i>Emtriva</i>	Yes	Yes	Yes
Telbivudine	<i>Tyzeka</i>	Yes	Partial ^b	No
Tenofovir	<i>Viread</i>	Yes	Yes	Yes
^a = anti-HIV activity at higher doses; more potent against HBV ^b = No in vitro activity observed against HIV, but HIV RNA decline reported				

HBV Treatment Options in HIV/HBV Coinfected Patients

Treatment	Regimen	Comment
HIV and HBV	<u>Regimen should include either</u> Tenofovir: 300 mg QD + Emtricitabine: 200 mg QD OR Tenofovir: 300 mg QD + Lamivudine: 300 mg QD	Simultaneous treatment of HIV and HBV is preferred if therapy for either virus is initiated.
HBV Only	Prefer starting HAART with regimen listed above. <u>Alternative, less favored options if HAART not started (expert consultation advised):</u> Peginterferon alpha: 180 mcg sq once weekly OR Telbivudine: 600 mg QD OR Adefovir: 10 mg QD OR Telbivudine: 600 mg QD + Adefovir: 10 mg QD	Most experts urge HAART initiation unless contraindicated. Limited safety and efficacy data exist for peginterferon in HIV-HBV coinfectd patients. Limited data on telbivudine in HIV-HBV coinfectd patients; possible partial activity against HIV. Adefovir has reduced potency against HBV compared with other antivirals.
HIV Only	Expert Consultation Advised	Selecting an antiretroviral therapy regimen without activity against hepatitis b is complex

Antiviral Efficacy

Therapeutic Endpoints	Placebo	Peginterferon	Lamivudine	Adefovir	Entecavir	Telbivudine ^a	Tenofovir ^b
Undetectable HBV DNA	0-17%	25%	40-44%	21%	67%	60%	76%
Loss of HBeAg	6-12%	30-34% ^c	17-32% ^d	24-46% ^e	22%	26%	6-12%
HBeAg/Ab seroconversion	4-6%	27-32% ^c	16-21% ^d	12-33% ^e	21%	22%	21%
Loss of HBsAg	0-1%	3% ^f	<1%	0%	2%	<1%	3%
ALT normalization	7-24%	39%	41-75% ^d	48%	68%	77%	68%
Histologic improvement	23-25%	38% ^f	49-56% ^d	53%	72%	65%	74%

All responses at 48 weeks, unless otherwise noted

^a 52 week data.

^b Marcellin P, et al. N Engl J Med. 2008;359:2242-59.

^c At end of therapy (week 48) and 24 weeks after end of therapy (week 72).

^d At 48 weeks and 52 weeks into therapy.

^e At 48 weeks and 96 weeks into therapy.

^f At 72 weeks (24 weeks after end of therapy)

What to do with HBV failures or TDF not an option?

- Failure: persistently detectable HBV DNA >12 mos on active antiviral or HBV DNA increased by >1 log on 2 occasions
- Option: Add Entecavir or Peginterferon

Take Home Points

- When following patients with hepatitis B, key labs are ALT and HBV DNA level
- Remember to screen and vaccinate for Hep B in HIV + patients
- Lamivudine, emtricitabine and tenofovir are dually active against HIV and HBV, so Truvada is typically a good regimen

Web Resources

- <http://hab.hrsa.gov/publications/hcvguide2011.pdf>
- www.nlm.nih.gov/medlineplus/hepatitis
- www.nwaetc.org
- www.hepwebstudy.org
- www.hivwebstudy.org
- www.clinicaloptions.com
- www.cdc.gov/hiv
- www.cdc.gov/hepatitis

THANK YOU!!

HEPATITIS WEB STUDY

