

Epidemiology of hepatitis B and D in Greece

George V. Papatheodoridis

Assistant Professor in Medicine & Gastroenterology

*2nd Department of Internal Medicine,
Athens University Medical School,
Hippokration General Hospital, Athens, Greece*

Epidemiological data for HBV & HDV in Greece

No data in samples representative of general population

Very few data for the prevalence of HDV

Some studies in

- ✓ **Specific low-risk groups** (blood donors, army recruits, children, pregnant women)
- ✓ **Specific high-risk groups** (IVDU, prisoners, HIV+, prostitutes, minorities)
- ✓ **Specific areas**

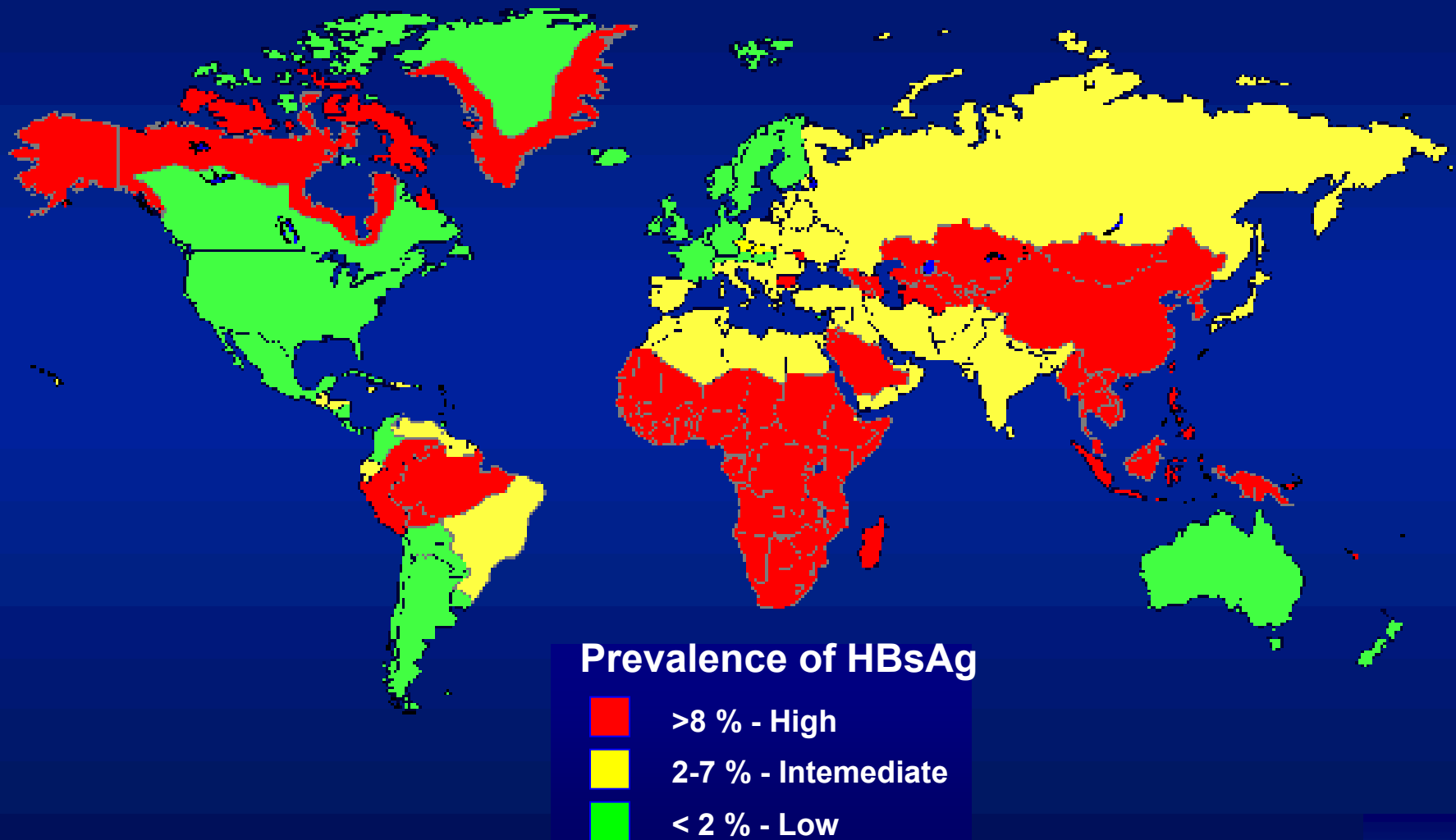
Changing factors affecting the current epidemiology of viral hepatitis

- Modes of transmission
- Traveling – Globalization
- Mutants
- Refugees - Immigrants

Changing profile of the population in Greece after '90 (migration)

2001: 797.093 (7.2%) immigrants– 65% from Albania

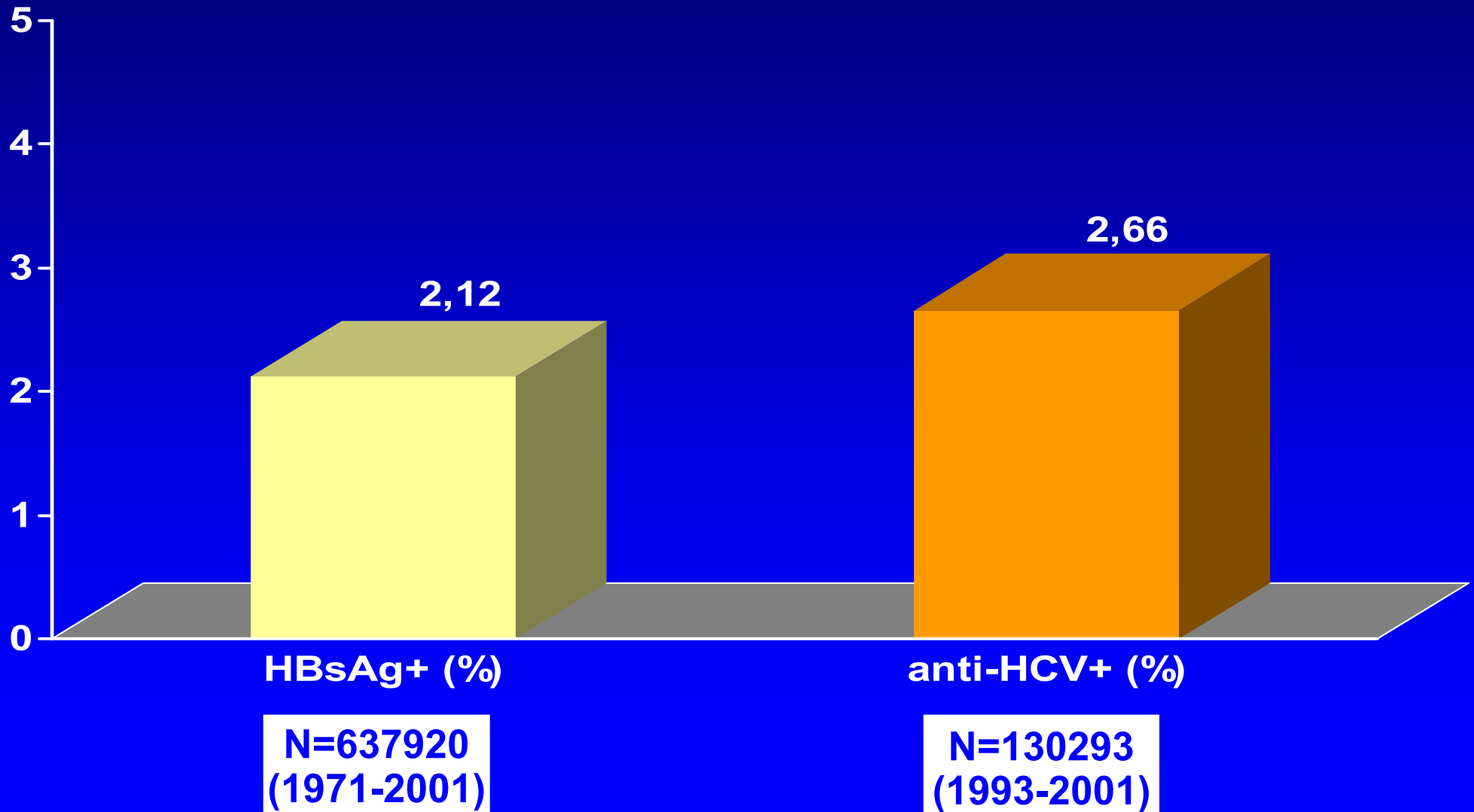
Worldwide prevalence of chronic HBV infection



Hepatitis B: Greece. General Information

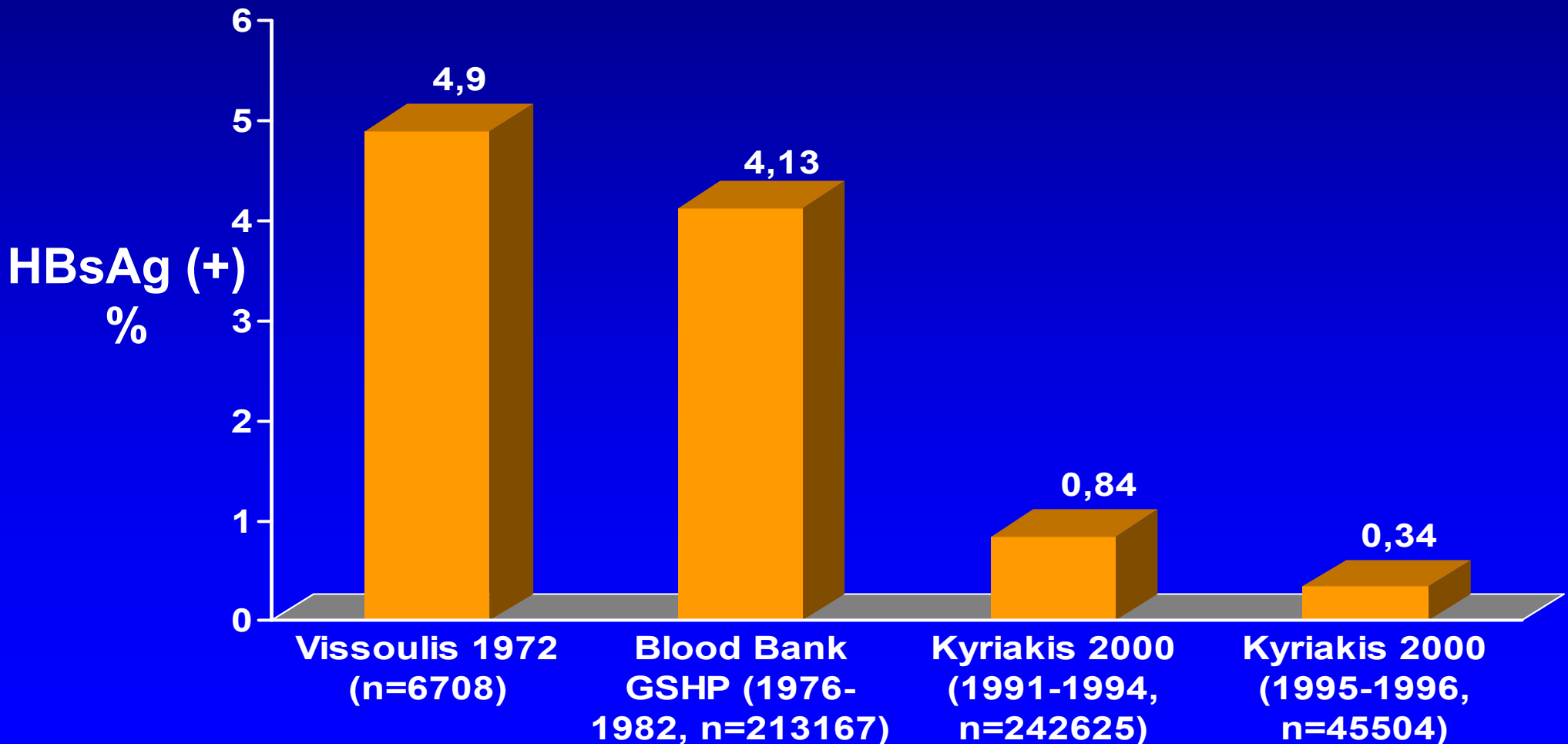
- ✓ Estimated HBsAg prevalence in 1970-1980: >3-5%
- ✓ **Universal HBV vaccination applied since 1998**
- ✓ Current HBsAg prevalence:
 - ◆ Population study: **2.1%** (*Eur J Epidemiol 2003;18:551*).
 - ◆ Company employees: **2.6%** (*Eur J Epidemiol 2001;17:721*).
 - ◆ Hospitalized patients (Crete): **2.7%** (*BMC Public Health 2001;1:17*)

Estimated prevalence of HBsAg and anti-HCV in Greece (general population, blood donors & high risk groups)



Prevalence of HBV in low-risk groups in Greece

Prevalence of HBsAg in blood donors in Athens-Piraeus greater area (1971-1996)



Epidemiological surveillance in Greek blood donors: 2000-2001 (Σ.Κ.ΑΕ.)

Prevalence in 41 transfusion centers (296.012 blood units)		
Positive units	N	%
HBsAg	1028	0.35
Anti-HCV	204	0.009

Epidemiology of Hepatitis B: Greece

Prevalence of HBsAg Carriage among Army Recruits

Region	1972 (N=32,000)	1990 (N=3,200)	Change
Athens Metropolitan Area			
Southern Greece			
Central Greece			
Northern Greece			
Islands (including Crete)			
National Average			

Epidemiology of Hepatitis B: Greece

Prevalence of HBsAg Carriage among Army Recruits

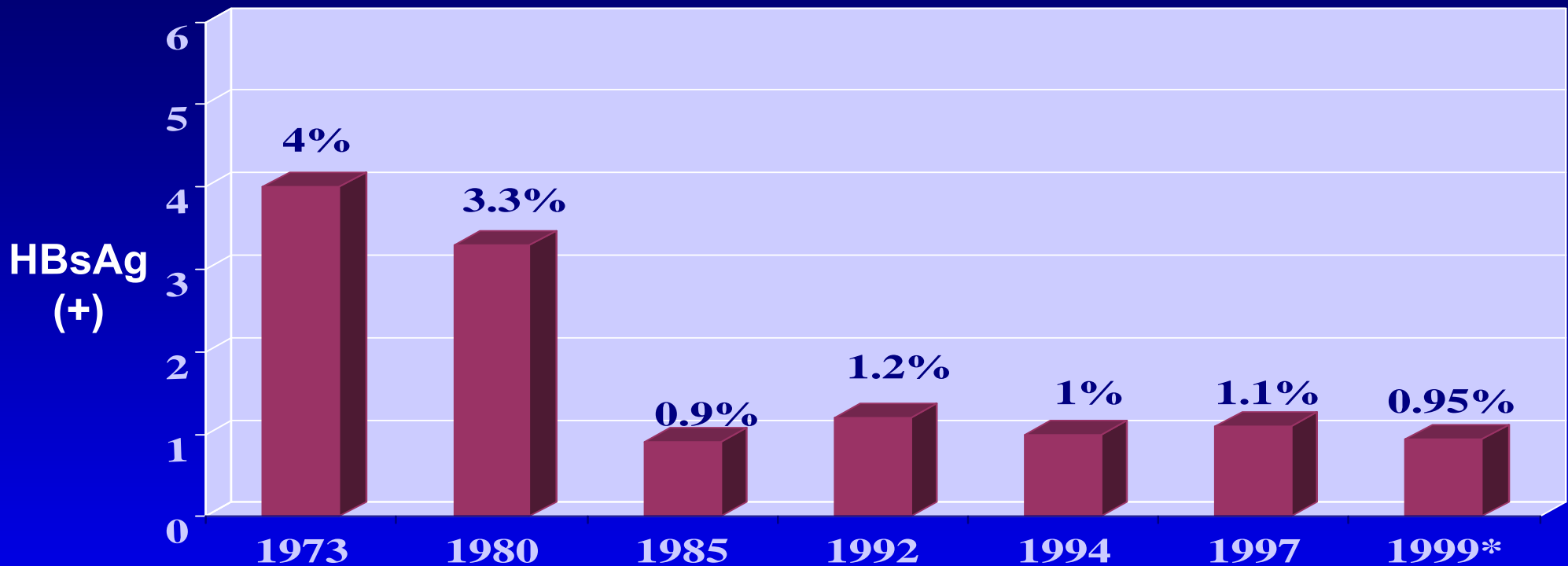
Region	1972 (N=32,000)	1990 (N=3,200)	Change
Athens Metropolitan Area	3.07%		
Southern Greece	5.57%		
Central Greece	5.21%		
Northern Greece	7.37%		
Islands (including Crete)	3.20%		
National Average	5.04%		

Epidemiology of Hepatitis B: Greece

Prevalence of HBsAg Carriage among Army Recruits

Region	1972 (N=32,000)	1990 (N=3,200)	Change
Athens Metropolitan Area	3.07%	0.86%	-72%
Southern Greece	5.57%	2.34%	-58%
Central Greece	5.21%	1.22%	-77%
Northern Greece	7.37%	2.38%	-68%
Islands (including Crete)	3.20%	0.70%	-78%
National Average	5.04%	1.27%	-75%

HBsAg prevalence in Greek army recruits

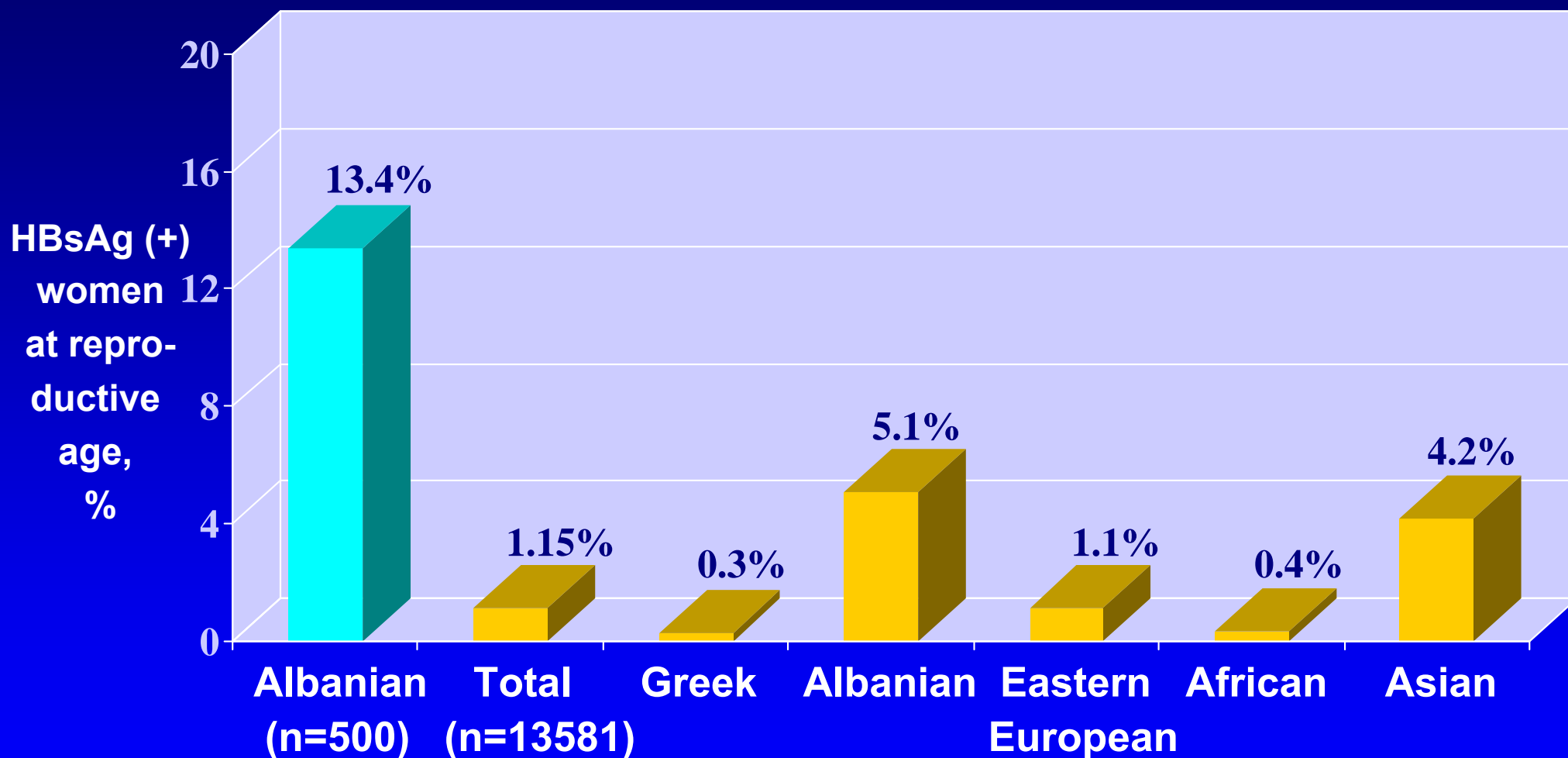


- ✓ 50-80% decrease of HBsAg prevalence from '70s to '80s
- ✓ Change in risk factors
- ✓ Low vaccination rate in late '90s. 1999: Anti-HBs (+) 32.6%

Papaevangelou G, Vaccine 1998

**Stamouli M et al, Eur J Epidemiol 1999*

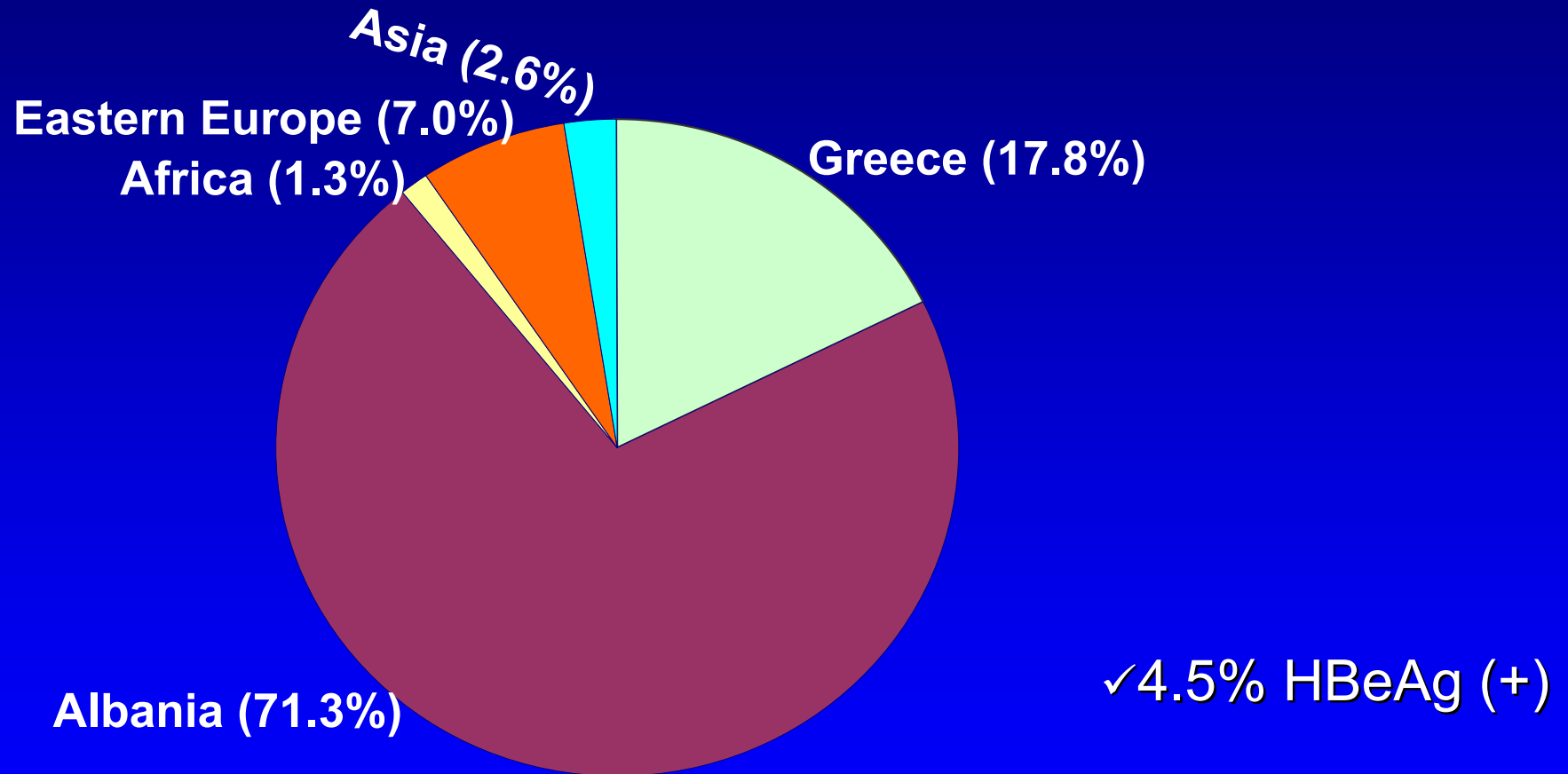
HBsAg prevalence in women at reproductive age in Greece



Malamitsi A et al.
Eur J Epidemiol 1996

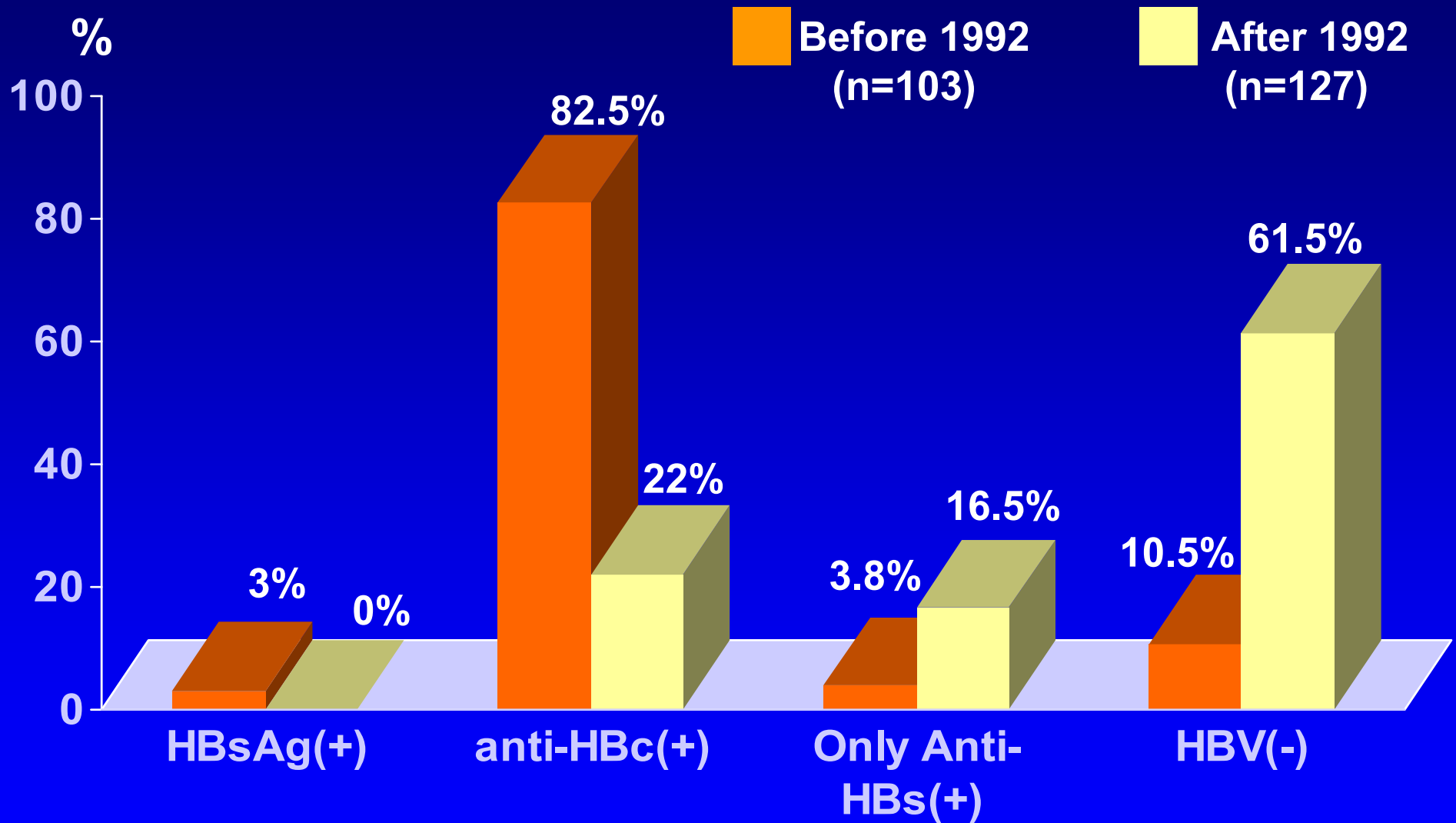
Elefsiniotis IS et al.
J Clin Virol 2005; 32: 179-80

Origin of HBsAg(+) women at reproductive age in Greece



Prevalence of HBV in high-risk groups in Greece

HBV infection in anti-HCV (+) Greek IVDU



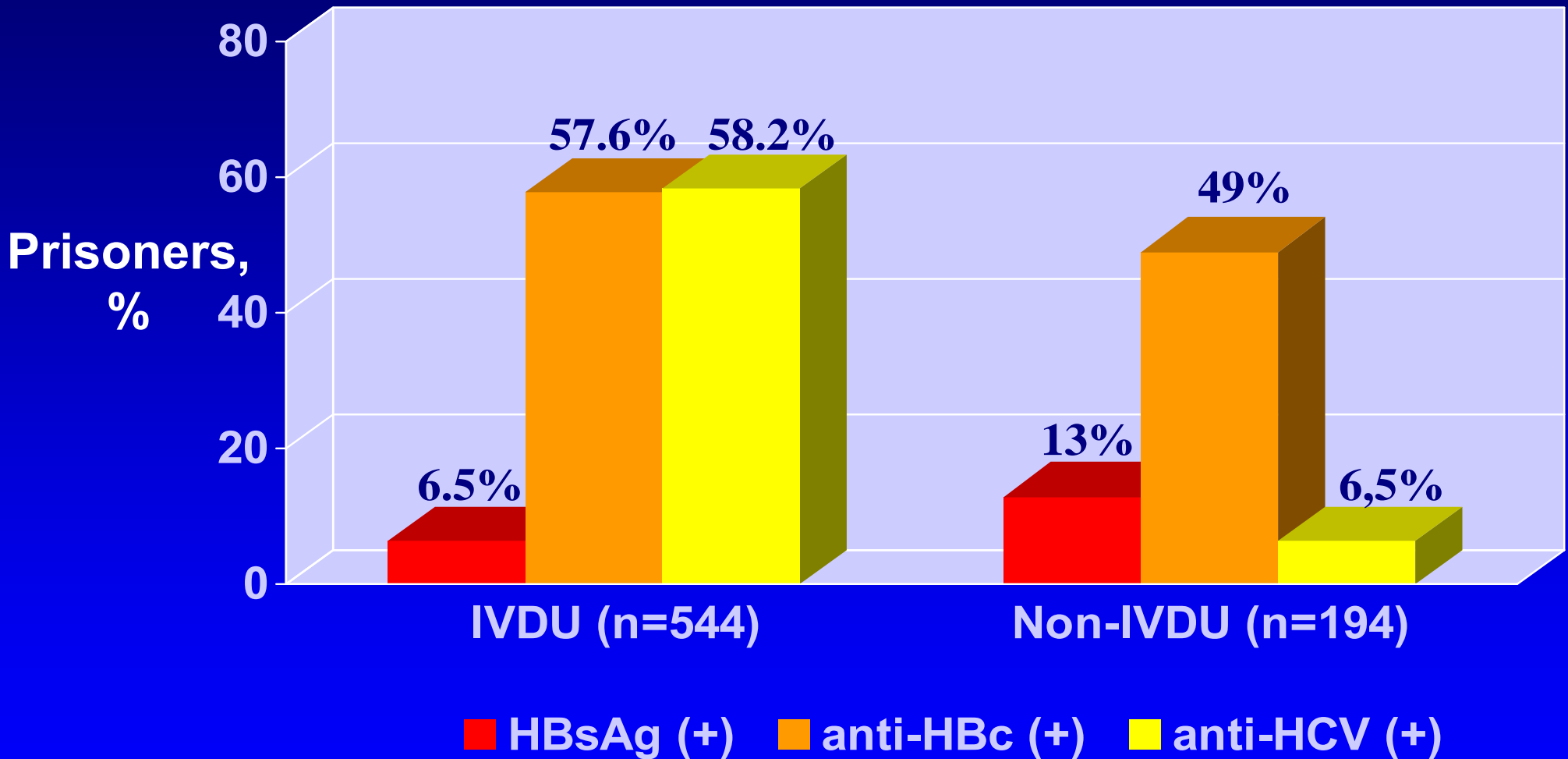
Epidemiological surveillance in Greek IVDU

IVDU, n=1094

- HBsAg (+): 4,8%
- anti-HCV (+): 67,9%

EΚΤΕΠΝ, 2002

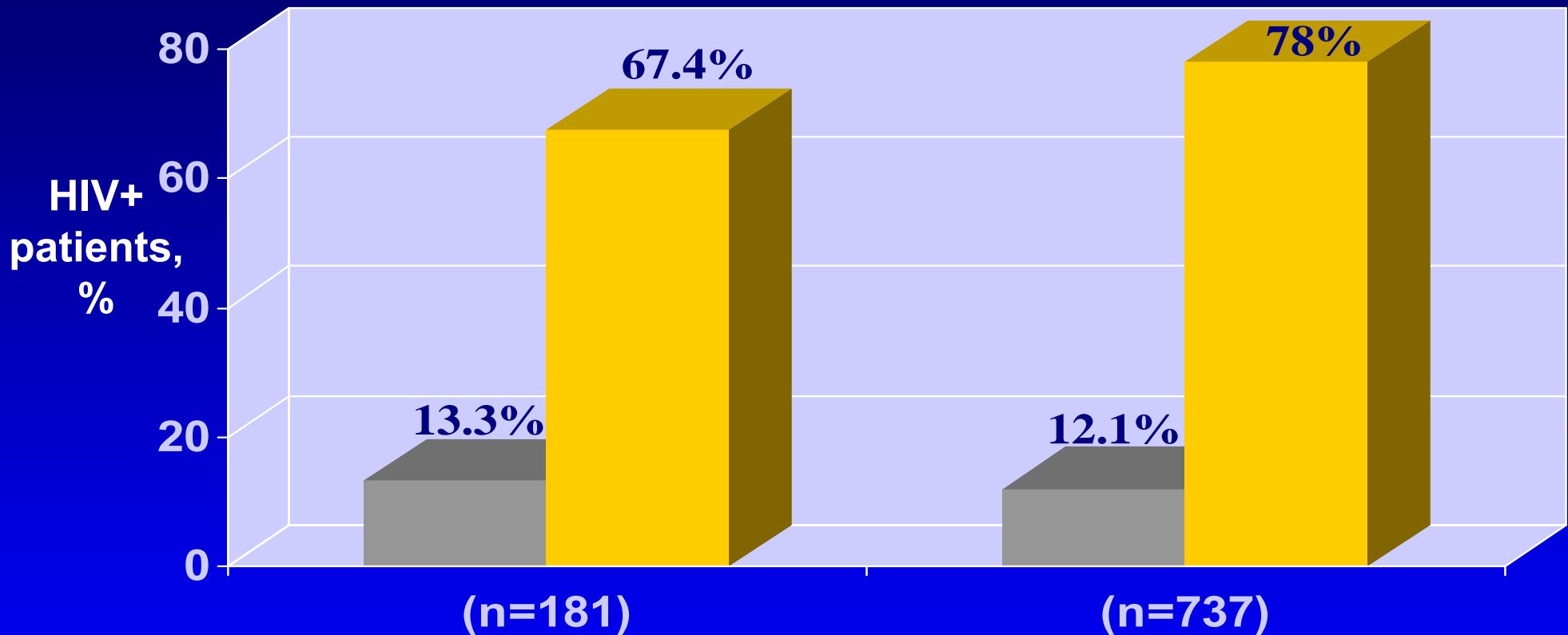
HBV/HCV infection in prisoners in Greek prisons



Malliori M et al. Addiction 1998; 93: 243-51

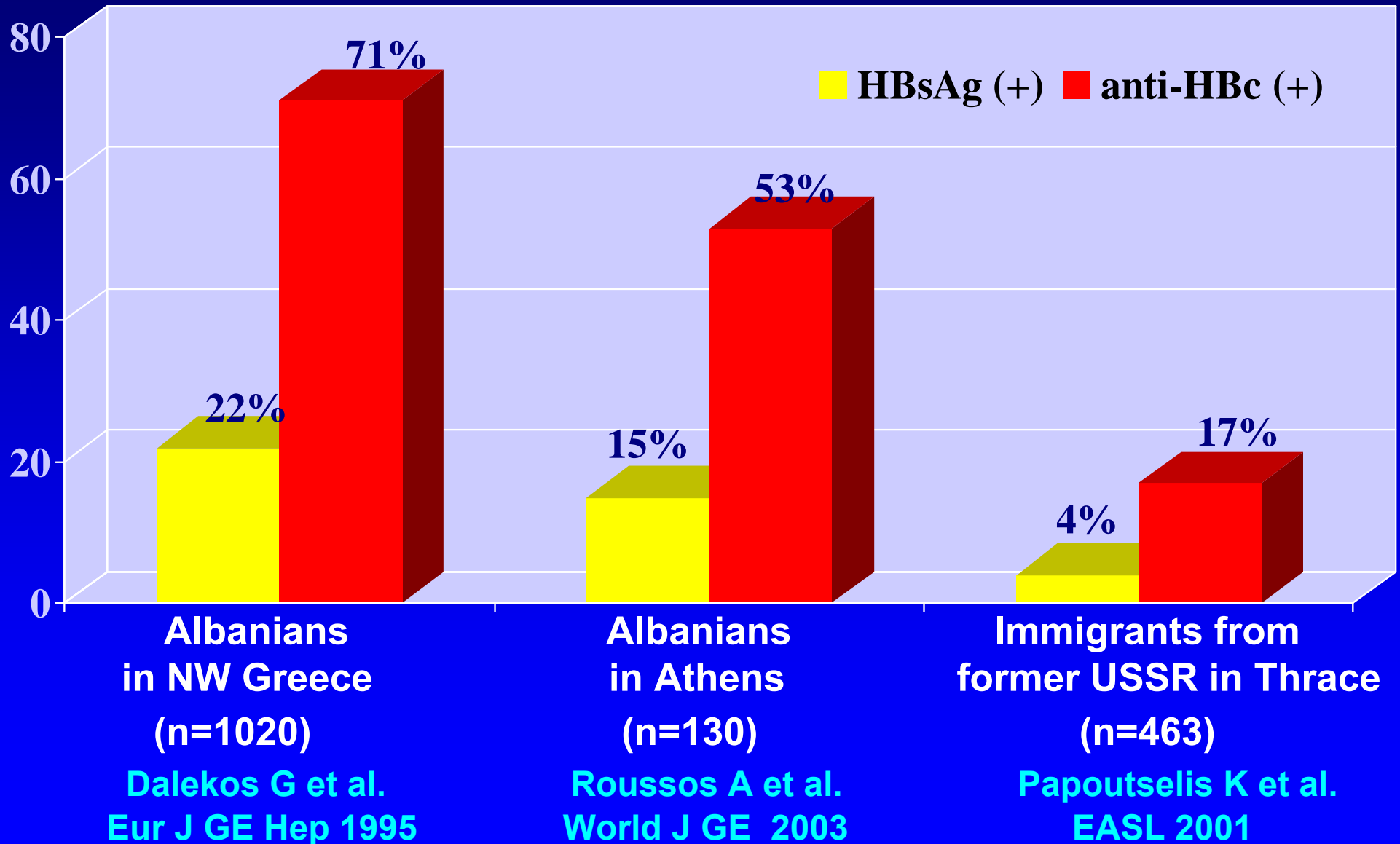
Giotakos O et al. Epidemiol Infect 2003; 130: 497-500

HBV infection in Greek HIV (+) patients



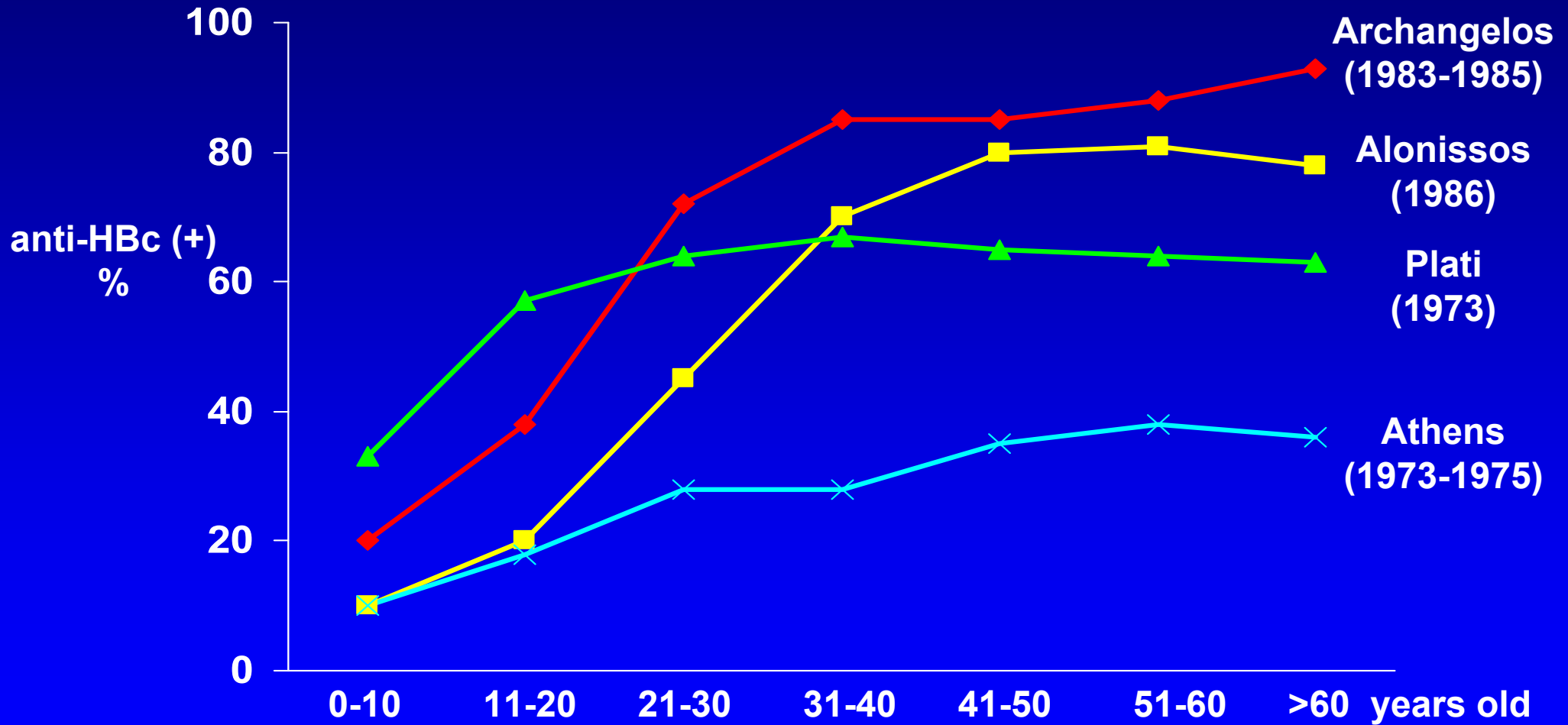
- ✓ 61% HBeAg (+)
 - ✓ HBV DNA (10^7 - 10^{12} cp/mL)
- HBsAg(+) ■ anti-HBc(+)

HBV prevalence in immigrants in Greece

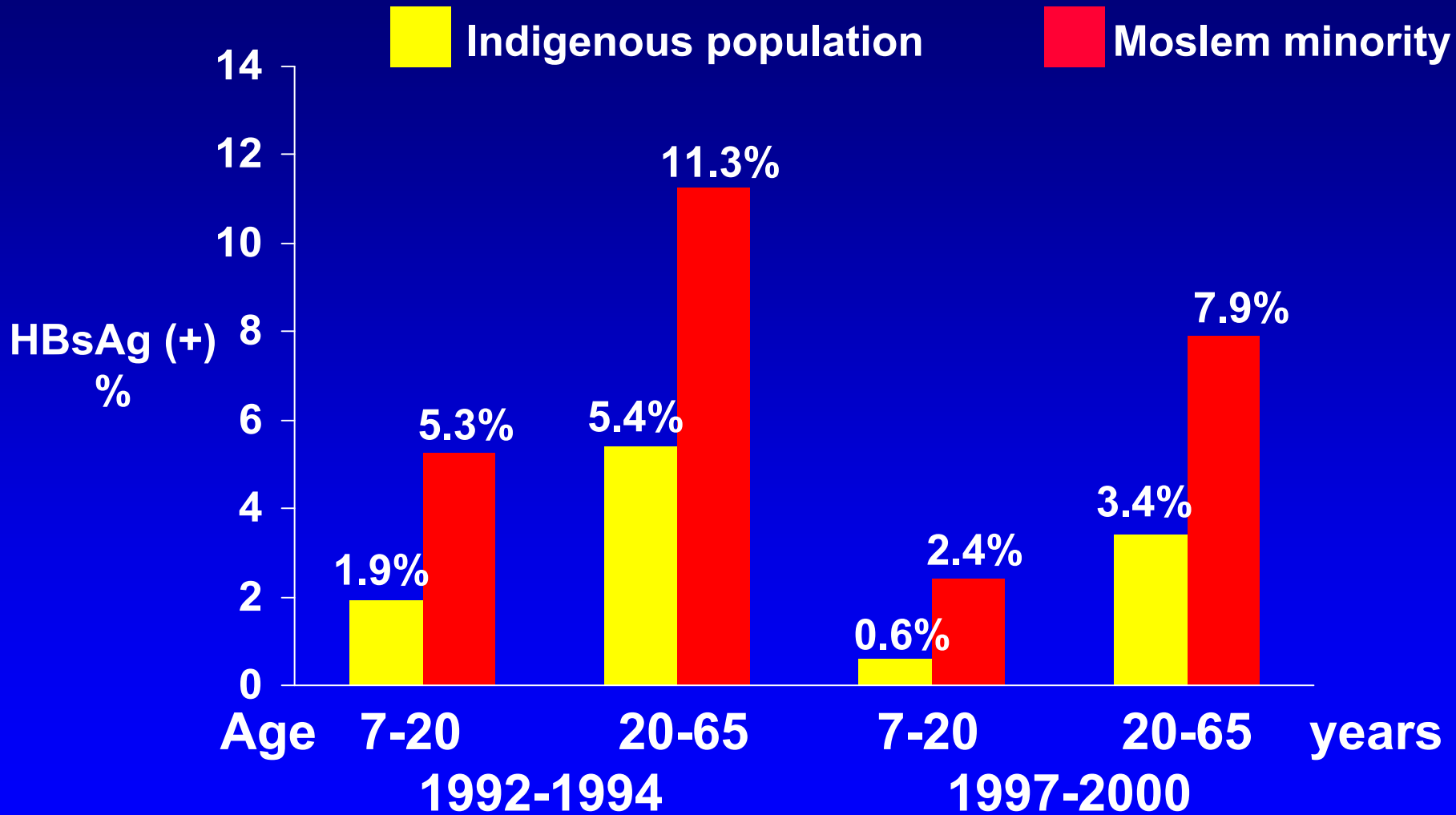


Prevalence of HBV in specific areas of Greece

Age-specific prevalence of HBV infection in selected Greek areas



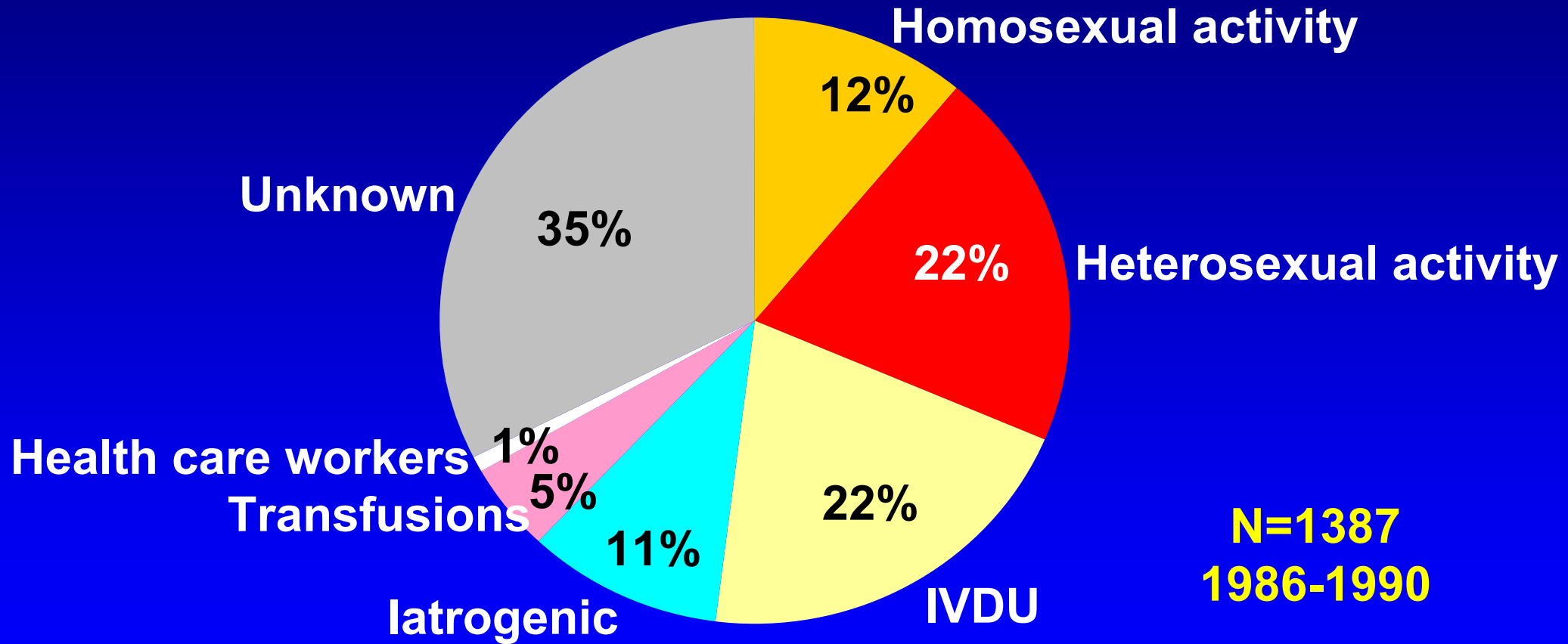
HBsAg prevalence in Thrace



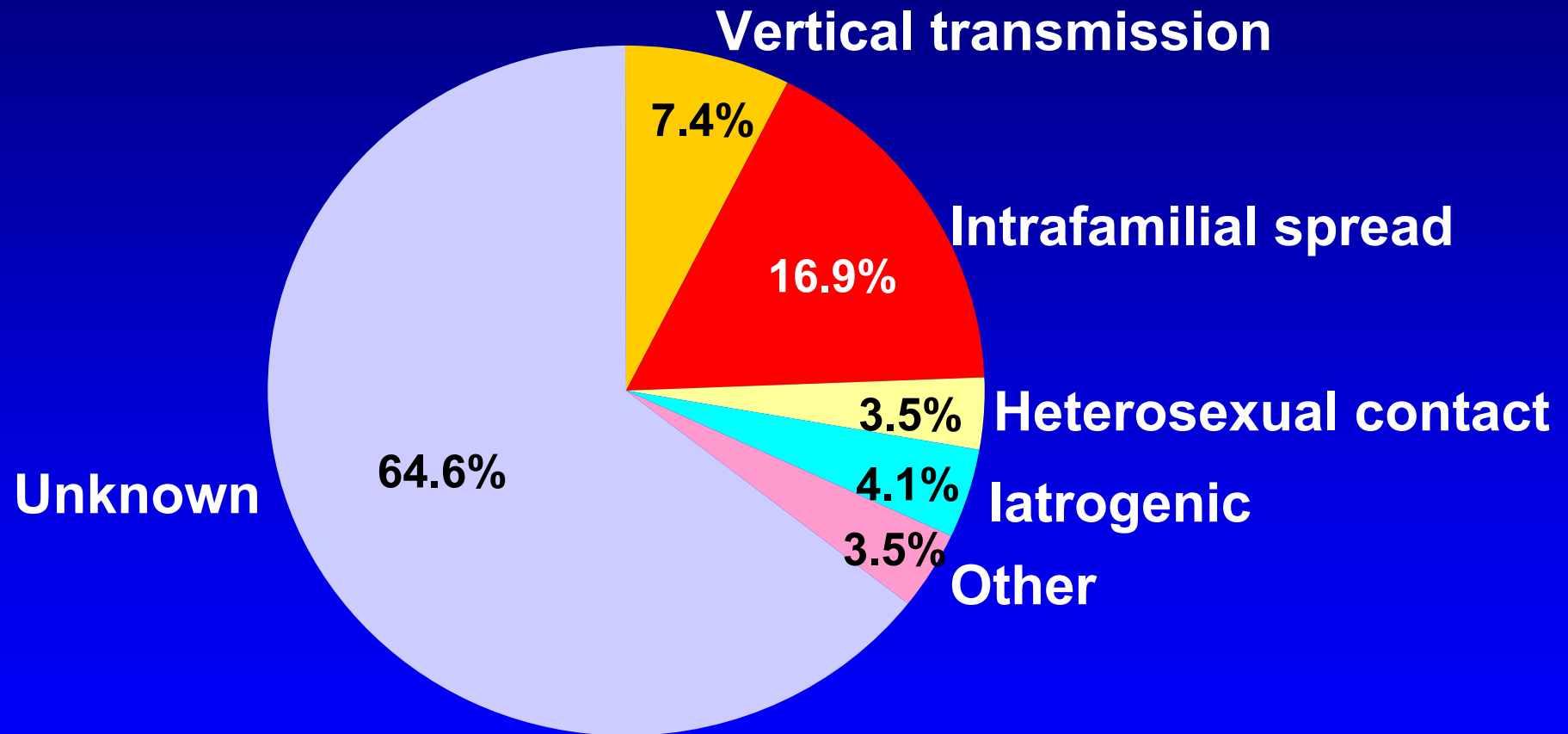
Papoutselis K et al. EASL 2001

HBV infection in Greece: Modes of transmission

Risk factors associated with acute hepatitis B cases in Greek adults



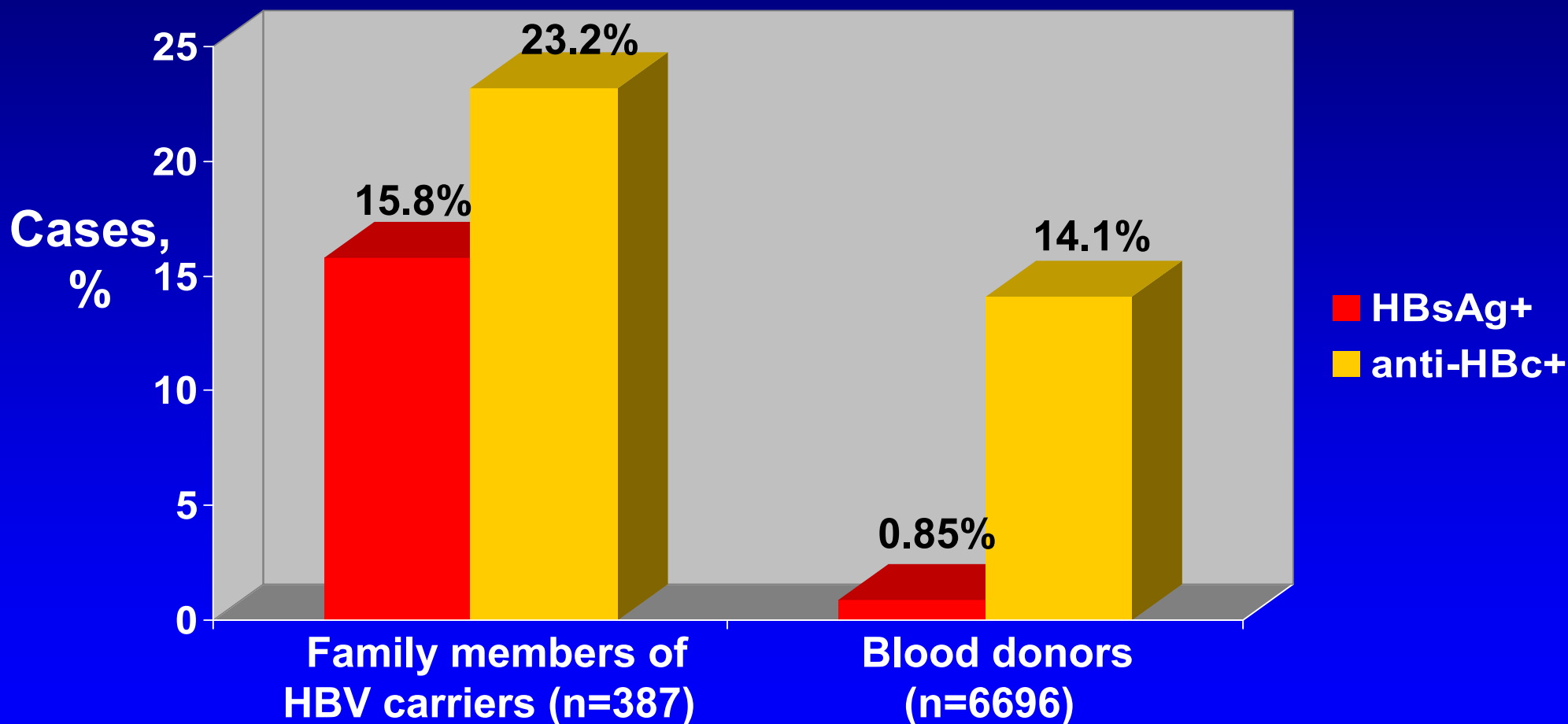
Possible source of infection in Greek adults with chronic HBV infection



HBV cohort – KEELPNO, N=3353

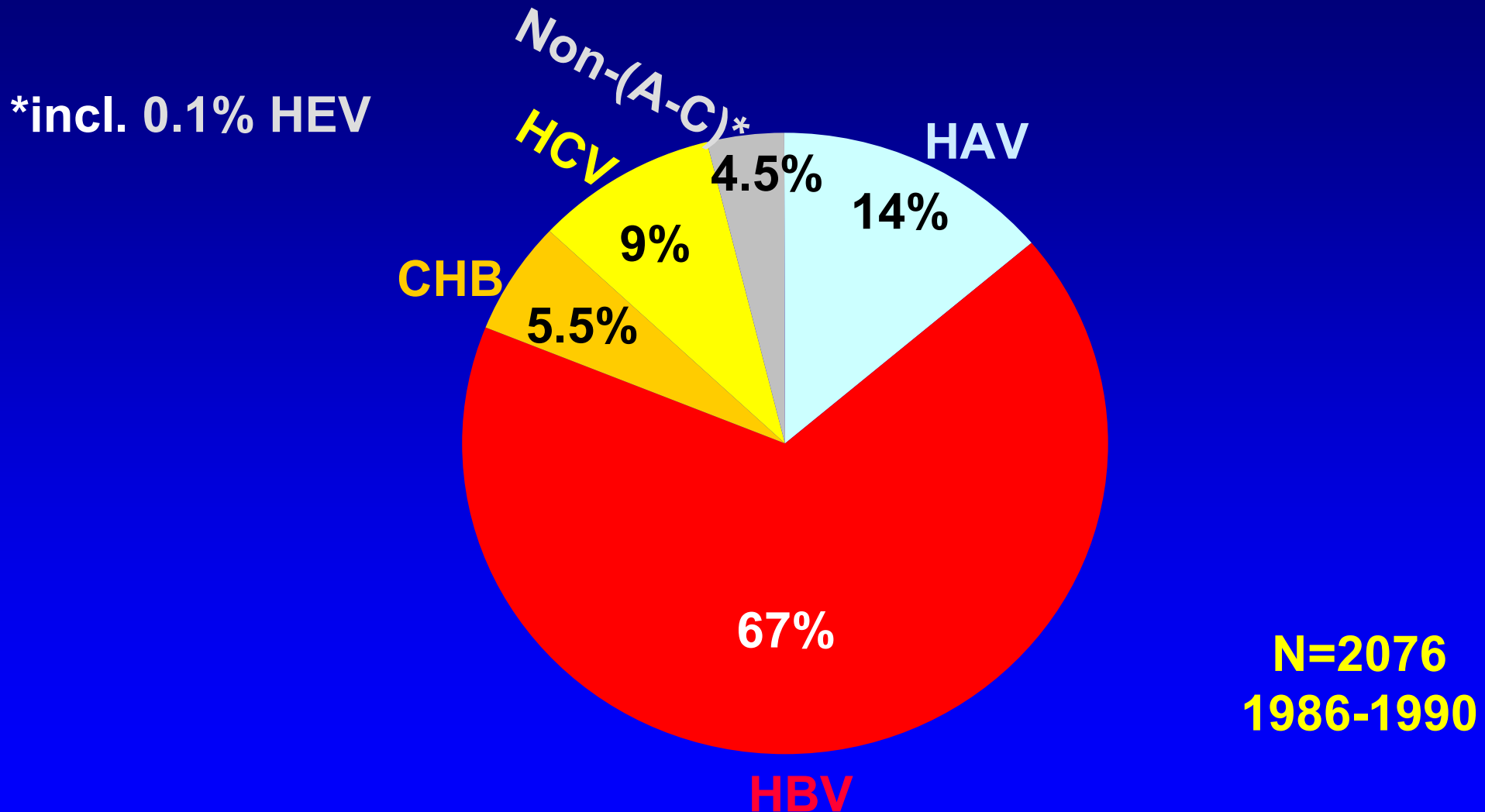
G Touloumi, personal communication

Intrafamilial spread: the most common mode of transmission in Greeks with chronic HBV infection

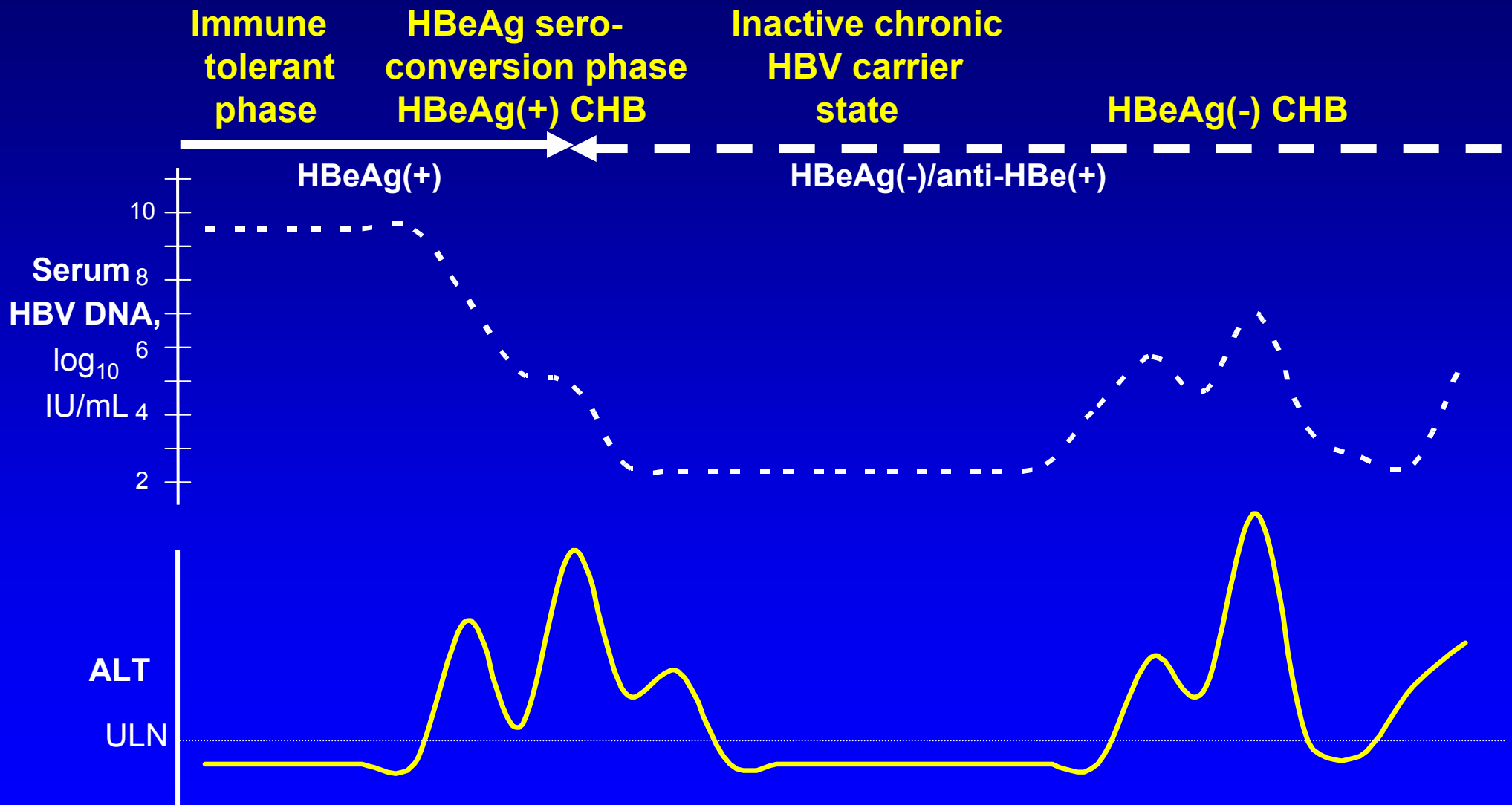


**HBV infection:
The burden of disease in Greece**

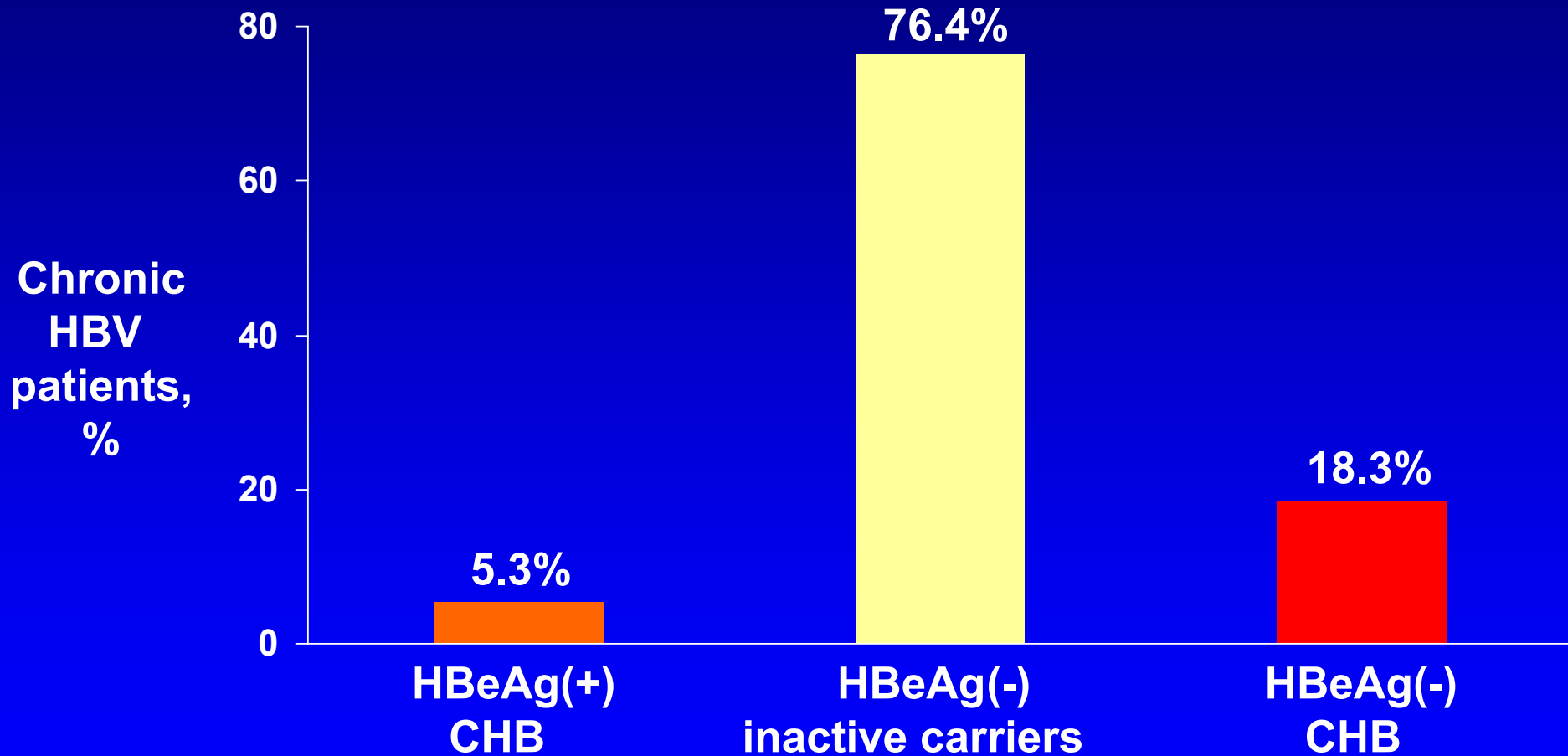
HBV: the most common cause of acute viral hepatitis in Greek adults



Natural history of chronic HBV infection

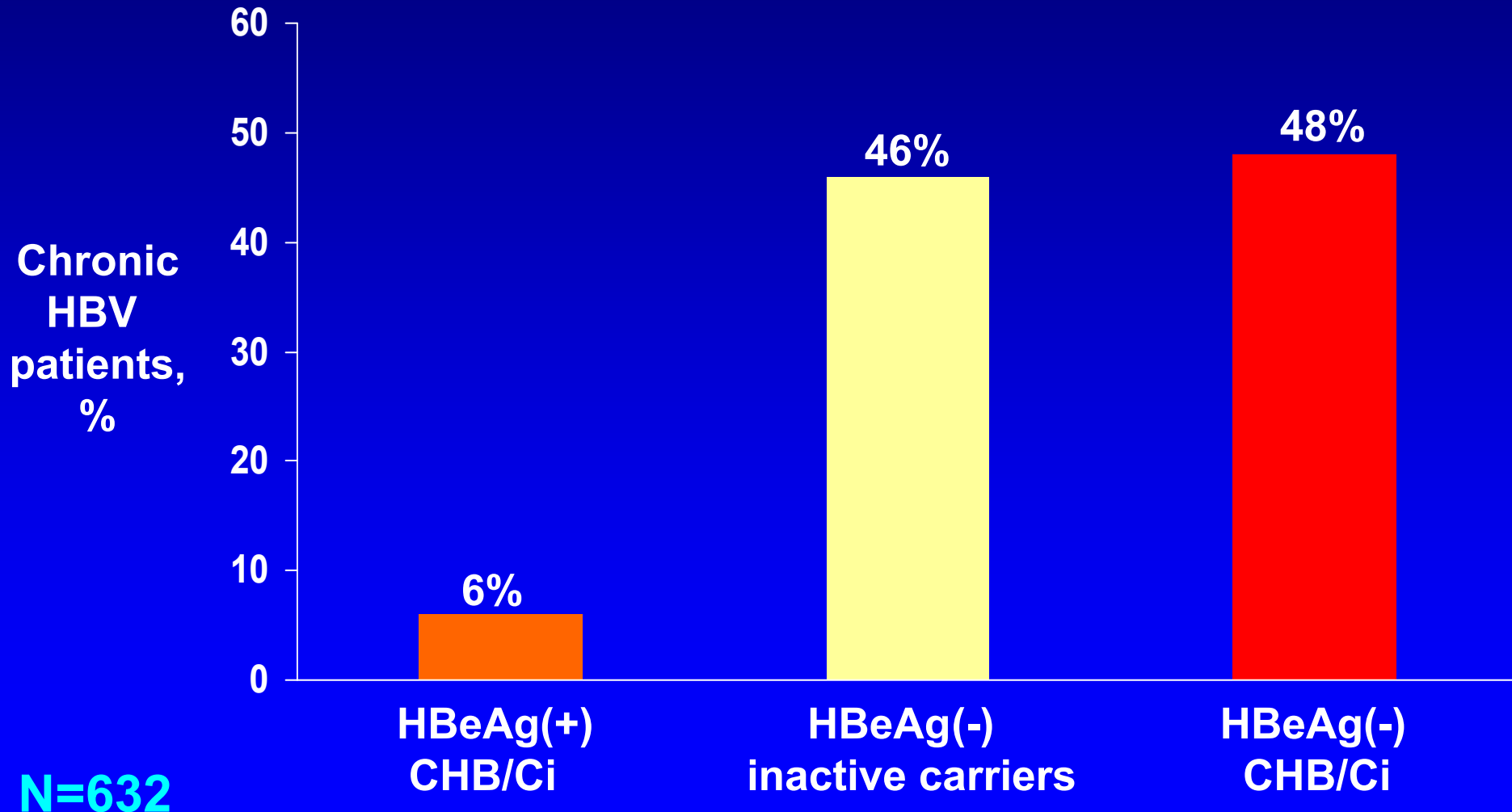


Profile of Greek HBsAg(+) patients in primary care

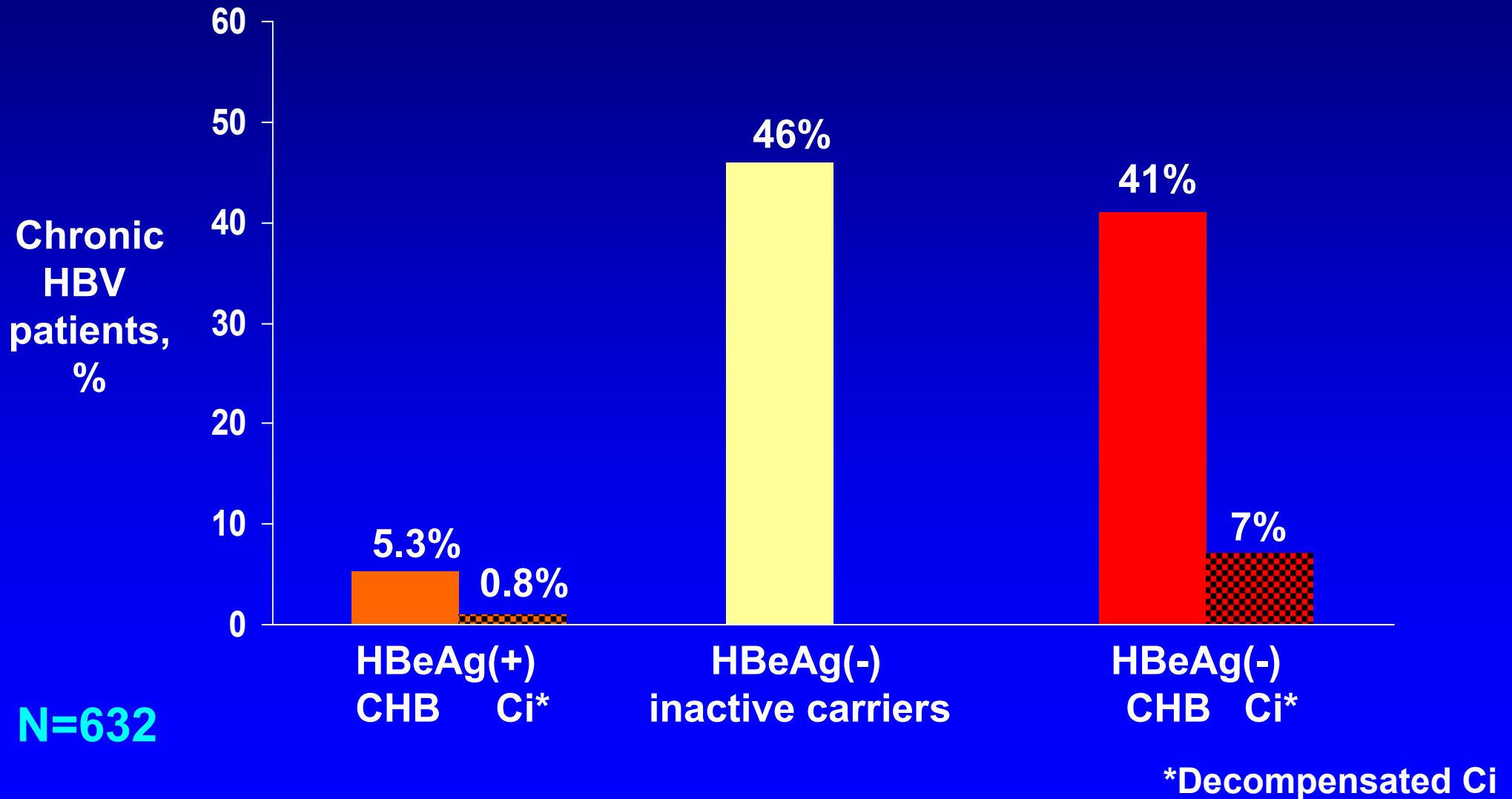


N=263

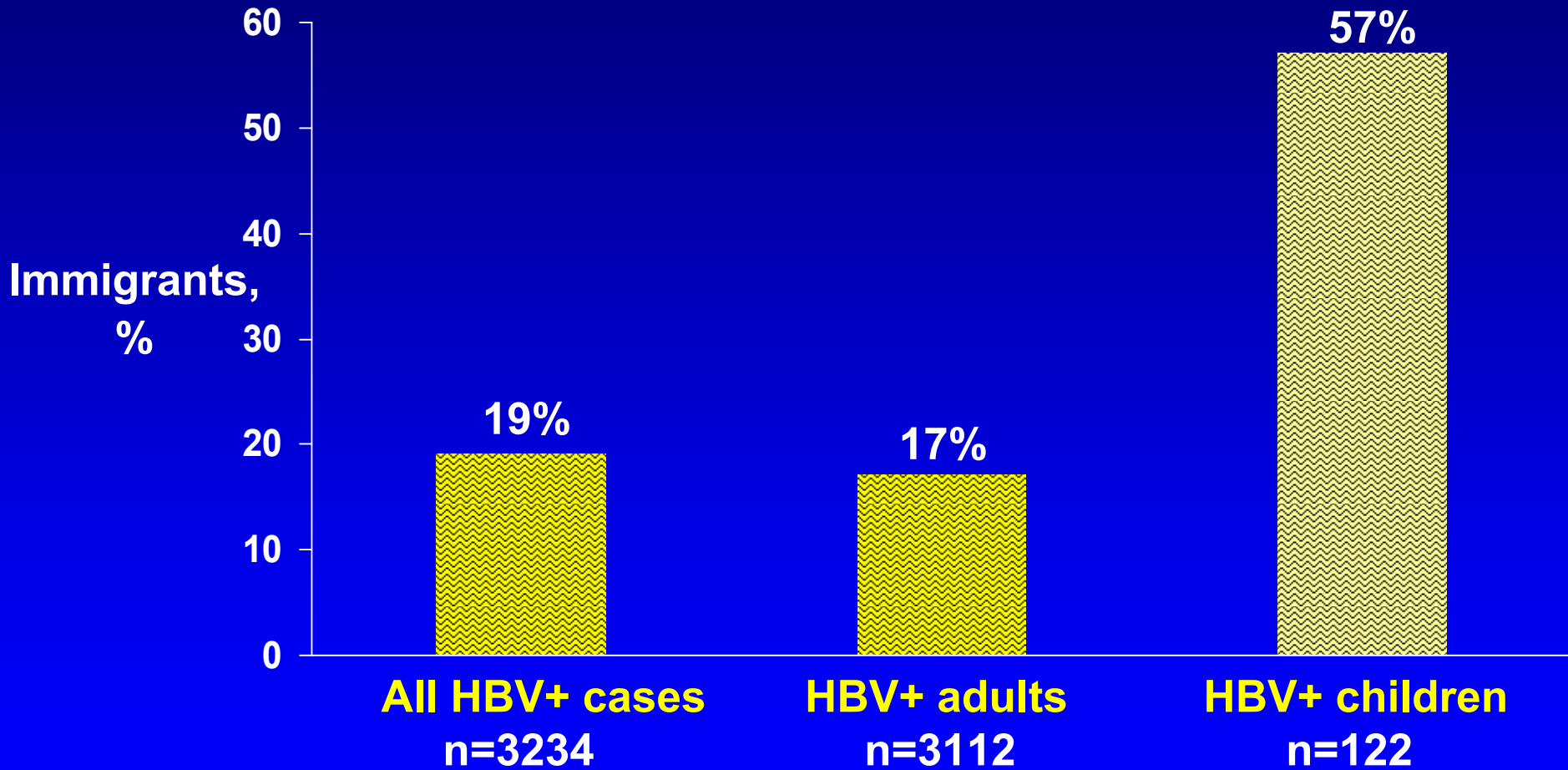
Patients with chronic HBV infection at Hippokration hospital, Athens, Greece (2002-2006)



Patients with chronic HBV infection at Hippokration hospital, Athens, Greece (2002-2006)



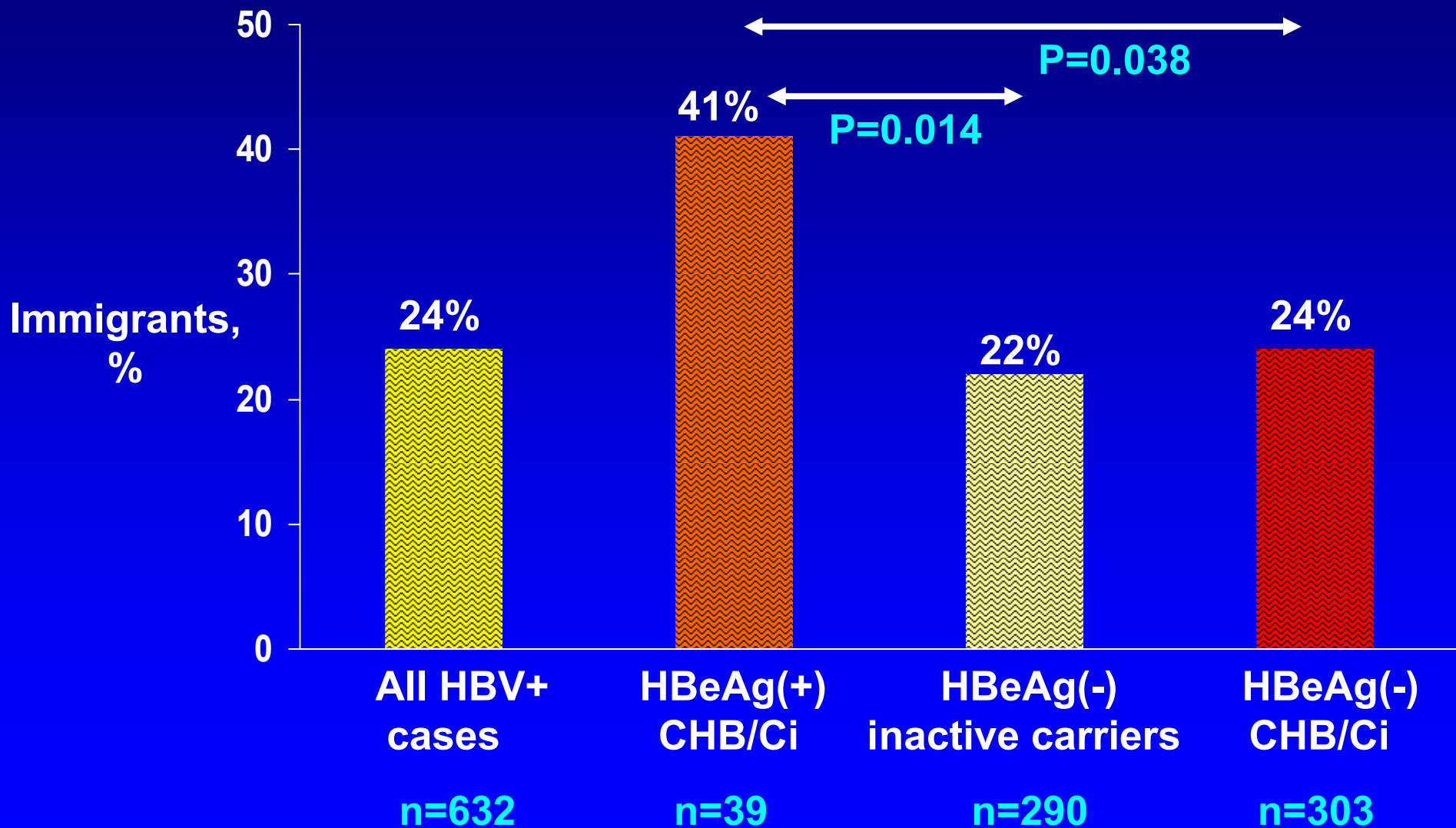
Proportion of immigrants among patients with chronic HBV infection in Greek hospitals (1997-2006)



HBV cohort – KEELPNO

G Touloumi, personal communication

Proportion of immigrants among patients with chronic HBV infection at Hippokration hospital, Athens, Greece (2002-2006)



HDV Epidemiology in Greece

HDV infection

```
graph TD; A[HDV infection] --> B[HDV + HBV coinfection]; A --> C[HDV superinfection];
```

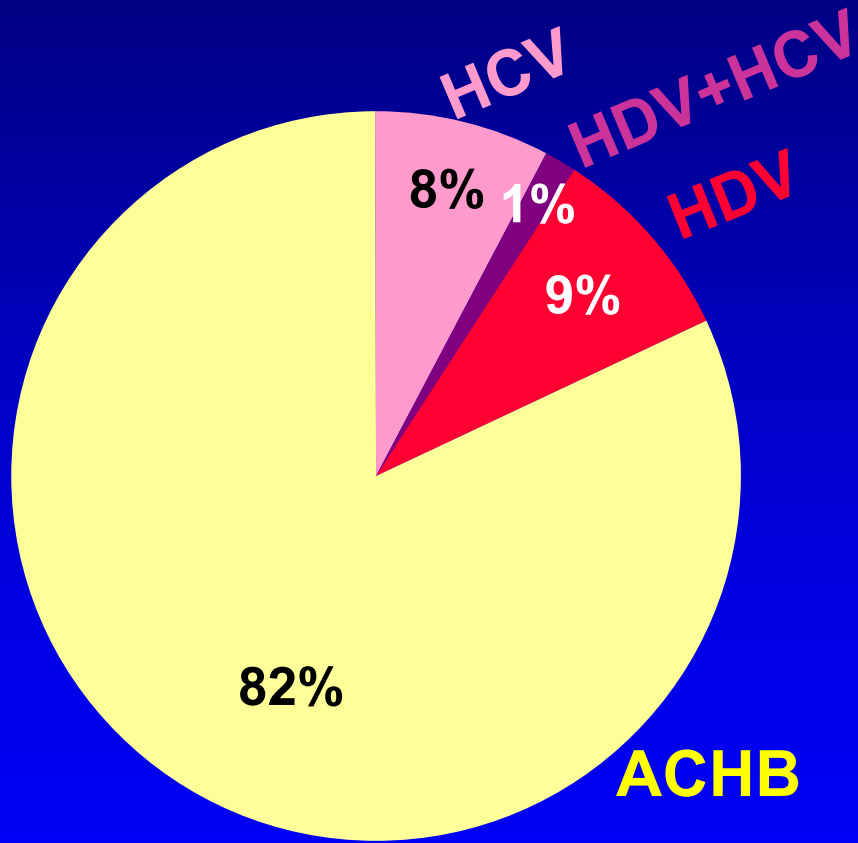
HDV + HBV coinfection

HDV + HBV acute infection

HDV superinfection

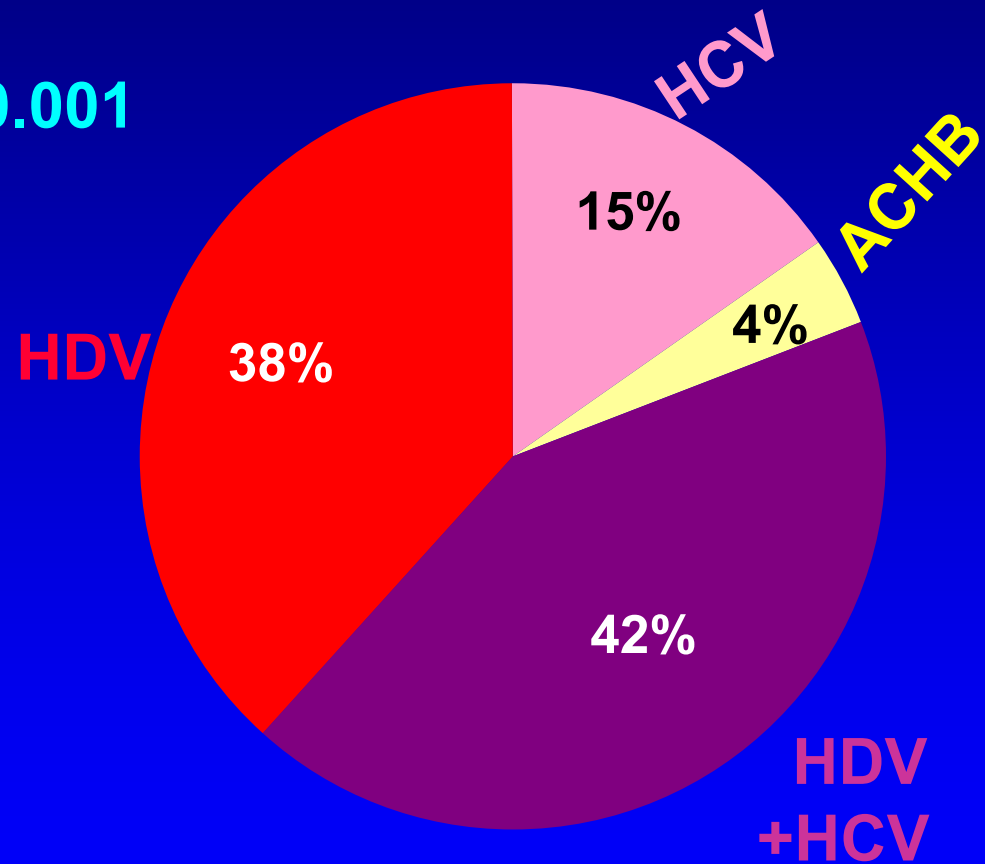
HDV infection on
chronic HBV infection

HDV superinfection as a cause of acute hepatitis in chronic HBV patients in Greece



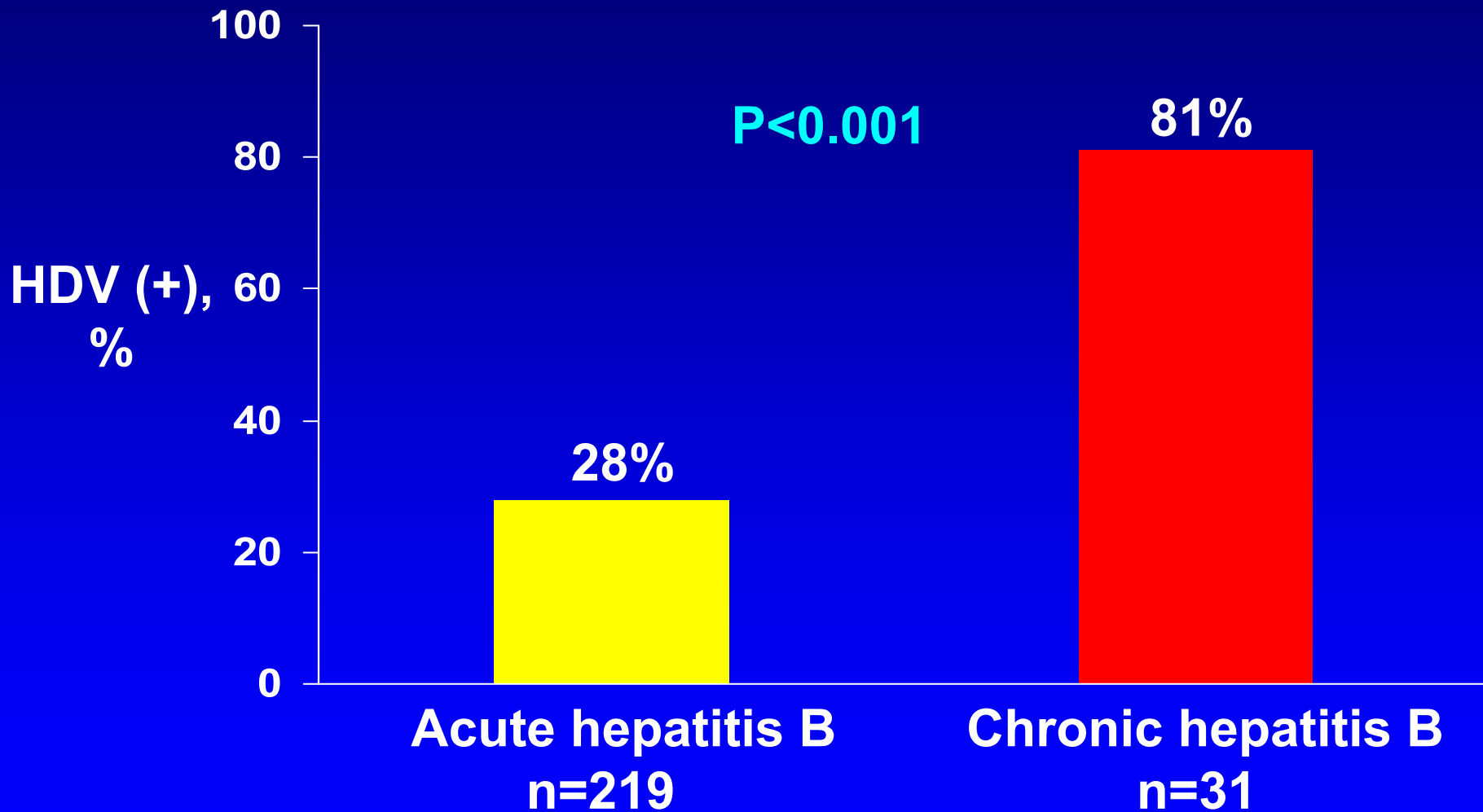
Non-IVDU, n=77

P<0.001

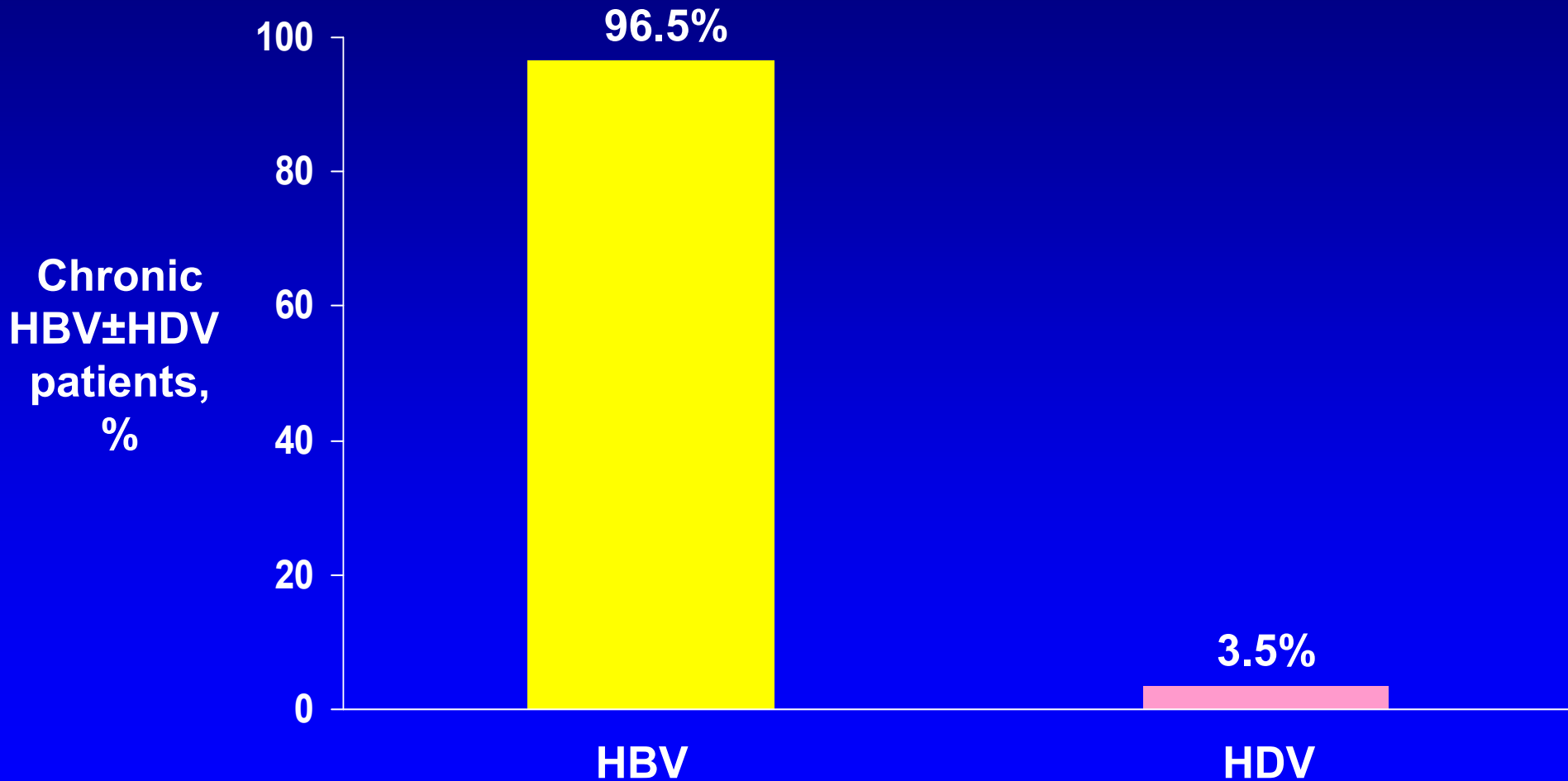


IVDU, n=26

HDV as a cause of acute hepatitis in Greek IVDU with acute or chronic hepatitis B

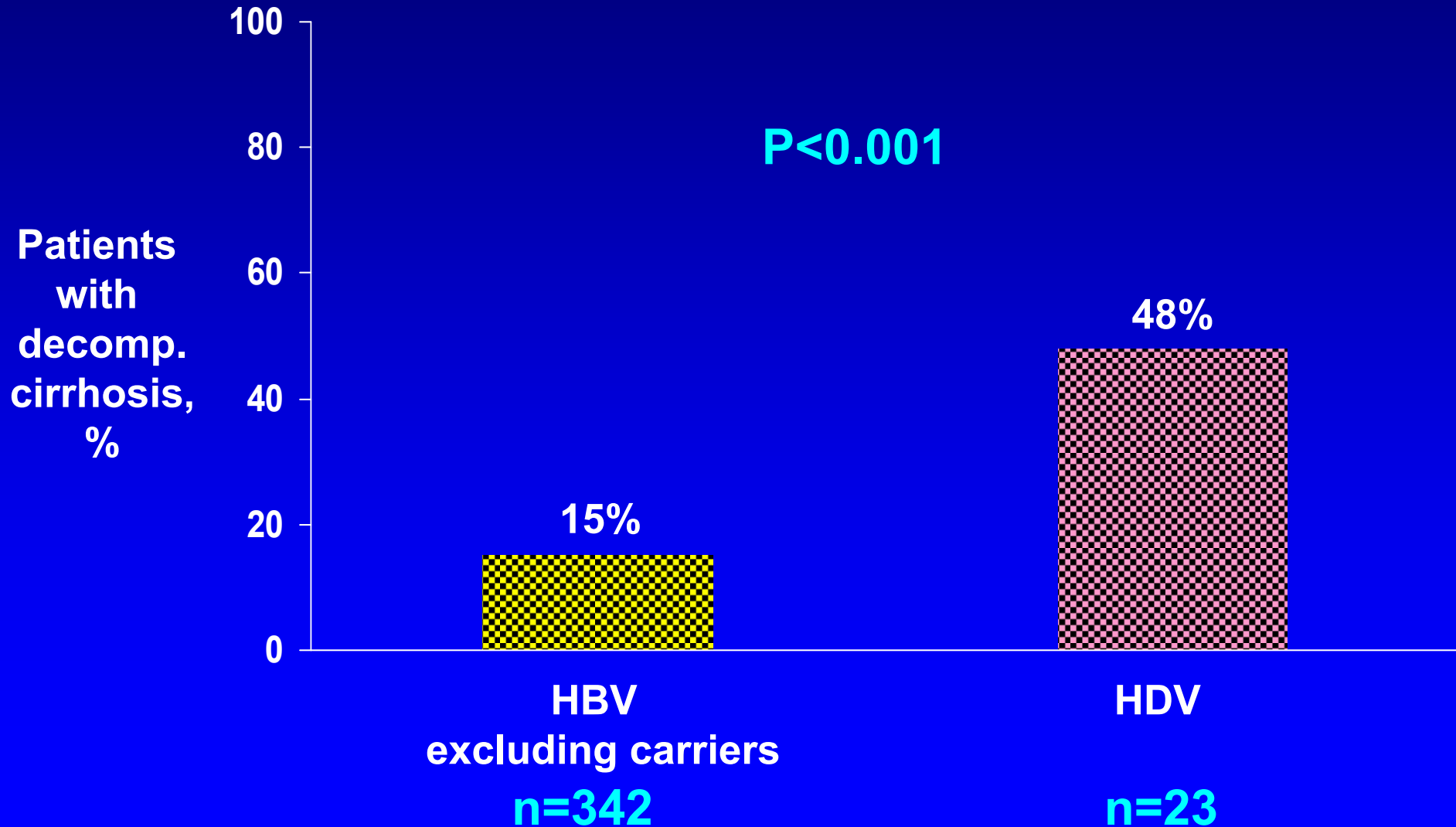


Patients with chronic HBV \pm HDV infection at Hippokration hospital, Athens, Greece (2002-2006)

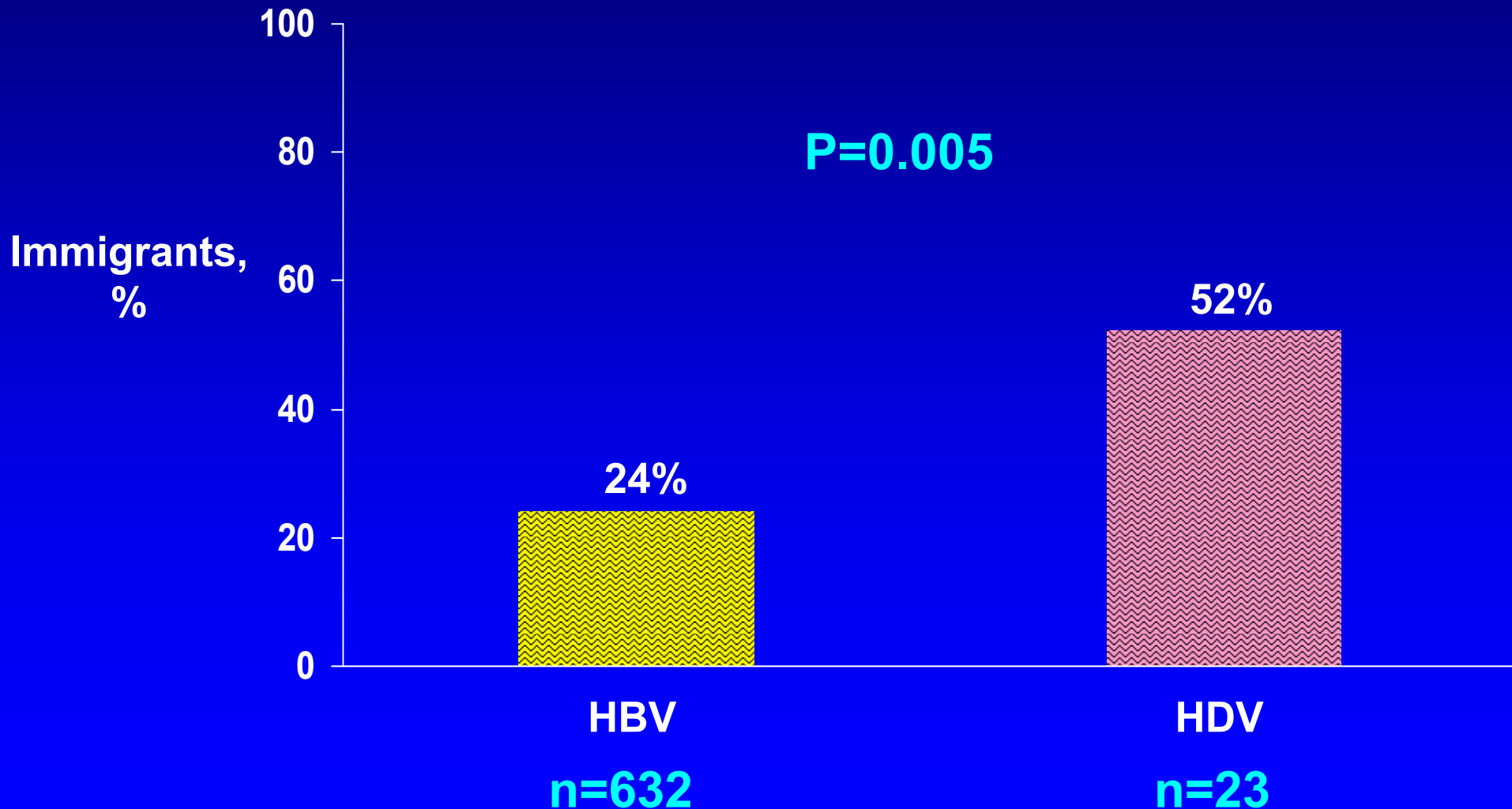


N=655

Proportion of cirrhotics among patients with chronic HBV ± HDV infection at Hippokration hospital, Athens, Greece (2002-2006)



Proportion of immigrants among patients with chronic HBV ± HDV infection at Hippokration hospital, Athens, Greece (2002-2006)



HBV/HDV Epidemiology in Greece: Summary

- ✓ **Decrease of HBsAg prevalence over the past decades**
 - Improvement of social-economic status
 - Improvement in health care system
 - Better awareness of high-risk groups
 - Vaccination
- ✓ **Still areas of high HBsAg prevalence – Surveillance**
- ✓ **Increasing age of chronic HBV patients:**
increasing probability of clinical events (decompens., HCC)
- ✓ **HDV: mainly in IVDU or specific areas – More severe disease**
- ✓ **Immigrants after 1990: 1/10-1/12 of Greek population**
 - High HBsAg prevalence
 - Higher rates of HBeAg(+) – Younger age, HBV genotypes
 - Higher rates of HDV infection

