



Foirdhneannacht na Seirbhíse Sláinte
Health Service Executive



Health Protection Surveillance Centre
Lárionad Faire um Chosaint Sláinte



Universal Hepatitis B Vaccination in Ireland - Why now?

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Introduction

- Background
- Epidemiology in Ireland
- Ireland vs Europe
- Economic evaluation
- New schedule

Hepatitis B virus

- 50-100 times more infectious than HIV
- Chronic HBV infection develops in 90% infected as infants and 1-10% infected as adults
- Chronic infection can lead to chronic liver disease, cirrhosis and/or hepatocellular cancer
- Death from chronic liver disease occurs in 15-25% of chronically infected people
- >350 million people chronically infected worldwide
- Vaccine preventable

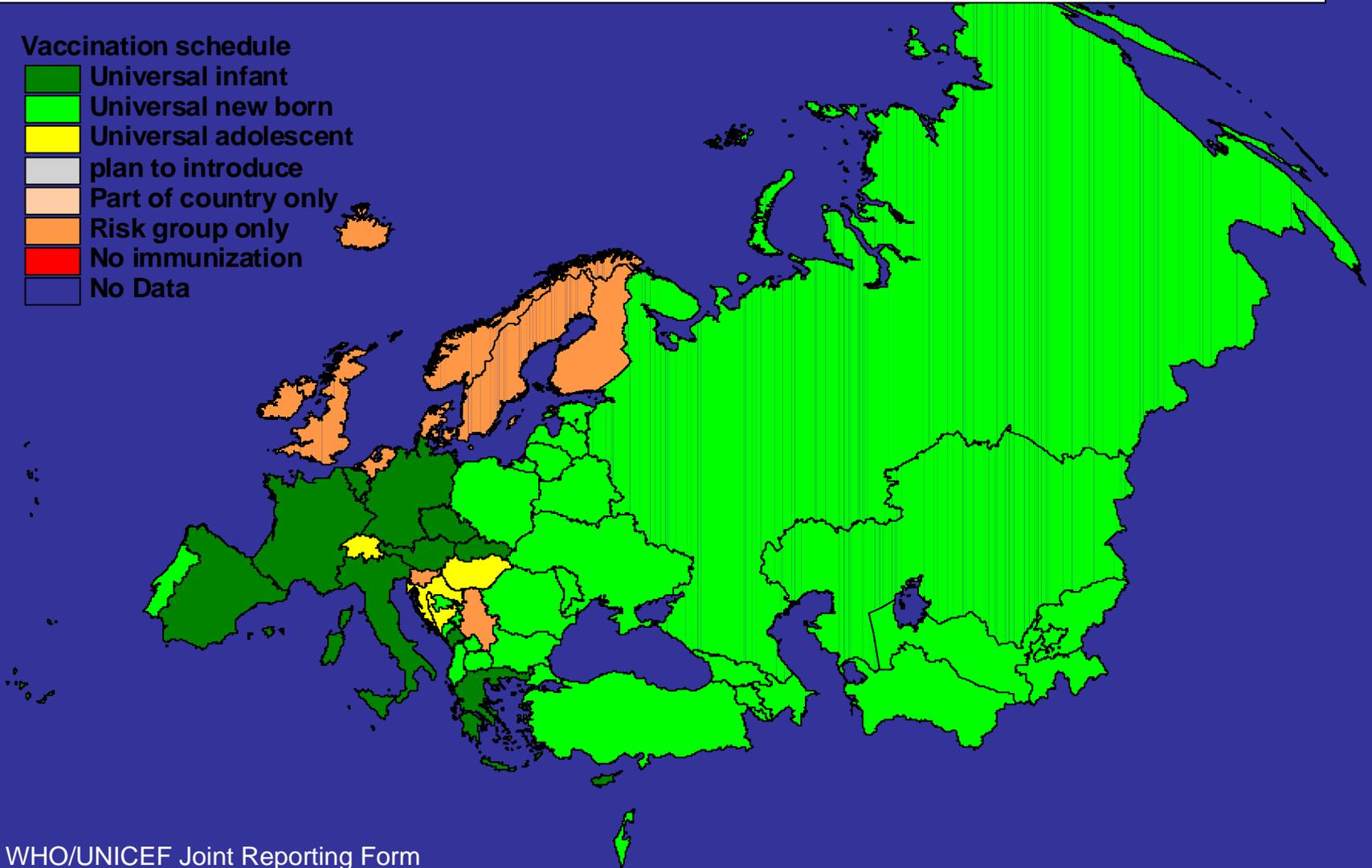
Hepatitis B vaccination

- Safe and effective vaccine
- Seroprotection of 98.6% with 3 doses at 2, 4, 6 months
- WHO recommended inclusion of HBV vaccine in all national immunisation programmes by 1997
- Ireland, UK, Netherlands and Scandinavian countries have not yet
- Policy in Ireland to date – selective vaccination

Hepatitis B (HepB) vaccination schedules in the WHO European Region 2004

Vaccination schedule

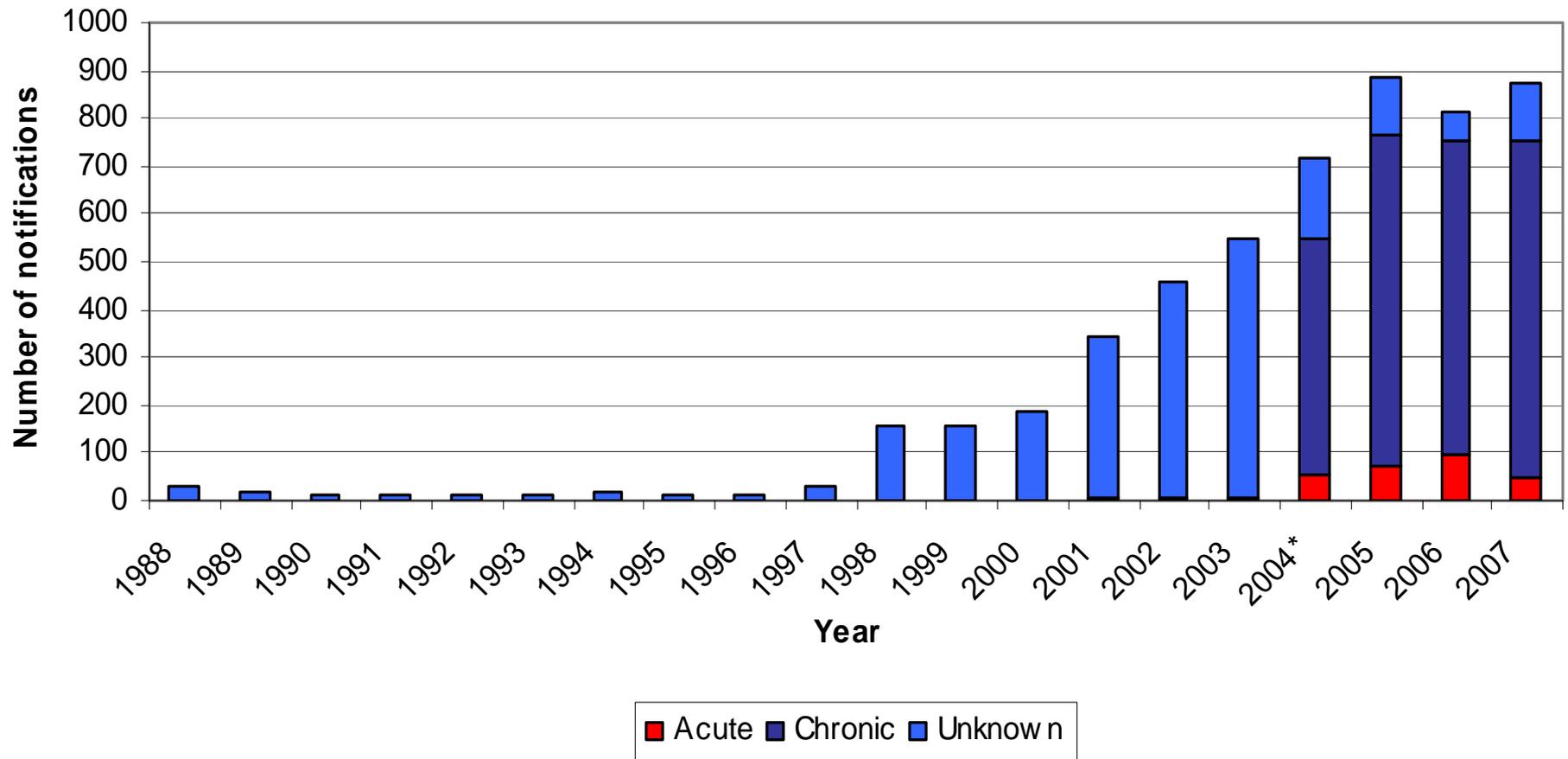
- Universal infant
- Universal new born
- Universal adolescent
- plan to introduce
- Part of country only
- Risk group only
- No immunization
- No Data



•Source; WHO/UNICEF Joint Reporting Form

•The designations employed and the presentation of this material do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

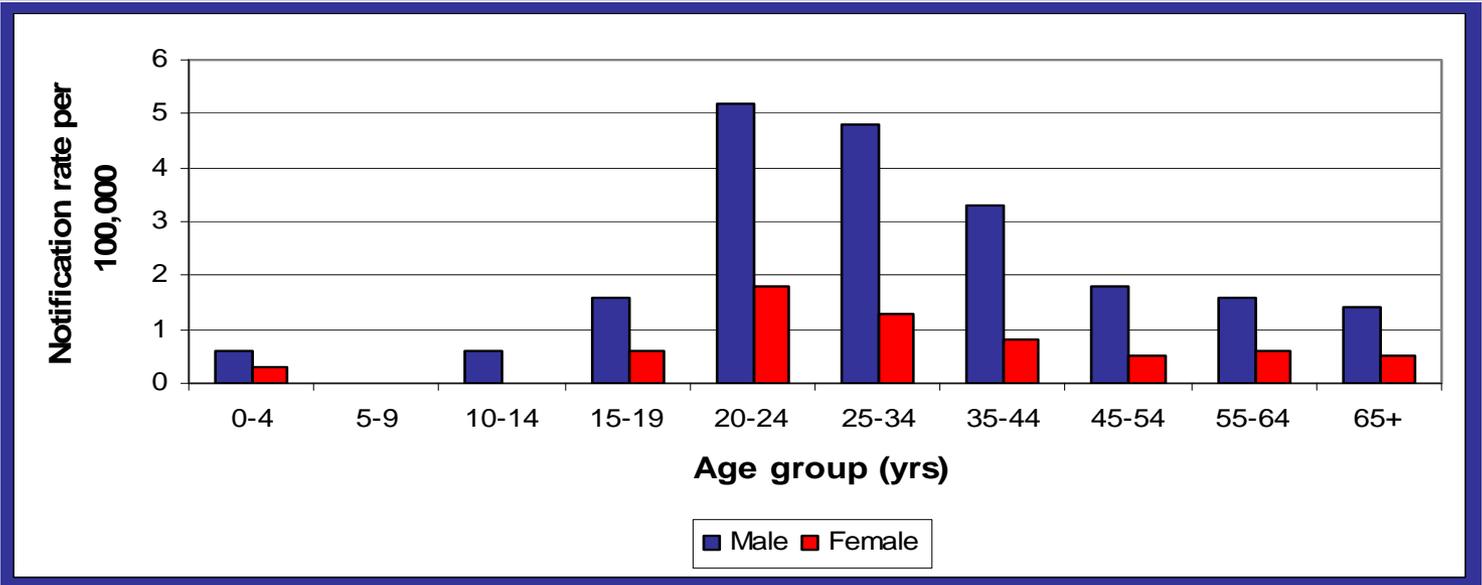
Number of notifications of hepatitis B, 1988-2007



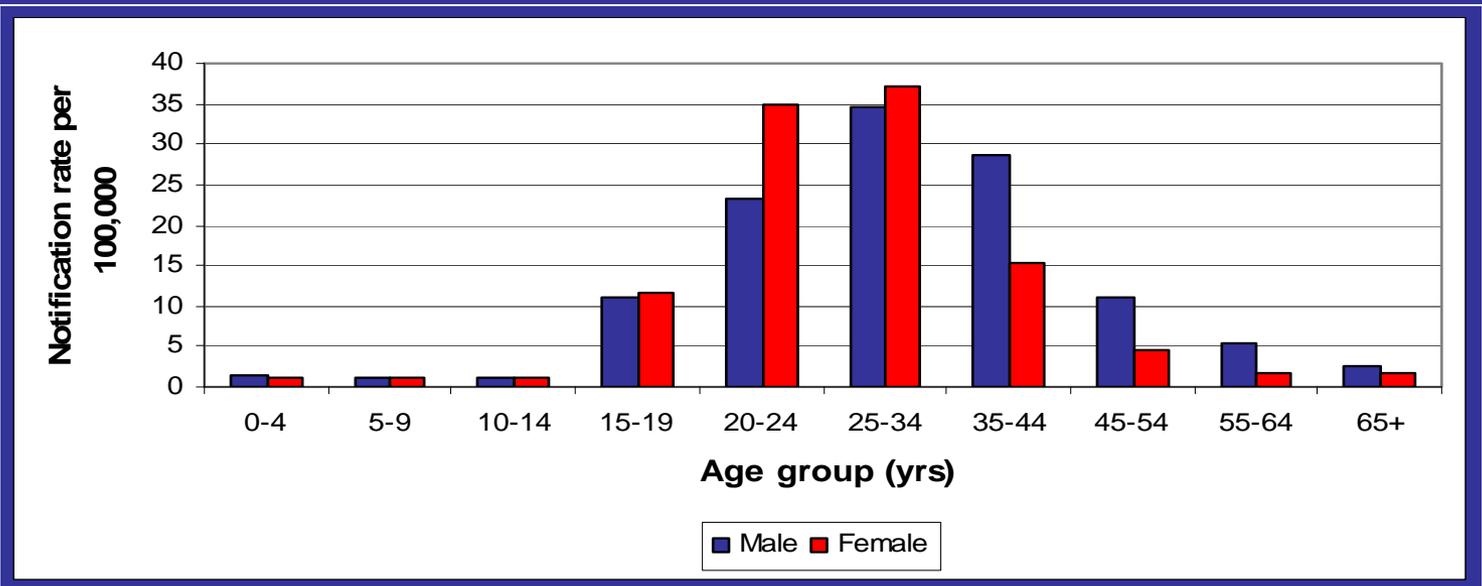
*Case definitions, which differentiate between acute and chronic cases, and mandatory laboratory reporting were introduced in 2004

Mean annual age and sex specific notification rates for hepatitis B by acute/chronic status, 2004-2007

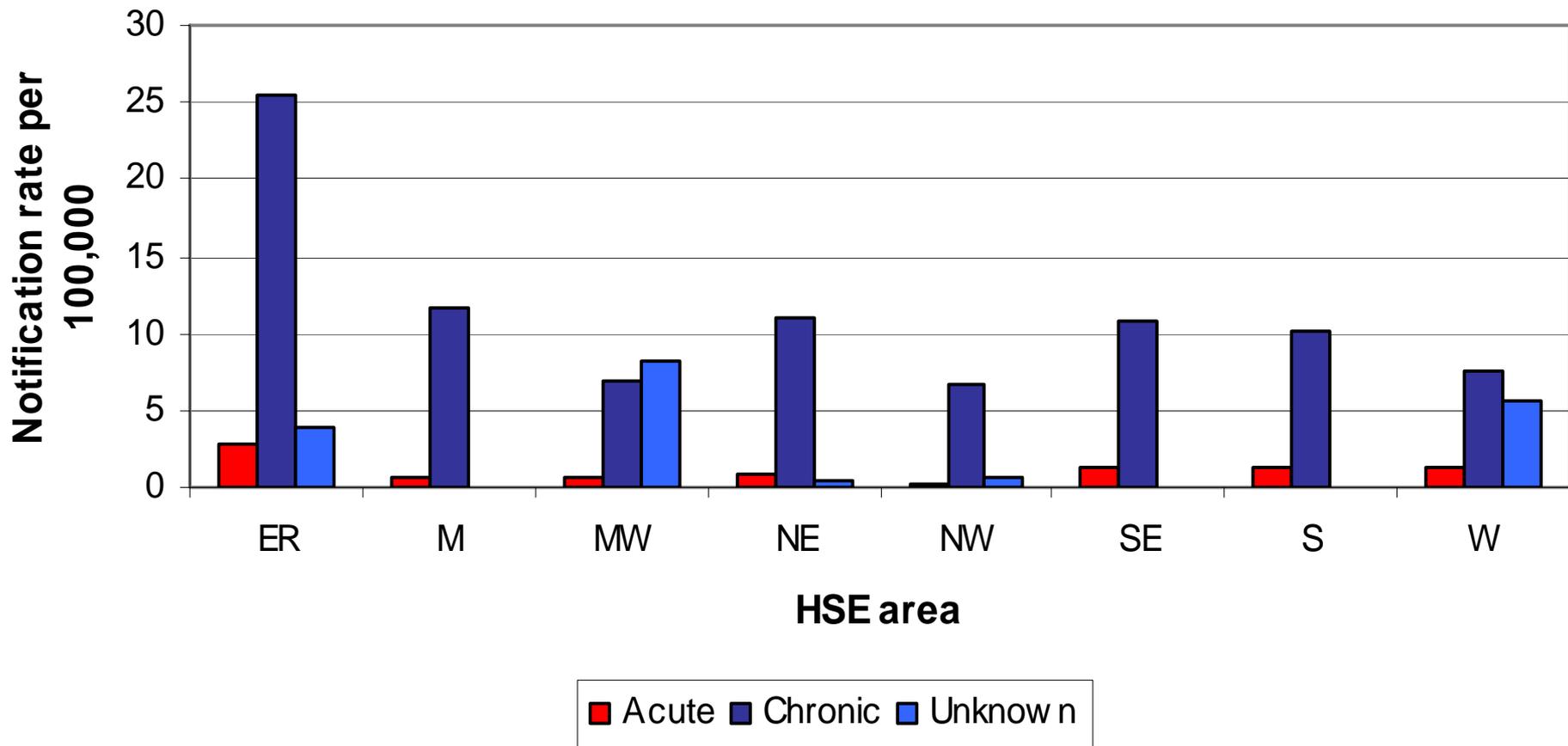
Acute



Chronic

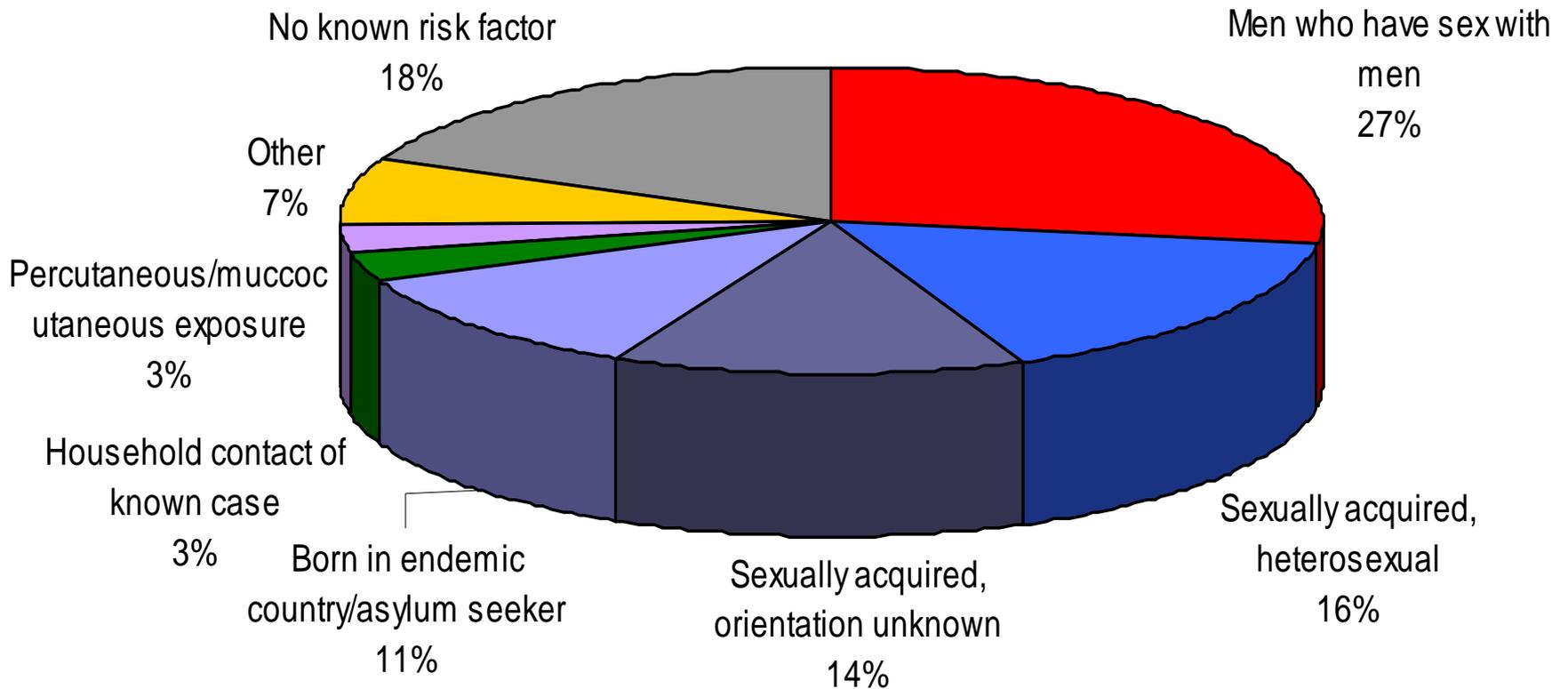


Mean annual notification rate for hepatitis B from 2004 to 2007, by HSE area and acute/chronic status



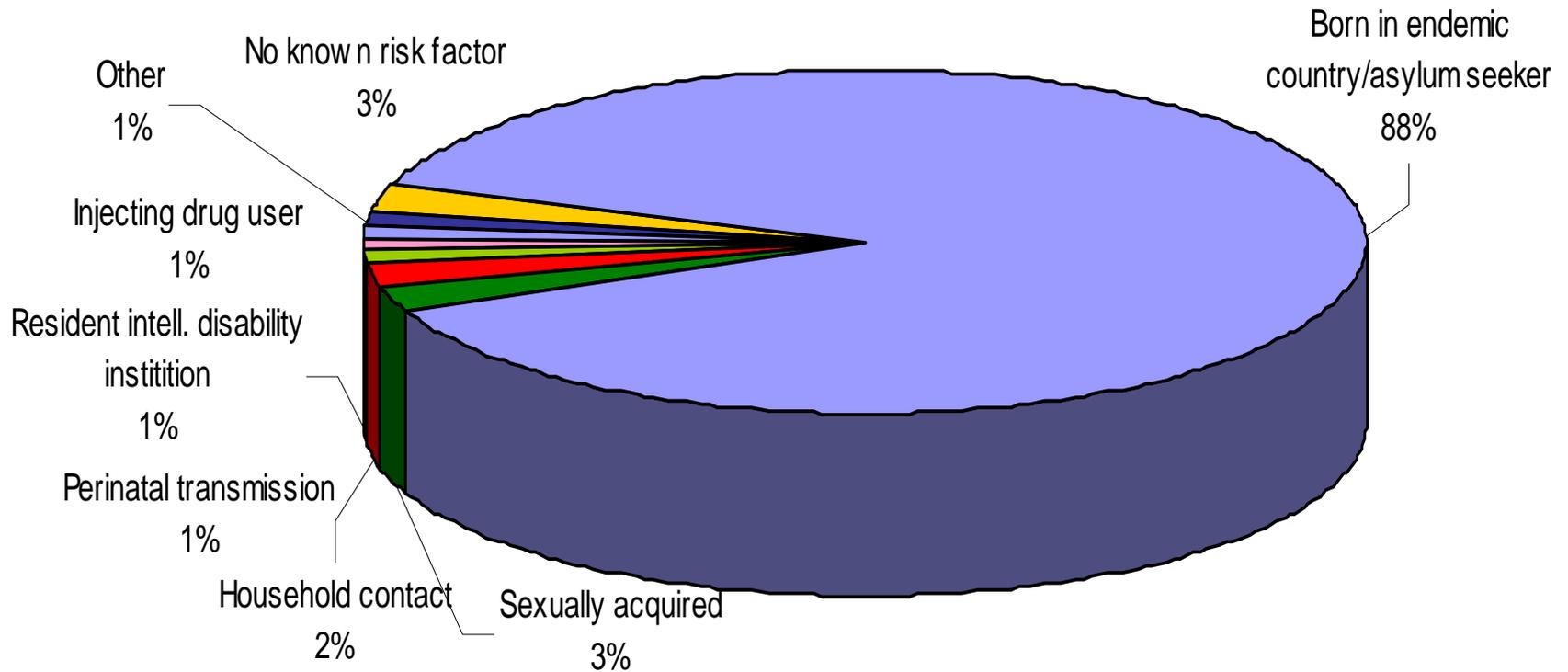
Risk factors for acute cases of hepatitis B from 2004-2007

Risk factor for acute cases, 2004-2007 where data recd (72%)



Risk factors for chronic cases of hepatitis B from 2004-2007

Risk factors for chronic cases, 2004-2007 where data recd (30%)



Main reasons for testing, 2004-2007

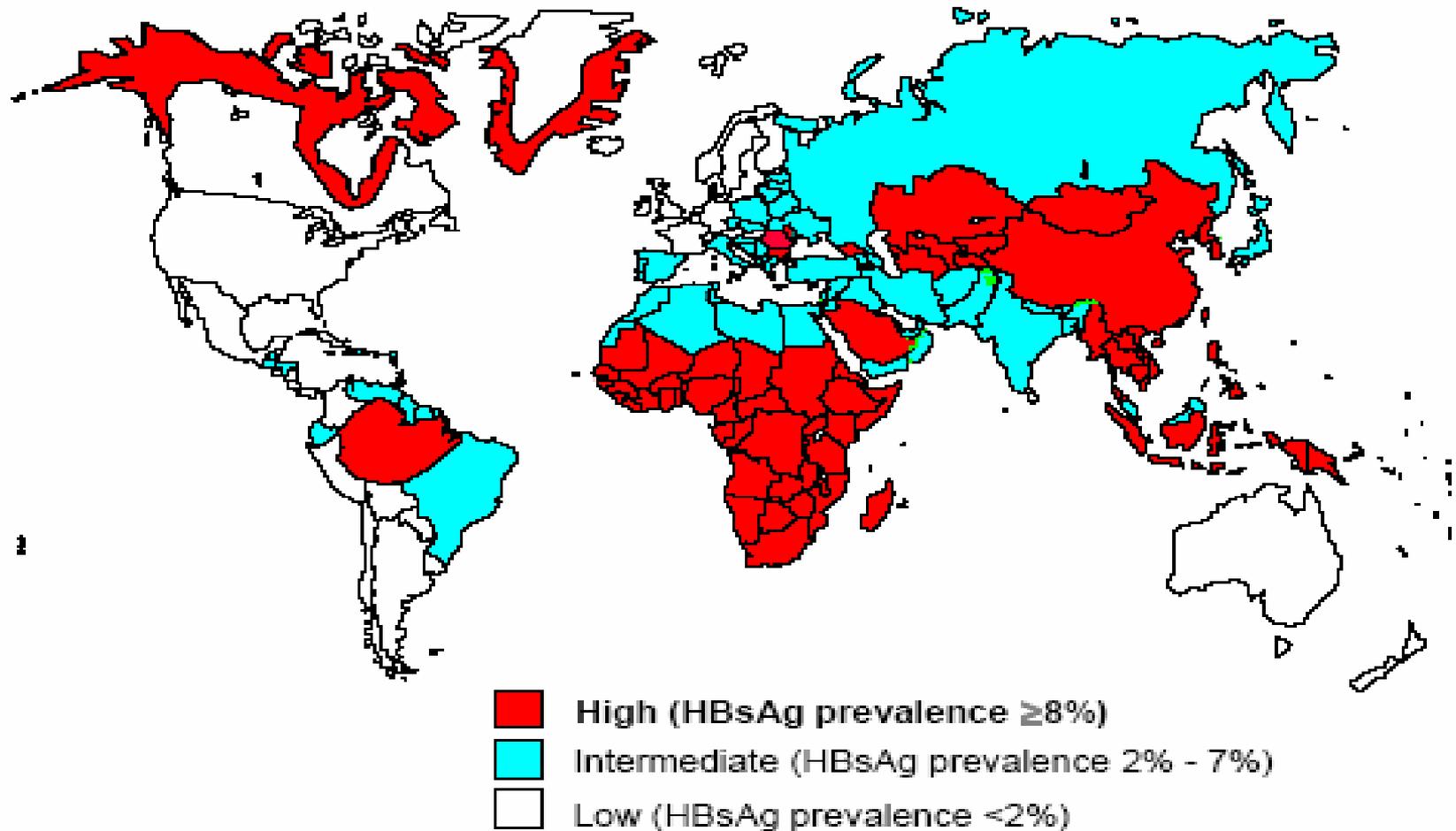
Acute cases

- Reason for testing known for 67% (n=183)
- 74% were symptomatic
- 8% STI screening
- 4% were men who have sex with men

Chronic cases

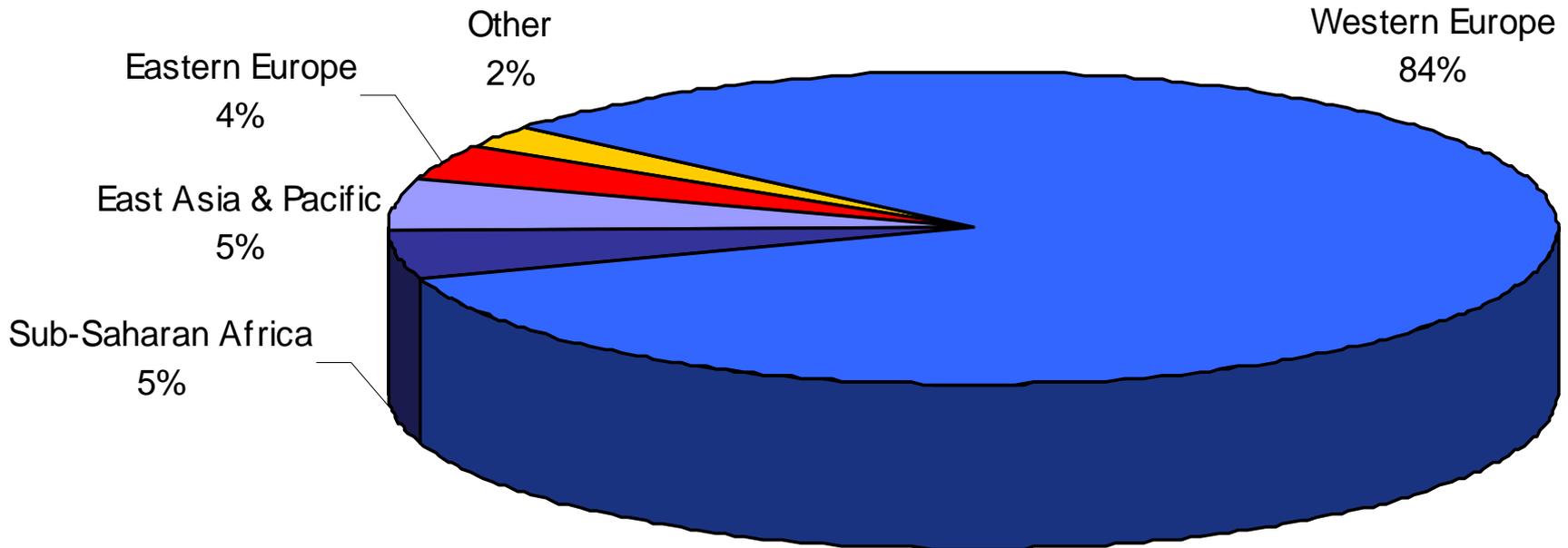
- Reason for testing known for 31% (n=782)
- 43% asylum seeker screening programmes
- 30% antenatal screening programmes
- 4% tested as a result of contact tracing

Global prevalence of hepatitis B surface antigen



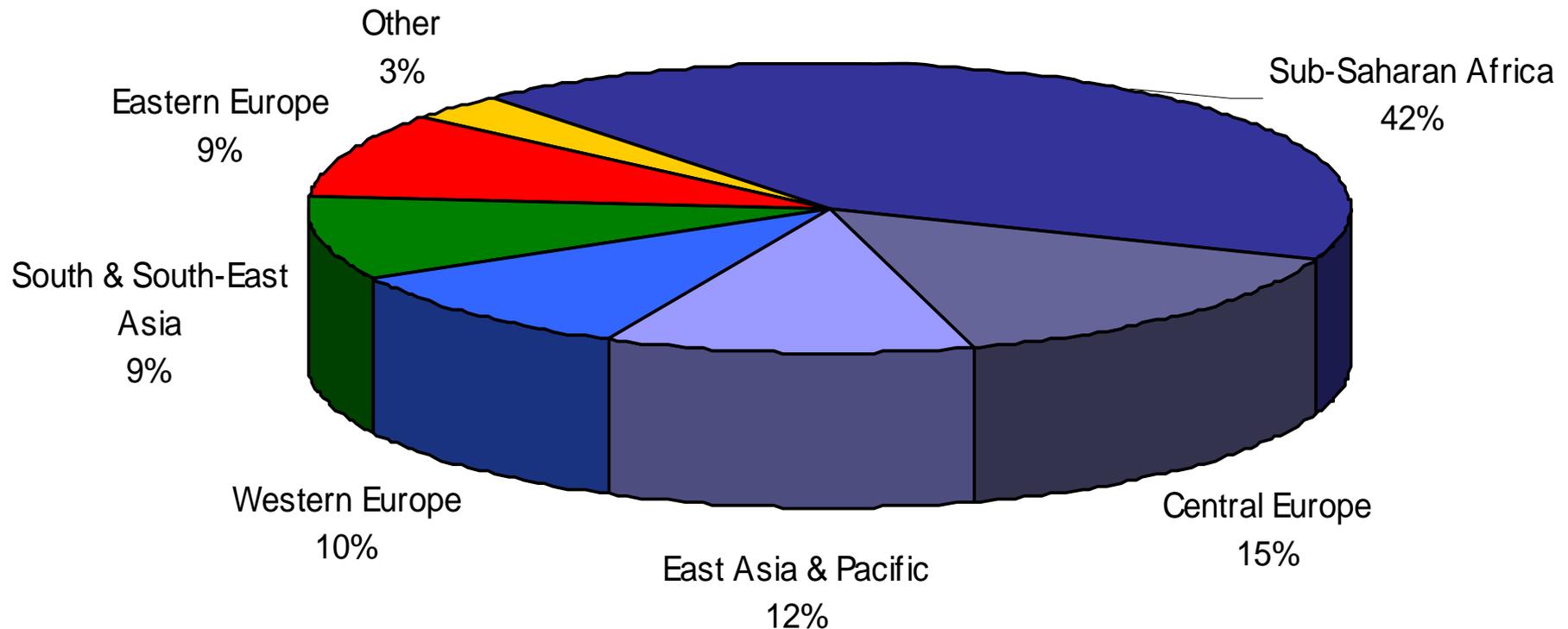
Region of birth for acute cases of hepatitis B, 2004-2007

Region of birth where known (65%) for acute cases, 2004-2007



Region of birth for chronic cases of hepatitis B, 2004-2007

Region of birth where known (24%) for chronic cases, 2004-2007



Irish hepatitis B prevalence data

HBsAg

- IDUs (1992-2005): 1-5%
- Intellectually disabled (1990s): 4-10%
- Antenatal (Rotunda, 1998-2000): 0.35%
- New blood donors 1997-2004 (IBTS): 0.013%
- Asylum seekers, ERHA (1999-2003): 5%

Anti-HBc

- Prisoners (1999): 8.7%
- IDU prisoners (1999): 18.5%
- Homeless in Dublin (1999-2000): 9%
- General pop survey (1999): 0.5%

Hepatitis B Serology in 9 European Countries

(Source: ESEN2)

Country	% Anti-HBc+	%HBsAg+
Ireland	1.7	0.1
Netherlands	1.9	0.1
Belgium	2.2	0.9
Czech Rep	2.9	0.3
Finland	3.2	0.2
Germany	6.0	-
Italy	6.3	0.6
Slovakia	10.6	0.6
Romania	27.9	7.9

Prevalence of hepatitis B surface antigen in EU member states

(Source: WHO)

Countries	HBsAg +ve
Austria, Belgium, Denmark, Finland, Ireland, Luxembourg, Netherlands, Sweden, UK, France, Germany	<1%
Cyprus, Czech Rep, Estonia, Hungary, Slovakia, Latvia, Lithuania, Poland, Portugal, Spain	1-2%
Greece, Italy, Slovenia	3-4%
Bulgaria, Malta, Romania	≥5%

Incidence of hepatitis B surface antigen in EU member states in 2005 *(Source: WHO CISID)*

Countries	Cases/100,000
Cyprus, Denmark, Finland, Italy, Portugal, Slovenia, UK (2004 data)	<1
Ireland, Czech Rep, Germany, Hungary, Lithuania, Luxembourg, Malta, Netherlands, Poland, Slovakia, Spain, Sweden, Greece (2004 data)	1-5
Austria, Belgium, Estonia, Latvia, Romania, France (1998 data)	5-10
Bulgaria	>10

Summary of the epidemiology of hepatitis B in Ireland

- Ireland a low endemicity country, i.e. HBsAg <2%
- Dramatic increase in notifications since 1997 (some explained by increased screening)
 - Many are chronically infected immigrants
- Changing demography – rising immigration from high and intermediate endemicity countries
- Increasing STIs, travel
- Surveillance data improved – lab reporting, acute/chronic status, risk factor information

Economic evaluation

**Cost effectiveness of universal infant
HBV vaccination compared with
selective vaccination of high risk
infants**

Economic evaluation - methods

Markov model

- To estimate expected costs and life expectancies for a cohort of newborn infants under the selective and universal infant vaccination strategies
- Projects lifetime burden of illness caused by HBV infection, and total costs associated with vaccination and HBV disease
- Sensitivity analyses performed for all main parameters

Economic evaluation

Model sensitive to:

- Risk of infection
- Cost of vaccine
- Discount rates

Base case scenario:

- Incidence of acute HBV – 8.4/100,000
- Incremental cost of 6/1 over 5/1 - €36
- Costs and outcomes discounted at annual rate of 3.5%

Economic evaluation - results

Universal infant immunisation - ICER €37,108/LYG

No fixed threshold below which an ICER considered cost effective in Ireland – but this figure comparable to other interventions that have been reimbursed, e.g. statins

UK – NICE: threshold of £30,000/QALY (approx €45,000)

School-based adolescent immunisation would be more costly – administration fee and higher cost of vaccine

ICER – Incremental cost effectiveness ratio

Economic evaluation - conclusion

Universal infant HBV vaccination programme could be considered a cost-effective intervention in Ireland compared with a selective vaccination policy, at the base price of the 6 component vaccine

2008 Recommendations

➤ Universal infant immunisation

Part of a 6 in 1 vaccine

- Diphtheria
- Tetanus
- Pertussis (acellular)
- Polio (inactivated)
- Haemophilus influenzae B
- Hepatitis B

Schedule: 3 doses at 2, 4, 6 months

To be introduced September 2008

➤ Targeted programme to continue

New schedule 2008

Birth

BCG

2 months

6 in 1 + PCV

4 months

6 in 1 + Men C

6 months

6 in 1 +PCV + Men C

12 months

MMR + PCV

13 months

Men C + Hib

Acknowledgements

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