
Hepatitis B

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Today

- Hepatitis B
 - Epidemiology
 - Transmission
 - Testing
 - Treatment
 - Liver Cancer
 - Screening
-

What is it?

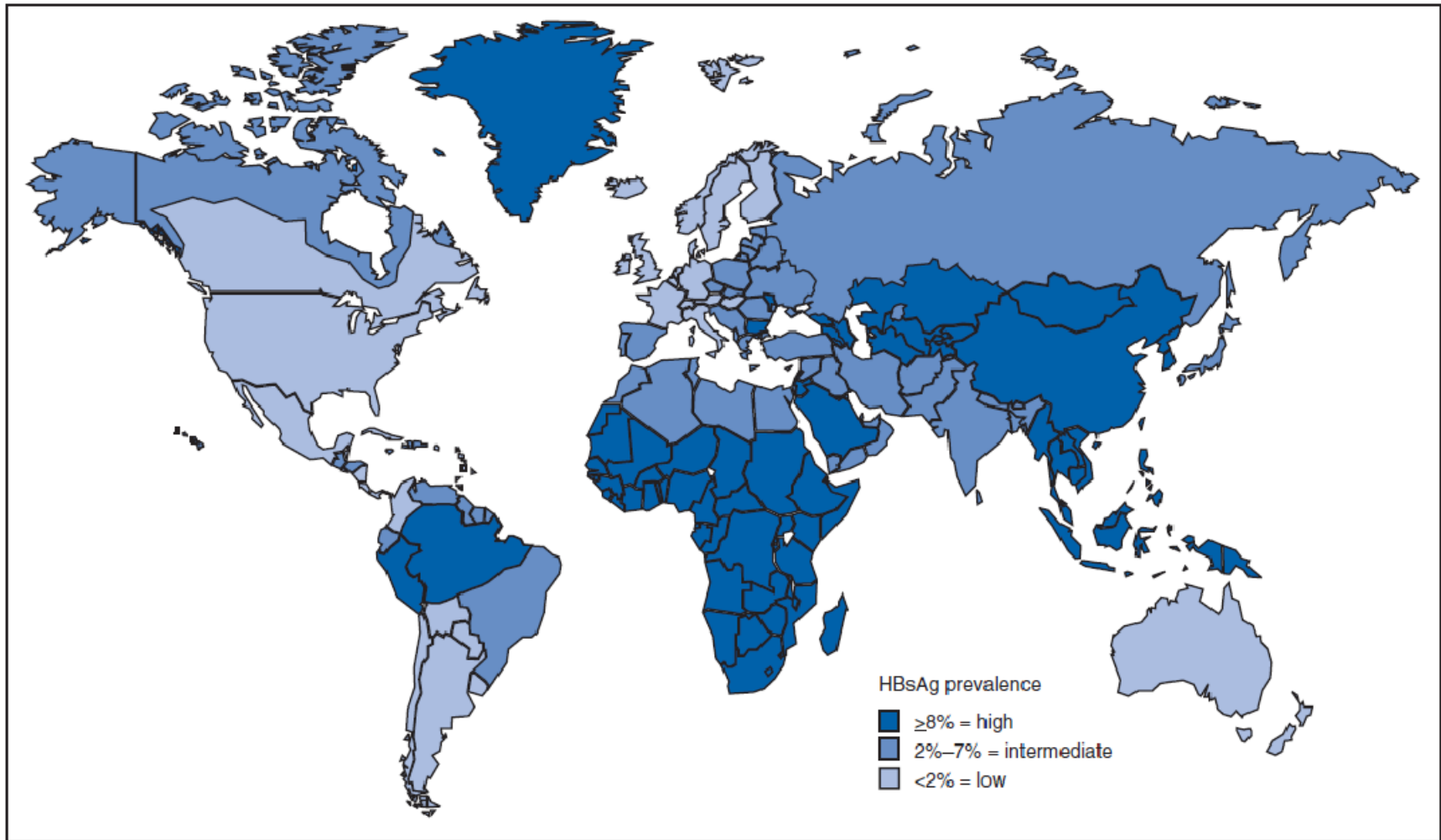
- A virus (DNA)
 - Spread by blood and sexual contact
 - Causes inflammation of the liver
 - This leads to cirrhosis, liver failure and liver cancer
-

Is it serious?

- 2 billion people infected worldwide (350 million chronic)
- ~ 25% mortality if left untreated (~ 1 million HBV deaths year)
- 60-80% of world's hepatocellular carcinoma (HCC)
- Screening people at risk is critical (~ 1/3 undiagnosed)

- ~ 162,000 Australians have chronic hepatitis B (NCHECR 2010)
- ~ 45,000 in Victoria (Cowie 2008)

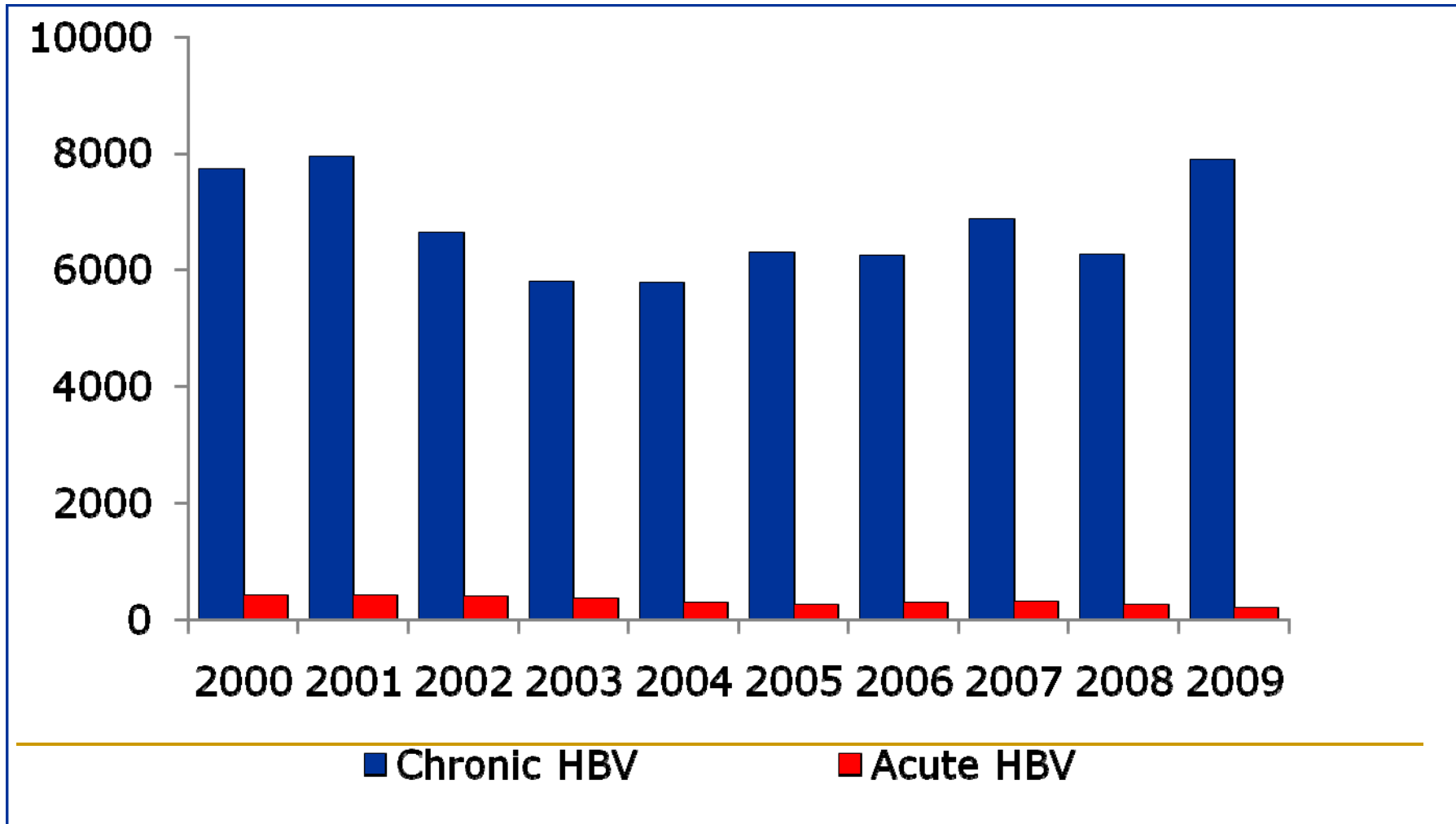
- Overall low prevalence in Australia BUT high in some populations
 - Asians,
 - Pacific,
 - sub-Saharan Africans,
 - Aboriginals



Worldwide distribution of Hepatitis B (sAg +ve) CDC 2006

Notifications of hepatitis B

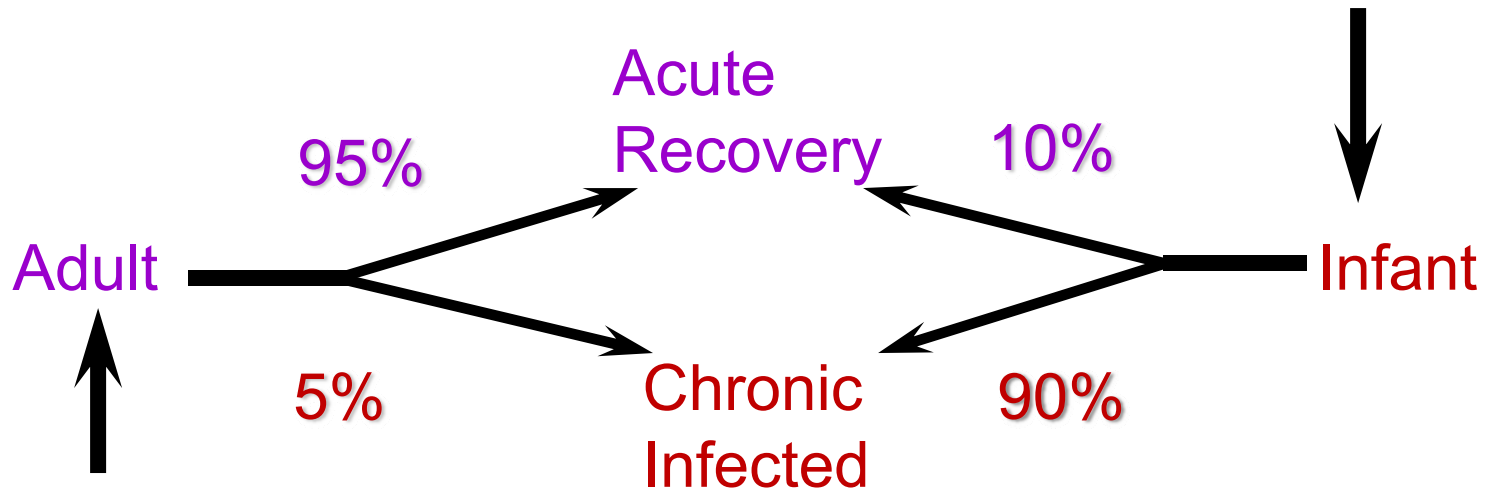
Australia, 2000-2009



Acute & Chronic Hepatitis B

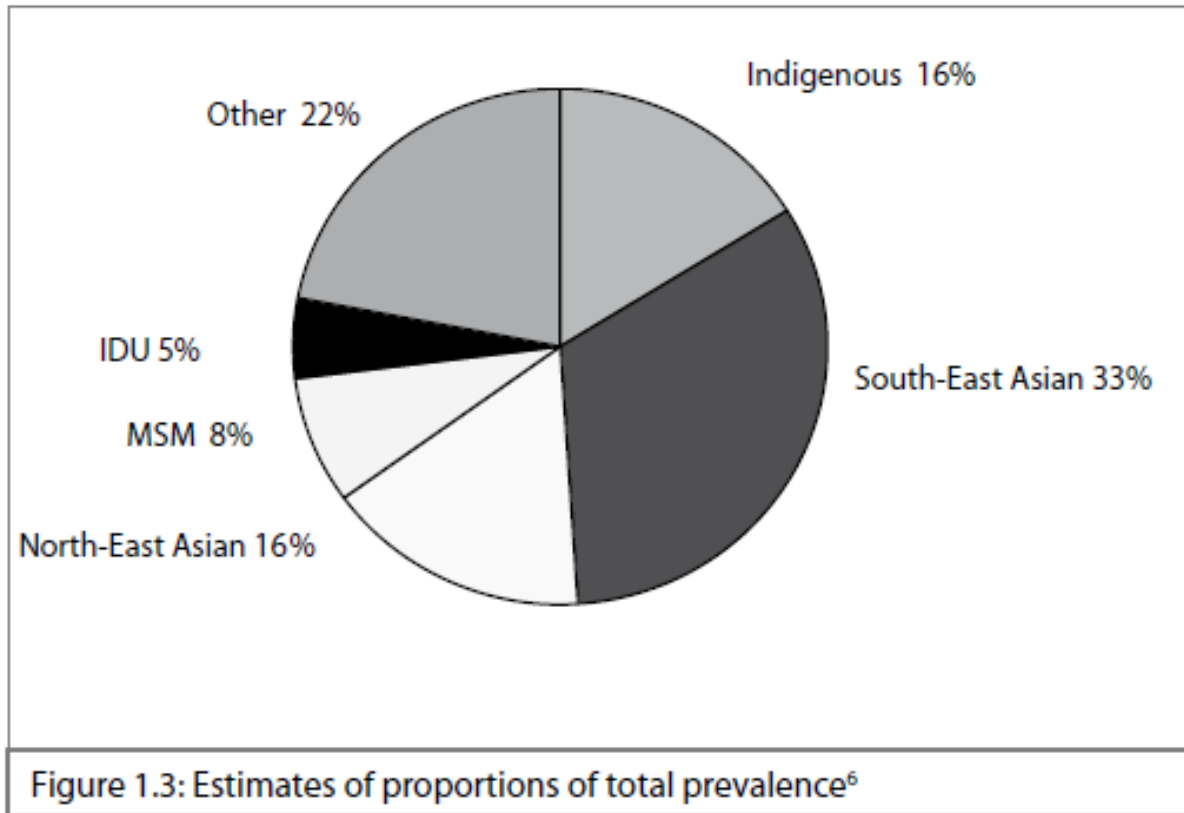
Adult Vs Infant acquisition

If mother has active markers of hepatitis B infection (HBsAg & HBeAg)
Transmitted to infant at or during birth

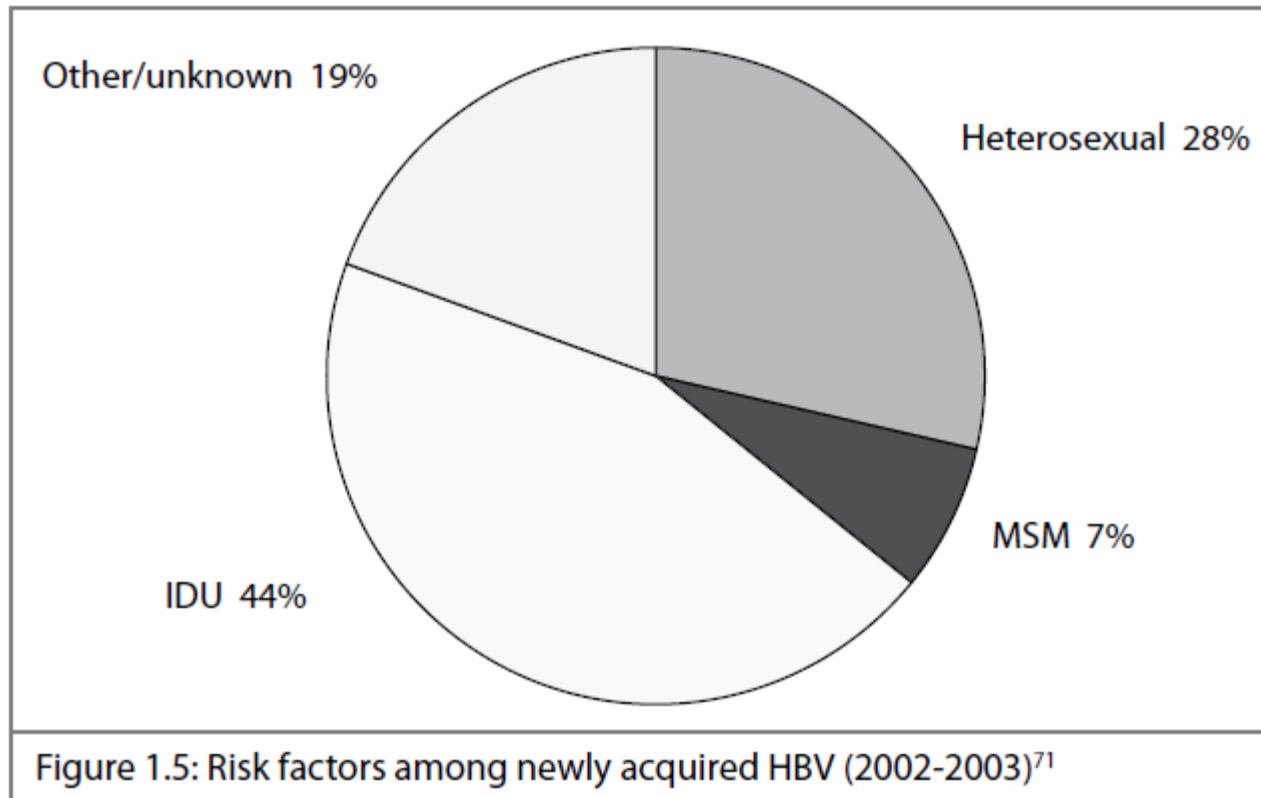


Often through sharing of blood (through a cut or break in skin) or body fluids through sexual intercourse

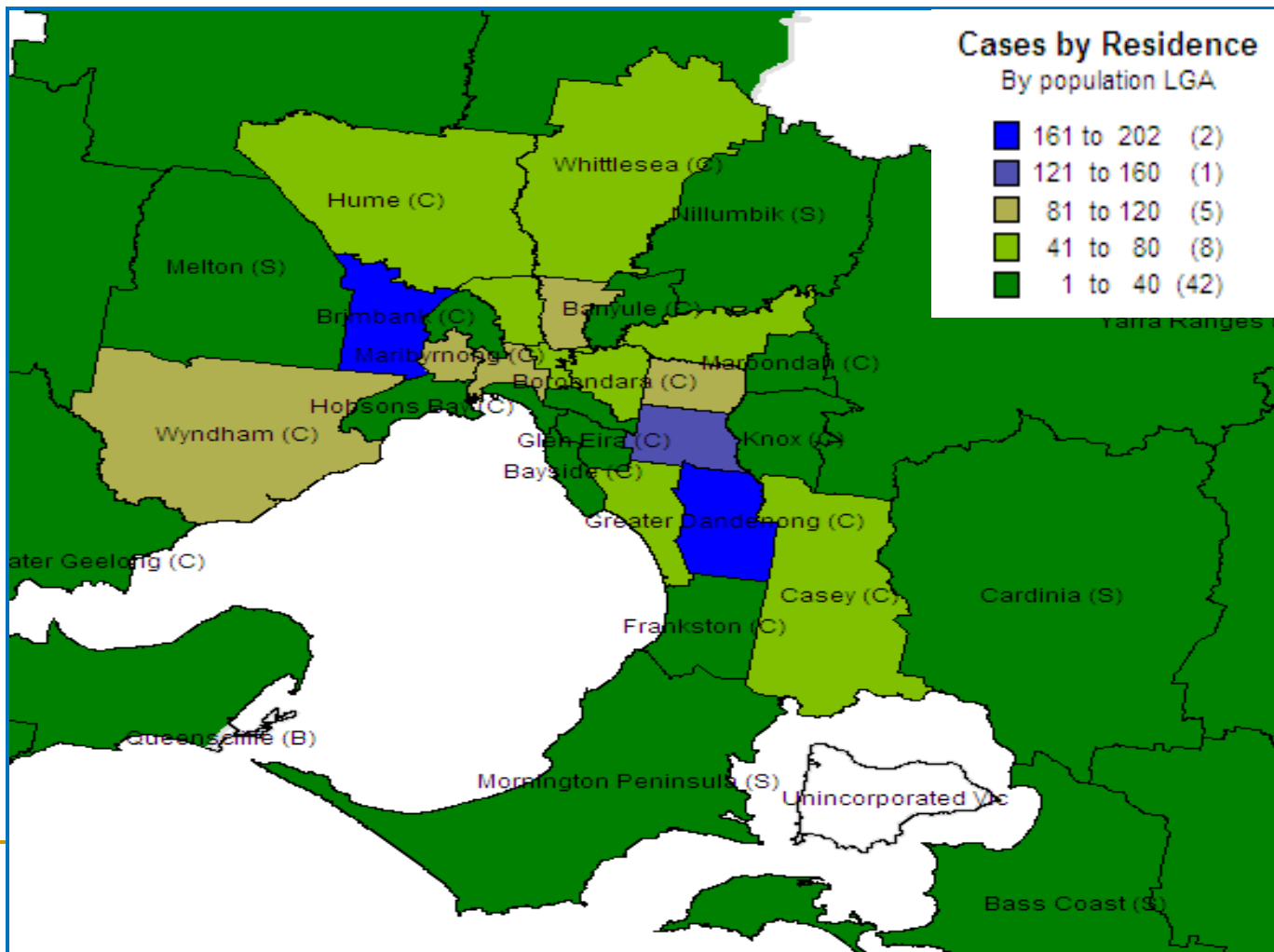
Who has Hep B in Australia?



New cases of Hep B



Notifications of chronic hepatitis B by LGA - 2008



In Refugees

- High prevalence 7 - 25%
- Usually acquired at birth or in childhood
- All need to be screened



Primary Birth Country for Australians with CHB 1991* - 2006

Country	HBV prevalence	Migrants 1991 - 2006	Est. CHB 1991 - 2006
China	10%	146302	14630
Viet Nam	11%	62260	6849
Philippines	9%	64134	5772
Hong Kong	8%	39472	3158
India	3%	101813	3054
Fiji	11%	25748	2832
Indonesia	7%	35336	2474
Sudan*	12%	18177	2181
Malaysia	5%	41644	2082
South Korea	5%	39806	1990
Thailand	9%	21382	1924
Taiwan*	10%	15656	1566
Iraq	4%	28561	1142
Cambodia*	9%	12303	1107
Afghanistan*	7%	14870	1041
Bosnia and Herzegovina	5%	20002	1000
Samoa*	6%	11309	679
Sri Lanka	2%	33744	675
Burma*	10%	6682	668
Lebanon	3%	22263	668

Transmission

- Blood

- Birth
- Early childhood
- IV Drug use
- Tooth brush, Razor

- Sexual

- Not

- Hug, Kiss, Toilet seat, Cutlery, sharing food etc
-

Transmission of HBV

Mother to child

- Saliva alone is not well evidenced as a significant risk
 - HBIG & vaccine should eliminate theoretical risk of acquisition through breast feeding
 - Foetal scalp monitoring should NOT be used
 - No evidence that mode of delivery (vaginal or caesarean) affects risk of infection
 - Some women will have treatment in pregnancy
-

Who should be screened for HBV?

GESA 2008

- Any person born in/parents born in an endemic country
- Indigenous populations
- MSM
- IDU's (previous or current)
- Household/sexual contacts of person with Hep B
- History of HCV or HIV
- All pt's undergoing chemo/immuno-suppressive therapy
- Those on renal dialysis

Antenatal screen for ALL pregnant ♀ (RANZCOG)

What test?

- Hepatitis B

- Surface antigen sAg
- Surface antibody sAb
- Core antibody cAb

- Testing should only be done with the patients consent!!
-

Hepatitis B Testing

HBsAg positive

Infected: Either

- 1) Chronic
- 2) Acute

HBcAb positive

Exposure: Either

- 1) past or
- 2) current

HBsAb positive

Immune: Either from

- 1) vaccine or
- 2) past infection

All Markers negative

Immunise?

Key messages after diagnosis

- Discuss
 - Natural history,
 - Modes of **transmission** & risk reduction
 - Need for ongoing, lifelong **monitoring**
 - **Available treatment**
 - Risk management
 - **Alcohol** minimisation,
 - weight loss,
 - smoking cessation
-

Also

- Hep A vaccine
 - Screen and vaccinate household contacts
 - Need to tell employer in certain situations

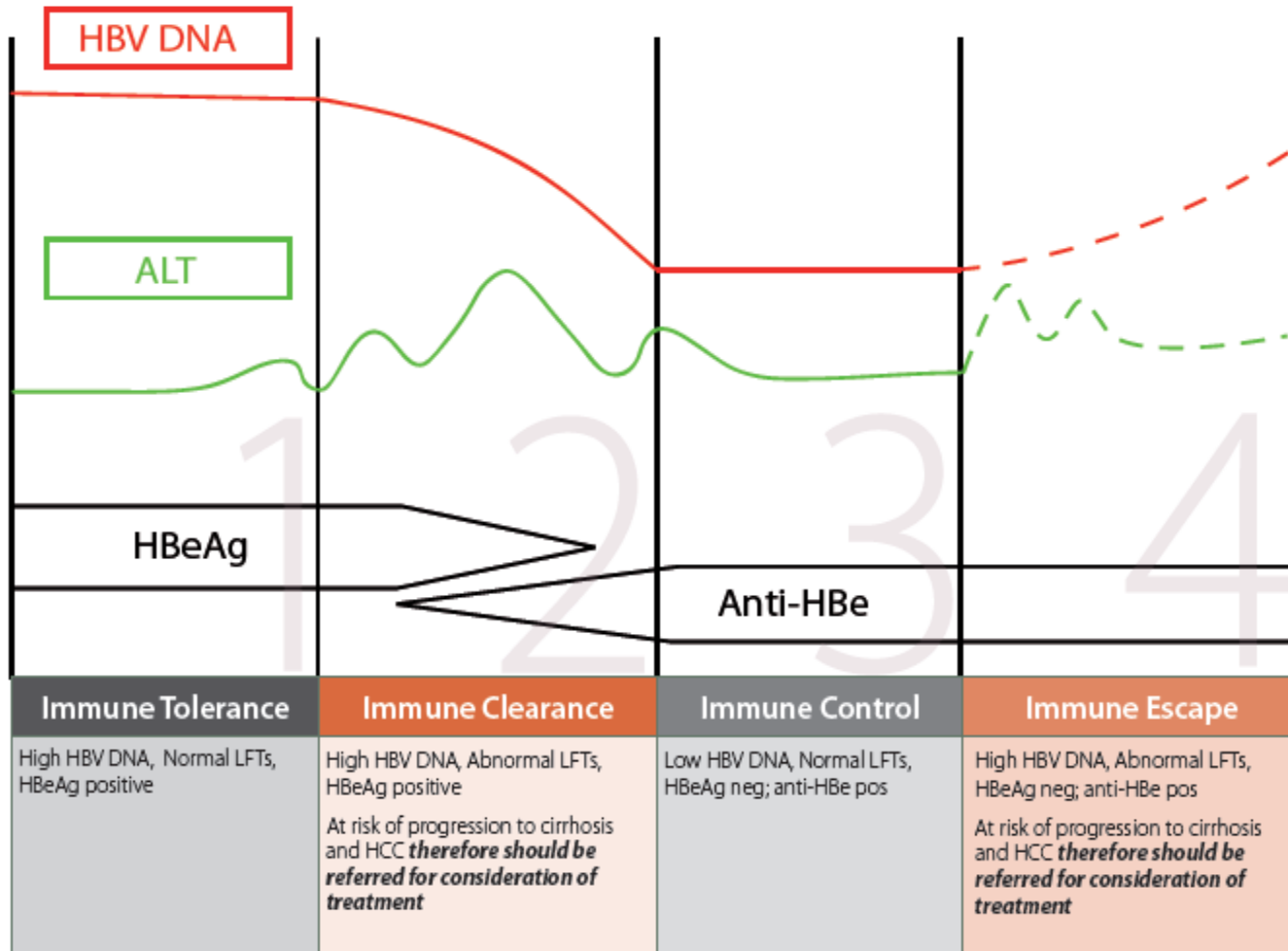
 - Symptoms
 - May be well
 - Tired, Liver failure
 - Can affect kidney, other organs
-

Other tests

- PCR
 - Viral load
 - EAg and EAb
 - IgM Hep b Core Ab
-

Decision Making in HBV

Natural History of Chronic HBV The 4 Phases and Relevance to Treatment Decisions



For more information see: *B Positive – All you wanted to know about Hepatitis B: a guide for primary care providers*. Additional copies and electronic version available at: <http://www.ashm.org.au/publications>

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Monitoring HBV infected patients

- Depends on stage
 - Consider
 - LFTs
 - eAg/Ab
 - HBV viral load
 - At high risk of Hepatocellular carcinoma (HCC)
 - 6/12 liver ultrasound
 - 6/12 alpha foetoprotein
-

Vaccination

Requires three doses (5 in newborns)

Very effective

Who should be vaccinated?

Newborns

Adolescents (Catch up)

IV Drug users

Household contacts

Those with HIV

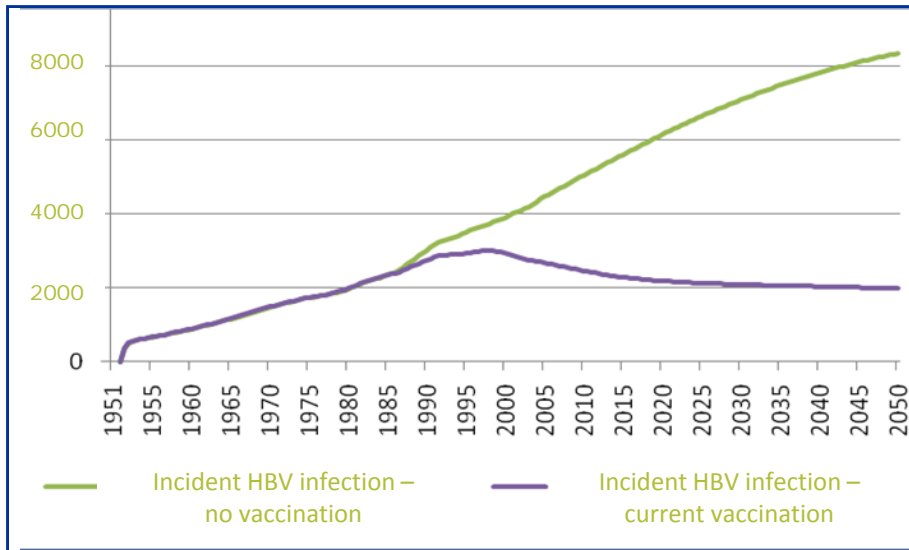
Health Care workers

Some travellers

Who is eligible for funded vaccination in Victoria ?

- All newborns (Commonwealth)
 - All adolescents aged 10-13 years (Commonwealth)
 - Health Care Workers (Employers)
 - All household contacts of people with chronic hepatitis B (State)
 - People who inject drugs (State)
 - People living with HIV/AIDS – from May 2010 (State)
-

Future projections of hepatitis B in Australia



•New Cases

-Chronic cases

Hep B treatment

- Not for all
 - Very effective at reducing viral load
 - Doesn't cure infection
 - Long term, well tolerated, v low resistance
 - Newer therapy
 - Entecavir
 - Tenofovir
 - Needs specialist and liver biopsy to start Rx (PBS)
-

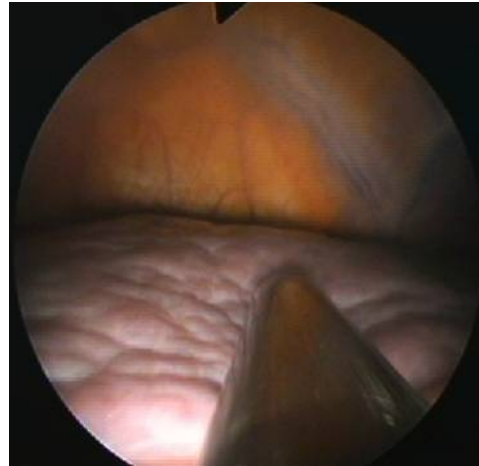
Choosing who should have treatment?

- LFT's
 - EAg status
 - Viral Load
 - Clinical assessment
 - Fibroscan
 - LiverBiopsy
-

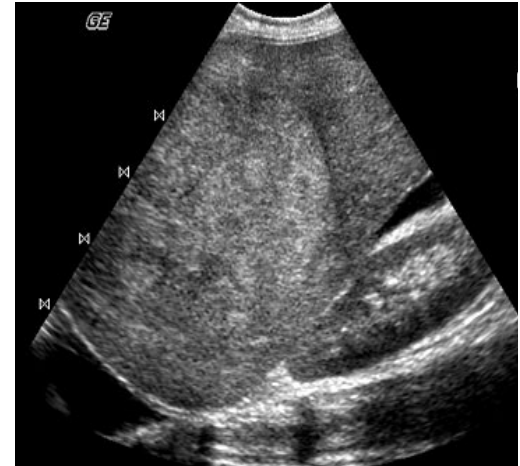
Primary Goal of Hepatitis B Therapy: Preventing Cirrhosis, HCC and Death



Healthy Liver

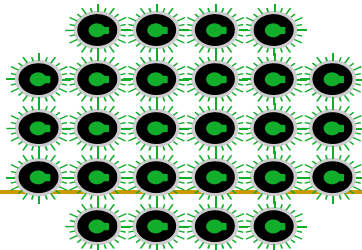


Liver Cirrhosis



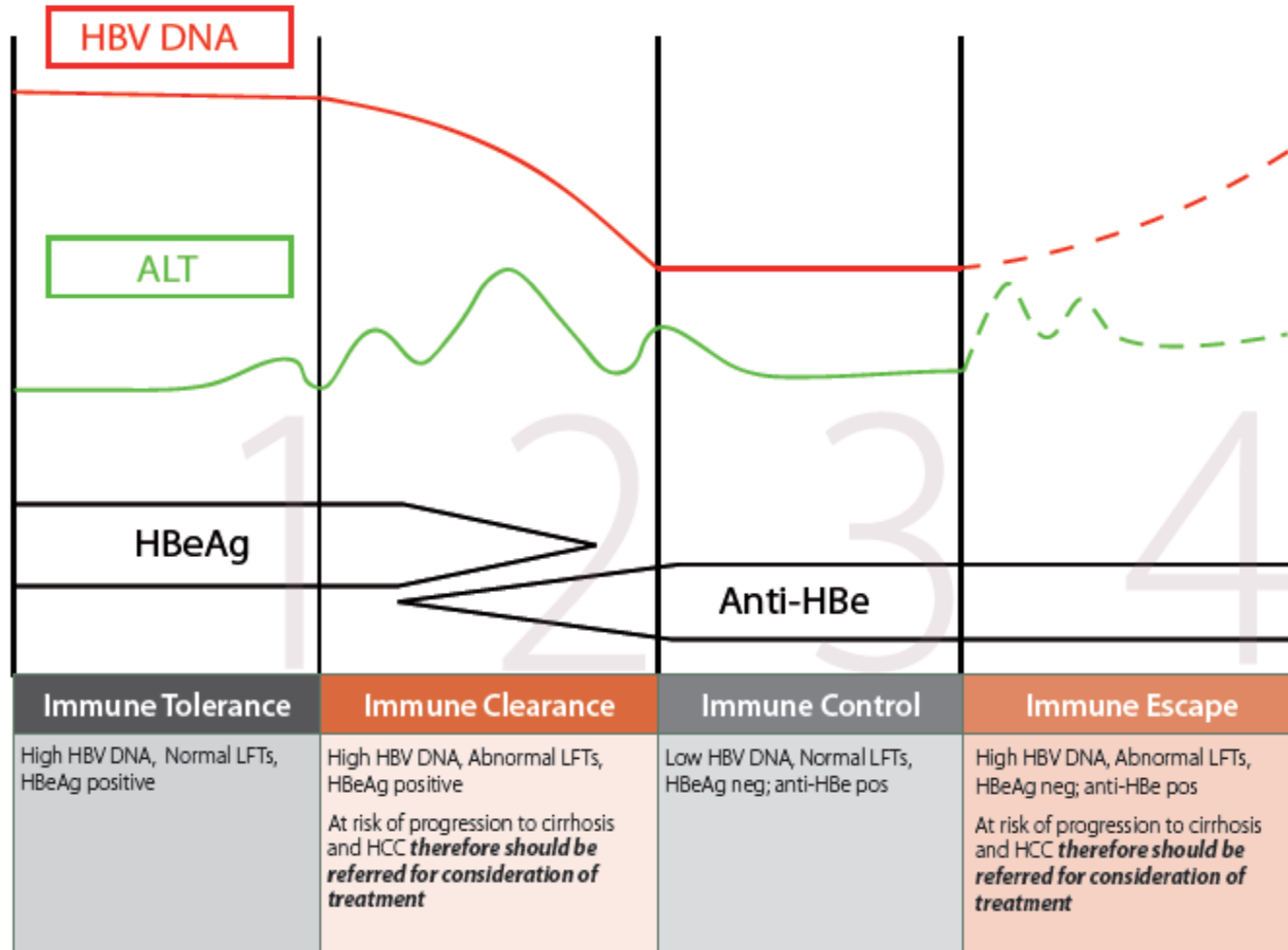
HCC

Durable Suppression of HBV
Replication with ↓ALT



Decision Making in HBV

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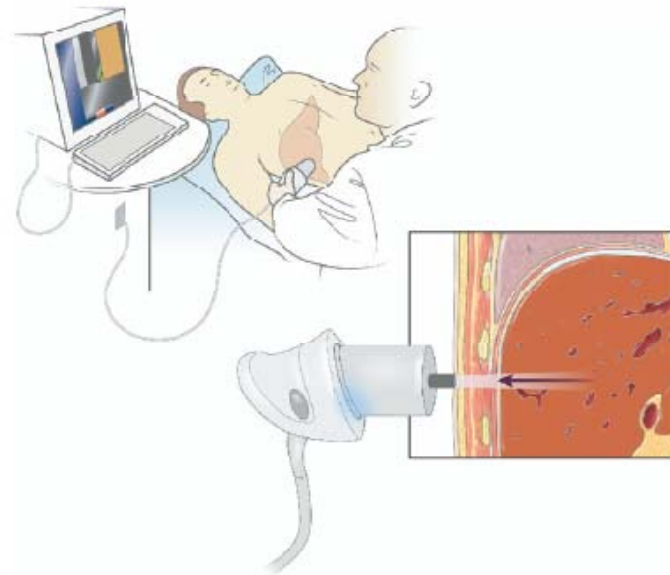


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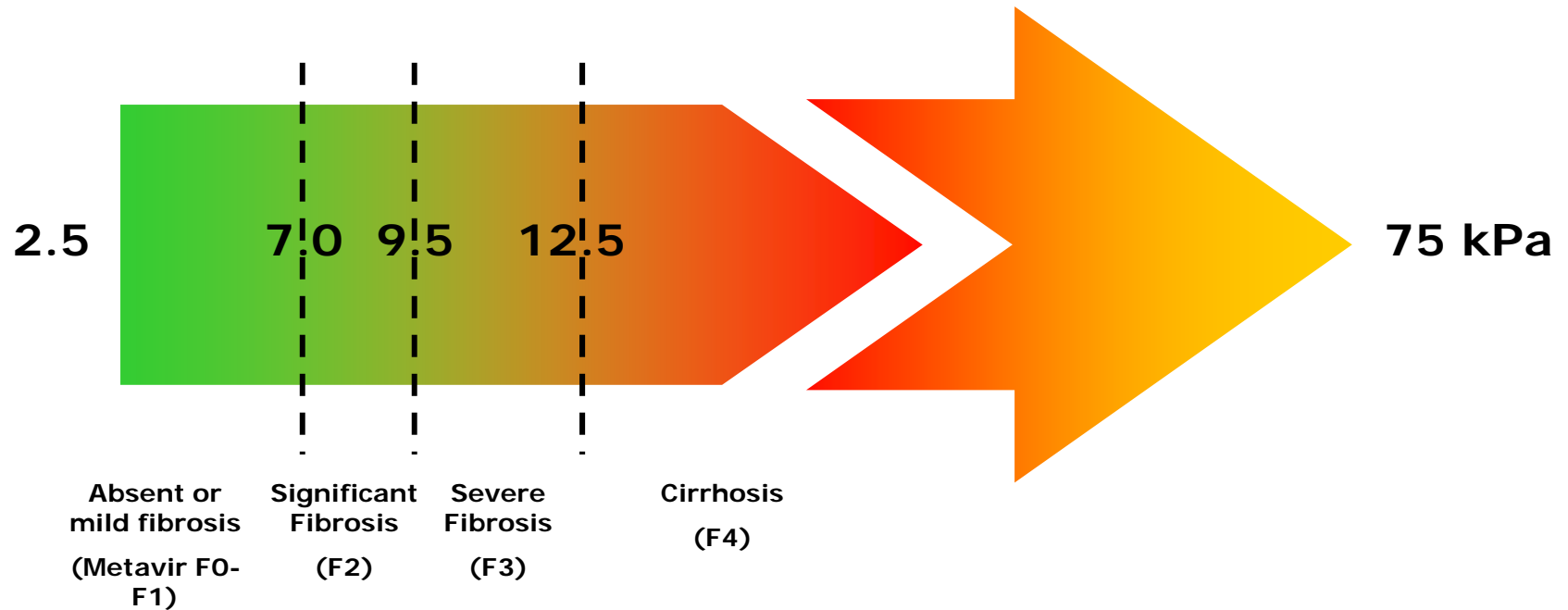
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What is FibroScan?



Results from FibroScan



- Report should include
 - **Number of valid readings**
 - Minimum of 10
 - Should be at least 60% of the total
 - **Median score**
 - **IQR** (Should be $\leq 30\%$ of the median)

Treatment – medications

Pegylated interferon (weekly injection)

~30%-40% 'e' seroconversion or ↓ V/L

Many side effects

Oral

1) Entecavir & Tenofovir

Usually long term - but well tolerated

Compliance is vital

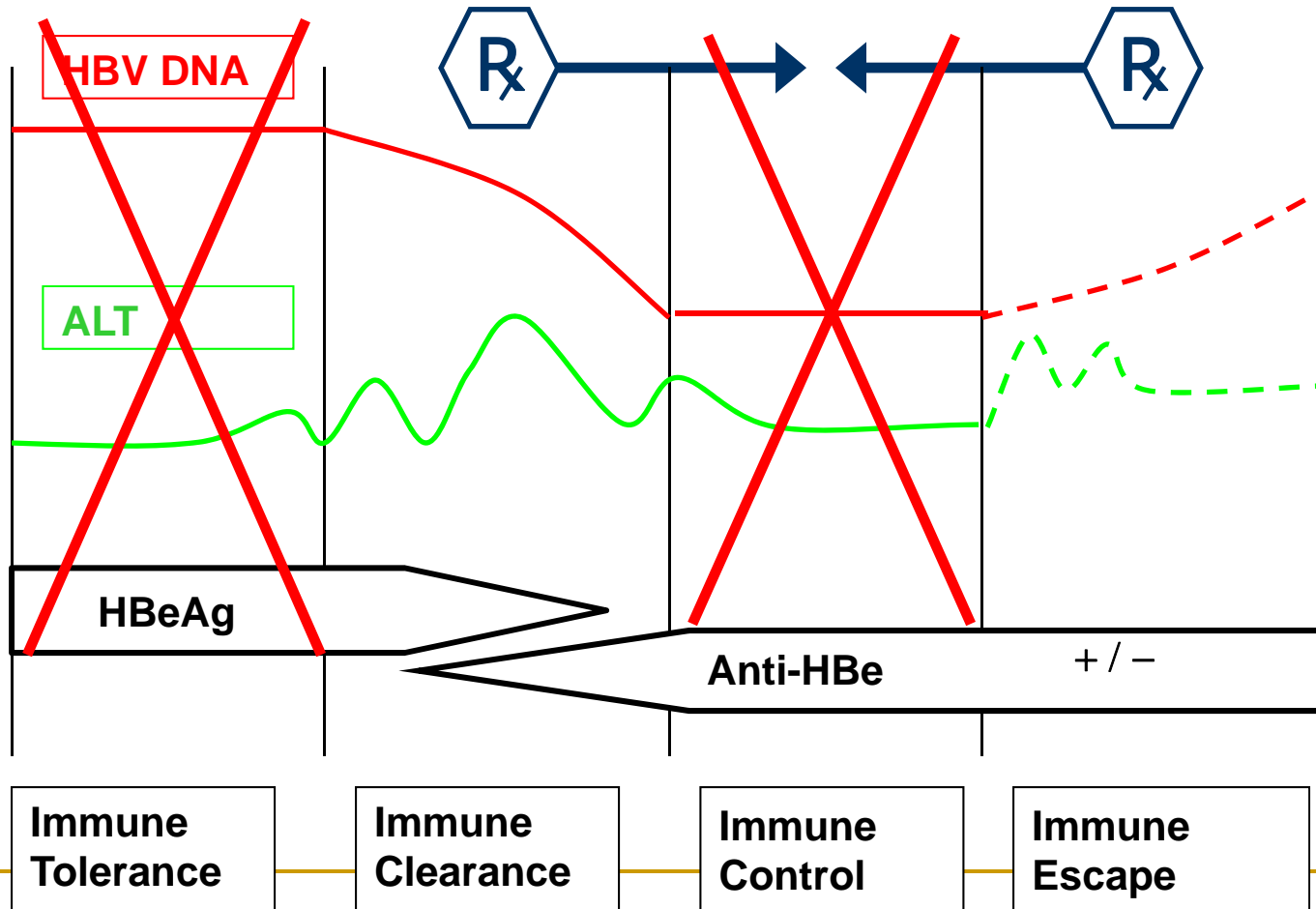
Very low rates of resistance

2) Adefovir, Telbivudine

3) Lamivudine

High rate of resistance

Treatment by HBV phase



Monitoring during treatment

■ Pegylated Interferon

- Monthly visit to treatment doctor
- Monthly FBC, U+E/Cr, LFT
- Quarterly TFT

■ Antiviral Agent

- Entecavir, Tenofovir, 3 monthly FBC, U+E/Cr, LFT, HBV DNA
 - Ideally to achieve low HBV DNA at 6 months after Rx
-

In Pregnancy

Mum

Preferably NOT treated during pregnancy but may be if viral load is high or HBeAg positive (tenofovir)

Infant

Vaccinate at birth

Given Immunoglobulin at birth

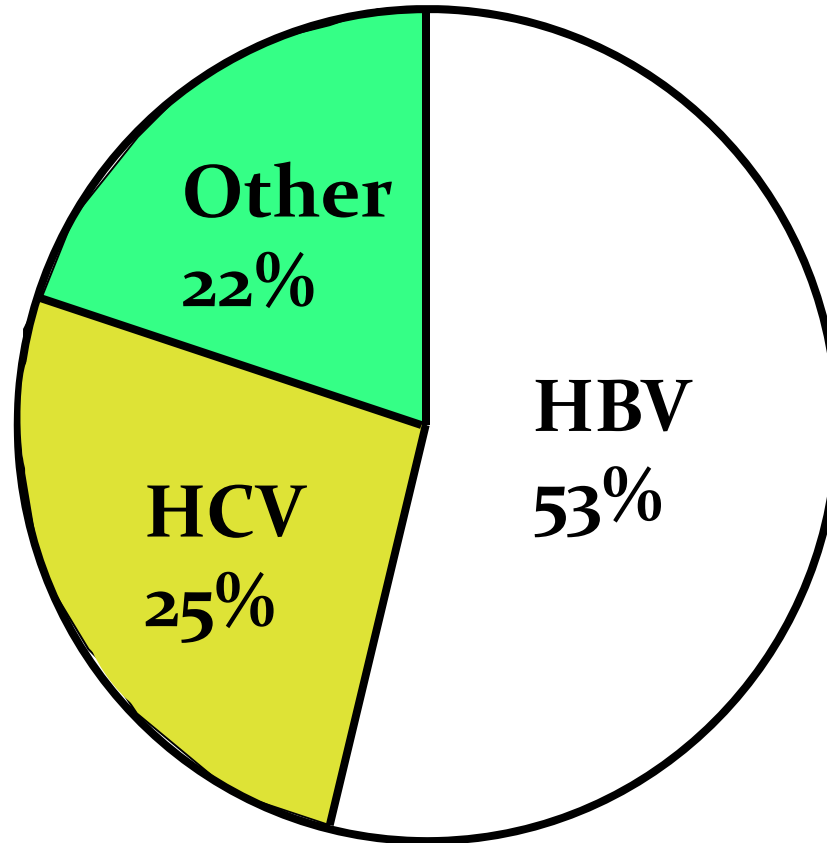
Infected children

Not usually treated due to disease phase

Hep B and Liver Cancer

- Major cause of liver cancer
 - Liver cancer can occur even if patient does not have cirrhosis
-

Cause of HCC (2001)

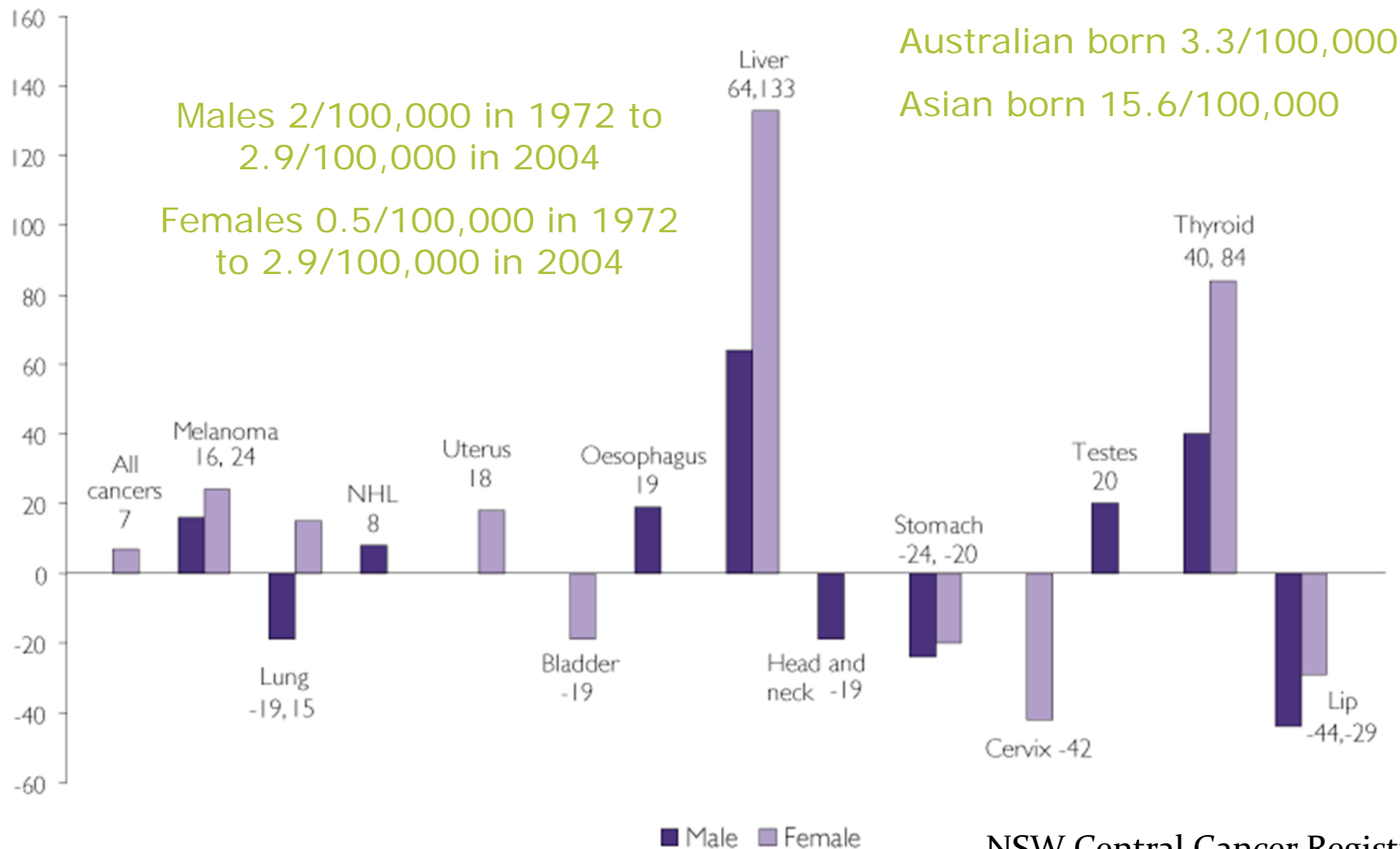


* Alcohol
Diabetes
Obesity

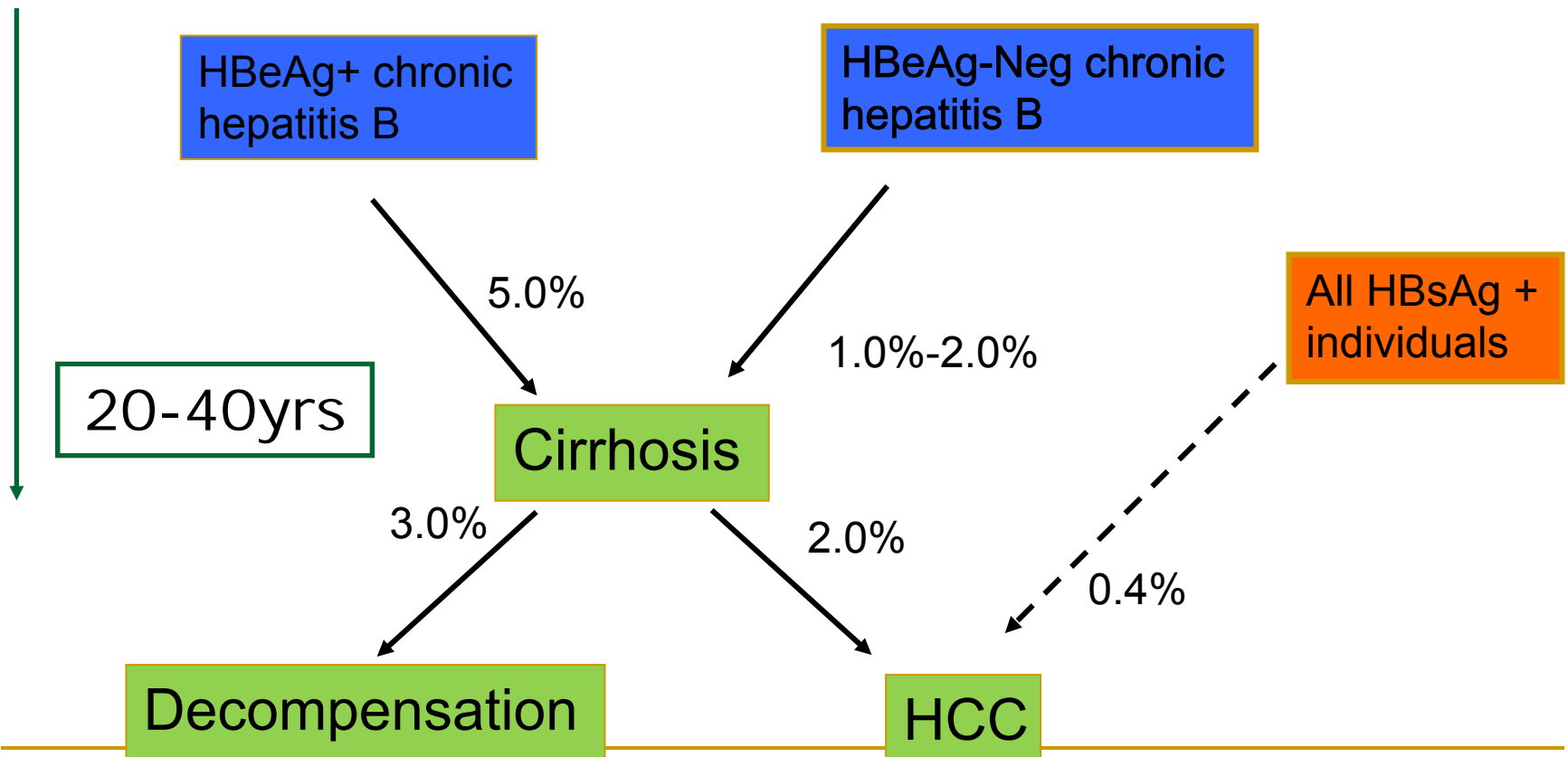
HCC is the third leading cause of cancer death

Liver cancer is the fastest growing malignancy in Australia

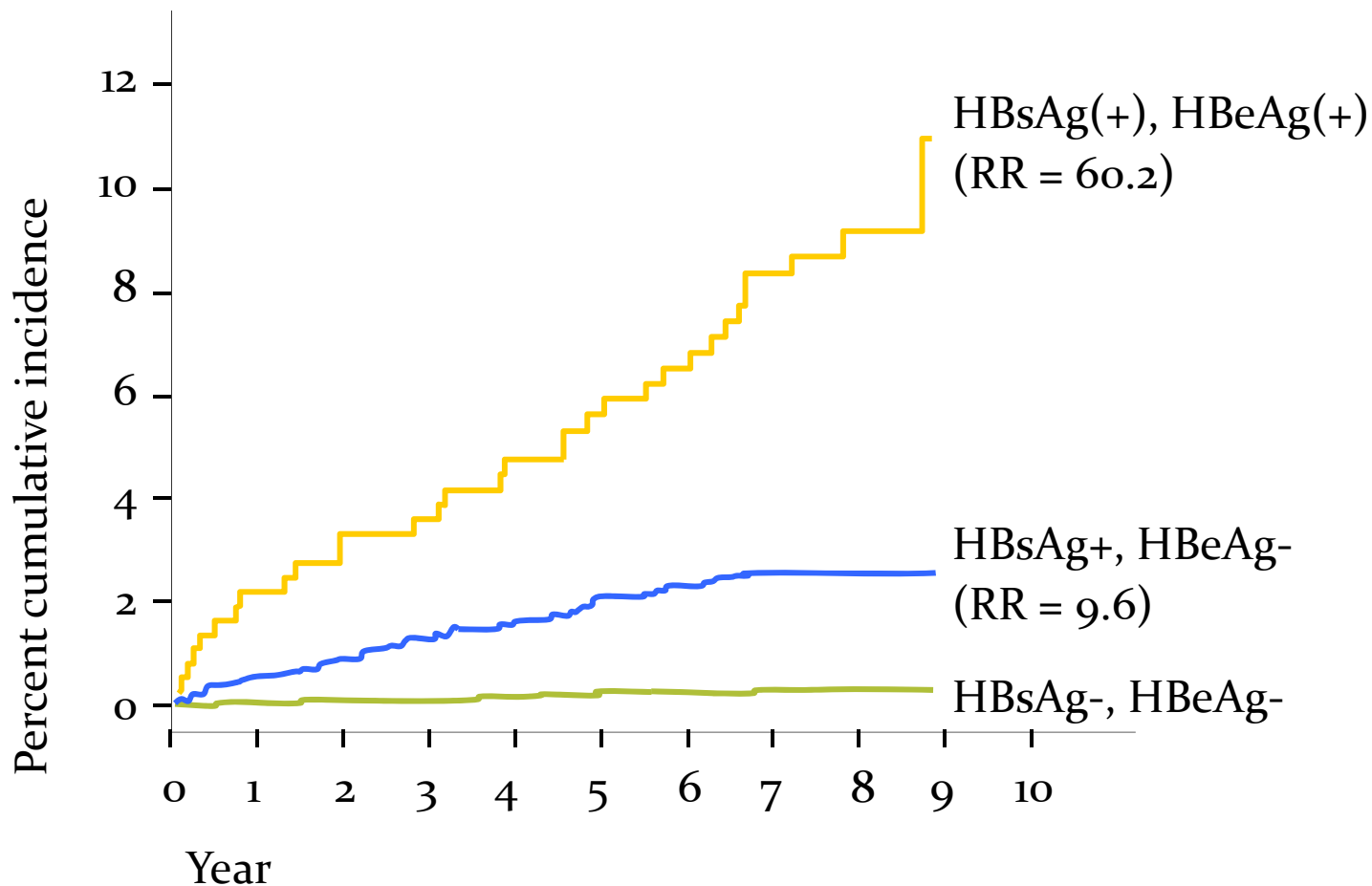
Percentage change in incidence rates 1996 to 2005, NSW



Annual Risk of HBV Progression

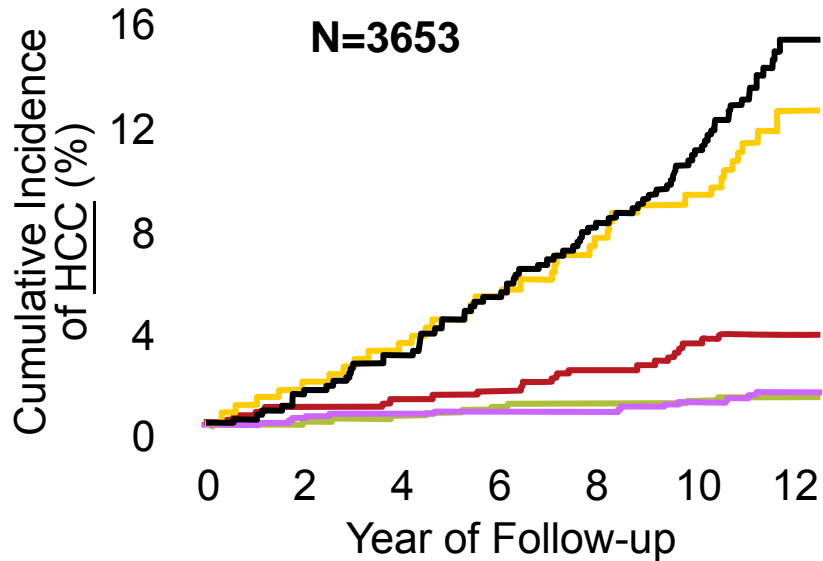


HBeAg and risk of HCC



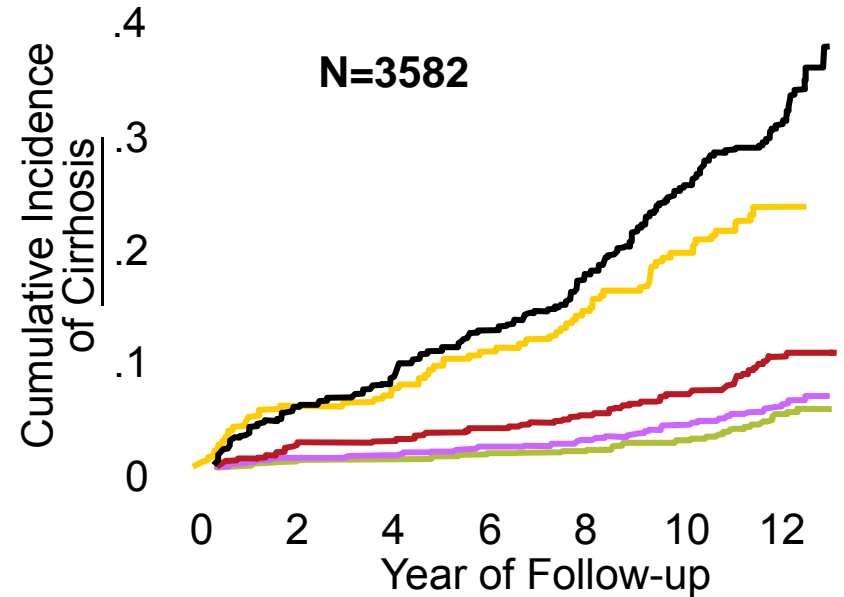
HBV DNA and risk of progression- REVEAL study

Baseline Serum HBV DNA & HCC



Chen et al. *JAMA*. 2006;295(1):65-73.

Baseline Serum HBV DNA & Cirrhosis



Iloeje et al. *Gastroenterology* 2006;130(3):678-686.

— $\geq 10^6$ — $10^5 - <10^6$ — $10^4 - <10^5$ — $300 - 10^4$ — <300 copies/mL

HCC Screening

Evidence supports screening in:

- Cirrhosis
- Family history of HCC
- **HBV Asian men over 40 and women over 50 years age**
- HBV Africans over 20 years age
- >40 years age with ↑ HBV DNA and ↑ALT

Frequency: Every 6 months

Method: Liver ultrasound + α -foetoprotein

Refer if lesion detected on US or Elevated AFP

Study showing survival benefit

- Zhang et al ¹
 - 18,816 Chinese patients randomized to 6 monthly AFP and U/S abdomen up to 20 years
 - HCC mortality significantly lower > 5 years
 - 83 vs 132 per 100,000
 - Mortality rate ratio 0.63 (95% CI 0.41-0.98)
 - After Dx survival rate
 - 1 yr 65.9% vs 31.2%
 - 3 yr 52.6% vs 7.2%
 - 5 yr 46.4% vs 7.2%

Risk of HCC

Population group	Threshold incidence for efficacy of surveillance (%/yr)	Incidence of HCC (%/yr)
Asian male HBV carriers > 40 y.o.	0.2 %/yr	0.4-0.6 %/yr
Asian female HBV carriers > 50 y.o.	0.2 %/yr	0.3-0.6 %/yr
HBV cirrhosis	1.5 %/yr	3-8 %/yr
Africans with HBV	0.2 %/yr	HCC occurs at young age
HBV carrier with family hx of HCC	0.2 %/yr	Incidence higher than without family Hx

HBV reactivation

HBV reactivation can occur in almost any setting of immunosuppression

Highest risk seen in chemotherapy for solid organ and BM transplant (risk b/w 20-50%)

- Rituximab
- Glucocorticoid therapy

Can occur in patients receiving infliximab, methotrexate, steroids

Can occur in individuals who are HBsAg negative and HbcAb positive = Seroreversion

Summary; Hepatitis B

- Common in certain groups
 - Causes cirrhosis and liver cancer
 - Consider screening
 - Vaccine is very effective
 - Treatment for some
-

Further information

- Australian immunization handbook
<http://www.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook-home>
 - ASHM – www.ashm.org.au
 - Chronic Hepatitis B (CHB) Recommendations Australian & NZ 1st Ed.
Digestive Health Foundation GESA 2008
 - <http://www.health.vic.gov.au/ideas/diseases/hepb>
 - Hepatitis Australia – www.hepatitisaustralia.com
 - *Hepatitis B Help* - www.hepbhelp.org.au
-

New HBV diagnosis
- what now?

Interpreting
HBV serology

Hepatitis
Clinic finder

Which patients to
screen for HBV

Resources
for GPs

Resources
for Patients

Acknowledgments
Partners & Links

HBV diagnosis:
quick guide for GPs



How to interpret
HBV serology



Find your nearest
HepB Clinic



Resources for:

GPs

Patients

Welcome to HepB Help

If you have diagnosed a patient with hepatitis B and need assistance with what to do next, [click here](#).

HepBHelp is an independent website which aims to assist Victorian GPs in the further investigation and management of patients diagnosed with chronic hepatitis B virus (HBV) infection. HepBHelp is hosted at [VIDRL](#), a public health reference laboratory, supported by a grant from the [auDA Foundation](#).

Recent [evidence](#) suggests Victorian GPs need more assistance and education about what to do for patients with HBV infection. HepBHelp aims to provide this assistance in as concise and time-efficient way as possible.

If you have any queries about the site, or have any suggestions for how we could improve it, please e-mail us at HepBHelp@mh.org.au

Thankyou

- Any questions?

