

# **Hepatitis B and Hepatitis A vaccination uptake in the child population of Greece**

**Viral Hepatitis Prevention Board Meeting  
Athens, 15-16 November 2007**

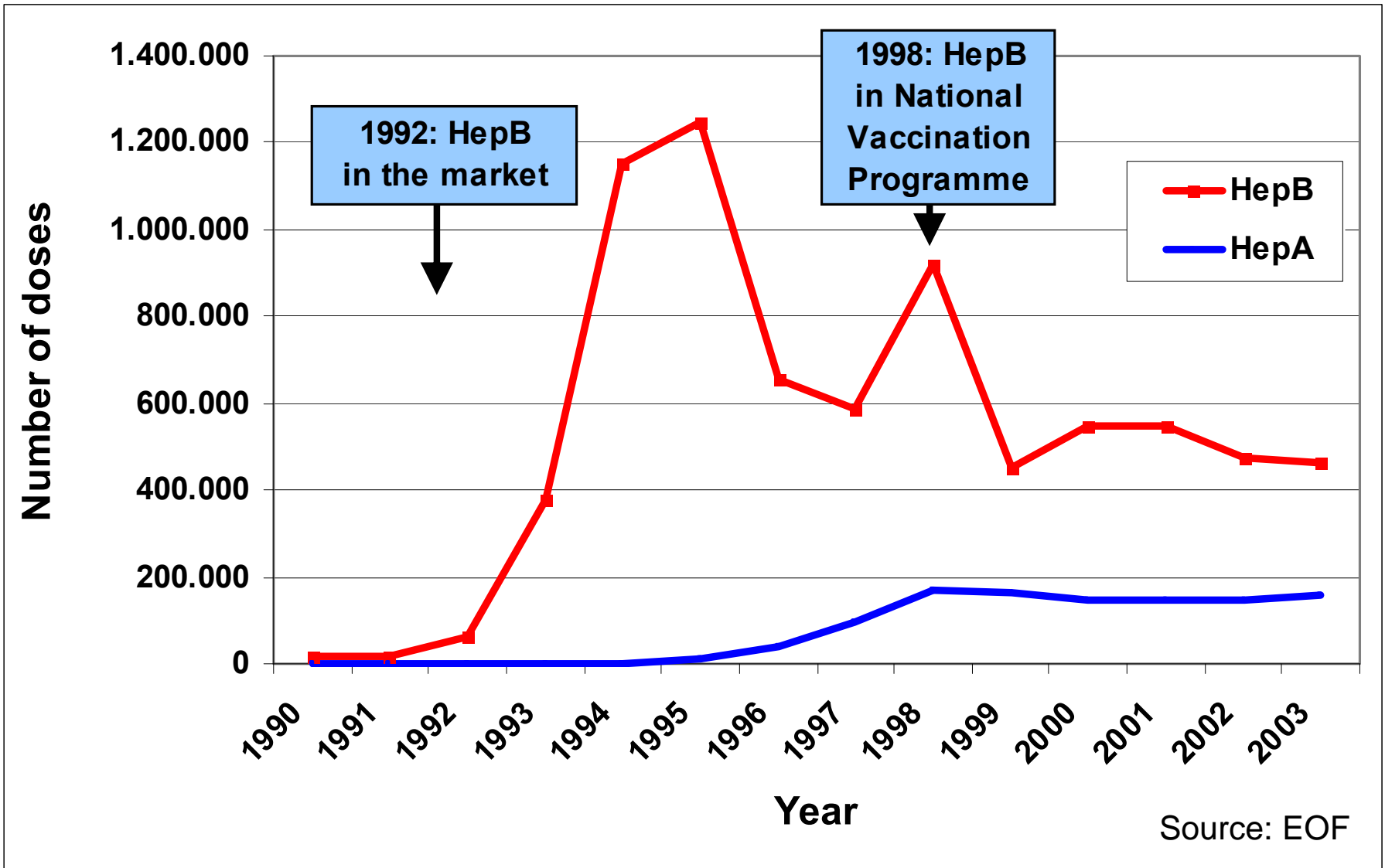
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## The Greek Childhood Vaccination Schedule

	DTaP	Hib <sup>1</sup>	IPV	MMR	HepB <sup>2</sup>	MenC <sup>3</sup>	PCV7 <sup>4</sup>	Var <sup>5</sup>	BCG	dT <sup>6</sup>
2 months	Yes	Yes	Yes		Yes	Yes	Yes			
4 months	Yes	Yes	Yes		Yes	Yes	Yes			
6 months	Yes	Yes					Yes			
6-18 months			Yes		Yes					
12-15 months		Yes		Yes			Yes			
12-18 months								Yes		
15-18 months	Yes					Yes				
4-6 years	Yes		Yes	Yes						
6 years									Yes	
11-18 years										Yes
13-18 years								Yes		
>18 years										Yes

The Greek Childhood Vaccination Schedule as on 10 April 2007

# HepB and HepA doses distributed, Greece, 1990-2003



Source: EOF

# National vaccination coverage survey, 2006

## Objectives

- to assess immunisation coverage by vaccine / dose
  - of **1st grade** children (6-yrs old)
    - at national level
    - at regional level
  - of **9th grade** children (14-yrs old) \*
    - at national level

\* last year of compulsory school

# Sampling design: stratification and cluster sampling

- Stratification by geographical region and type of area (urban/rural)
- Random sample of school classes (“clusters”) within strata
- All students in the selected school classes included

## 1st grade

- Different sampling fraction by region → adequate sample size in each region
- Weighting in analysis for results at national level

## 9th grade

- The same sampling fraction in all regions

# Sample size and sampling fraction

<i>Gepgraphical region</i>	<i>No. of school classes</i>		<i>No. of children</i>		<i>Sampling fraction (school classes)</i>	
	<i>1st grade</i>	<i>9th grade</i>	<i>1st grade</i>	<i>9th grade</i>	<i>1st grade</i>	<i>9th grade</i>
Ipiros - Ionian islands	59	4	611	57	13,49%	1,22%
Kriti - Aegean islands	55	7	605	134	5,44%	1,22%
Macedonia - Thessalia	46	17	639	275	2,19%	1,22%
Attiki	50	17	840	226	3,36%	1,22%
Stereia - Peloponnissos	58	11	608	199	3,78%	1,22%
Thraki	79	2	575	32	15,71%	1,22%
<b>TOTAL</b>	<b>342</b>	<b>58</b>	<b>3.878</b>	<b>923</b>	<b>4,35%</b>	<b>1,22%</b>

# Sampling frame, Response rate

	<i>1st grade</i>	<i>9th grade</i>
• <b>Sampling frame</b> (full list of schools, 2004-05)		
– Schools	5,745	1,943
– School classes	7,562	4,767
• <b>Sample (2005-06)</b>		
– School classes	342	58
– Children	4,390	1,290
• <b>Response</b>		
– No. of children	3,878 / 4,390	923 / 1,290
– Response rate	<b>88.3%</b>	<b>71.6%</b>

ΥΠΟΥΡΓΕΙΟ ΥΓΕΙΑΣ ΚΑΙ ΠΡΟΝΟΙΑΣ

ΒΙΒΛΙΑΡΙΟ  
ΥΓΕΙΑΣ  
ΠΑΙΔΙΟΥ

**Source of data:  
parent held  
“Child Health Booklet”**

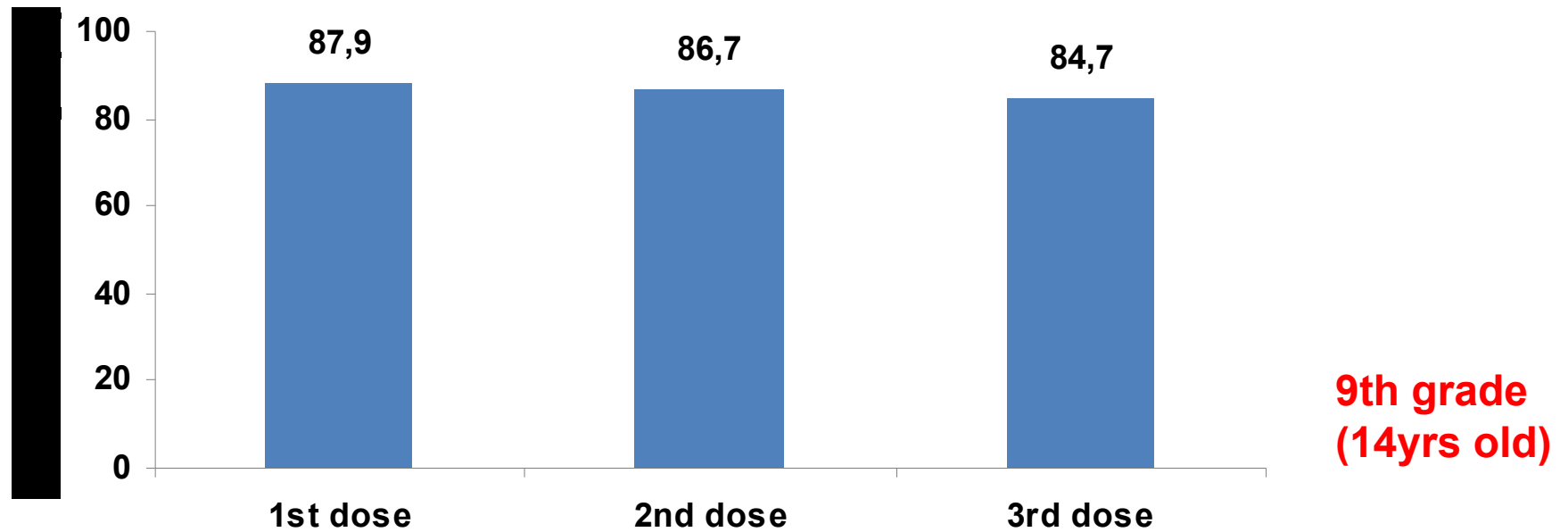
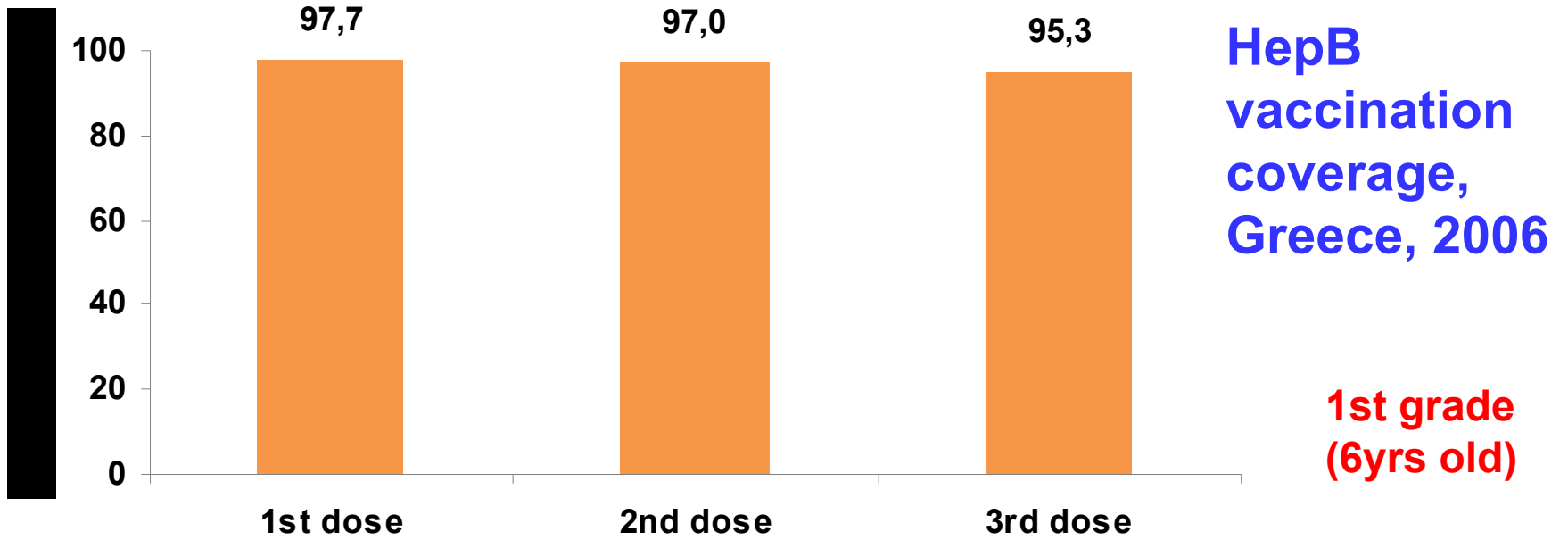
**National vaccination survey, 2001,  
2-3 yrs old children (N=722):  
“Child Health Booklet” kept by  
**99,2%** of parents.**



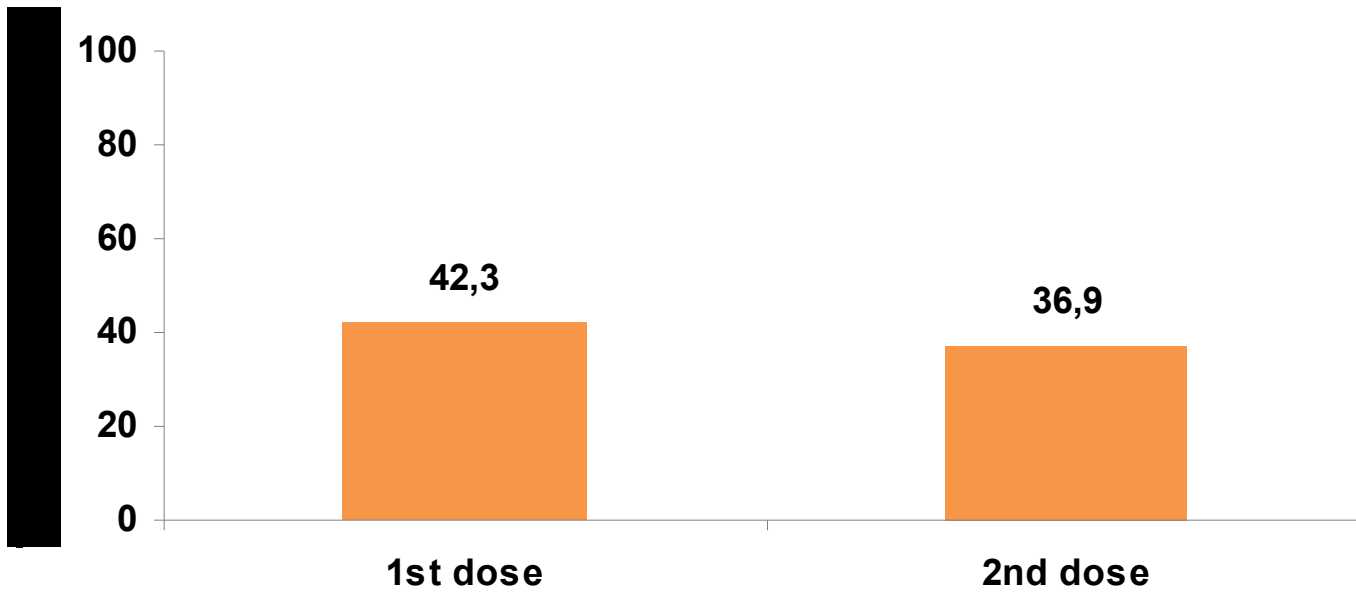
# Main characteristics of sample

	<i>1st grade</i>	<i>9th grade</i>
• Median age	<b>6.7 yrs</b>	<b>14.7 yrs</b>
• Gender		
- Boys	<b>50.4%</b>	<b>51.8%</b>
- Girls	<b>49.6%</b>	<b>48.2%</b>
• Type of area		
- Urban	<b>76.8%</b>	<b>87.1%</b>
- Rural	<b>23.2%</b>	<b>12.9%</b>
• In minority group		
- Immigrant	<b>7.8% (n=303)</b>	<b>10.3%</b>
- Greek Muslim	<b>7.5% (n=290) *</b>	<b>0.3%</b>
- Greek Roma	<b>1.3% (n=52)</b>	<b>0.4%</b>
• Place of birth		
- Greece	<b>94.4%</b>	<b>89.5%</b>
- Other country	<b>5.6% (n=216)</b>	<b>10.5%</b>

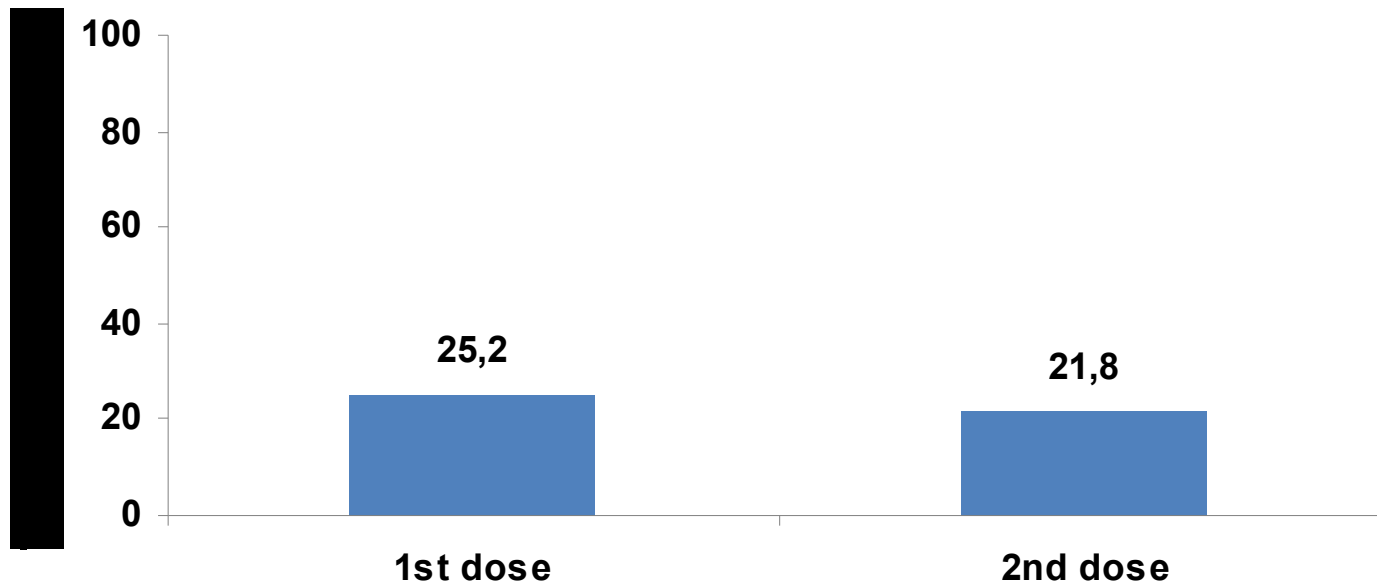
\* Increased sampling fraction in Thraki



# HepA vaccination coverage, Greece, 2006



1st grade  
(6yrs old)



9th grade  
(14yrs old)

# HepB-3 coverage (1st grade) by region

<b>Gepgraphical region</b>	<b>n / N</b>	<b>%</b>	<b>95% CI</b>
Ipiros - Ionian islands	569 / 611	93,1	90,1-95,3
Kriti - Aegean islands	582 / 605	96,2	94,1-97,5
Macedonia - Thessalia	618 / 639	96,9	94,9-98,1
Attiki	805 / 840	95,8	94,0-97,1
Stereia - Peloponnissos	558 / 608	91,7	88,6-94,1
Thraki	544 / 575	94,9	92,4-96,6
<b>TOTAL</b>	<b>3676 / 3878</b>	<b>95,3</b>	<b>94,4- 96,1</b>

# HepB-3 coverage (1st grade) by type of area and minority group

<b>Type of area</b>	<b>n / N</b>	<b>%</b>	<b>95% CI</b>
Urban areas	2834 / 2980	95,3	94,3-96,2
Rural areas	842 / 898	95,2	92,3-97,0
<b>Minority group</b>	<b>n / N</b>	<b>%</b>	<b>95% CI</b>
Non minority	3079 / 3221	96,1	95,3-96,9
Immigrant	276 / 303	91,0	86,7-94,0
Greek Muslim	276 / 290	95,8	92,0-97,8
Greek Roma	33 / 52	58,6	38,8-75,9
<b>TOTAL</b>	<b>3676 / 3878</b>	<b>95,3</b>	<b>94,4- 96,1</b>

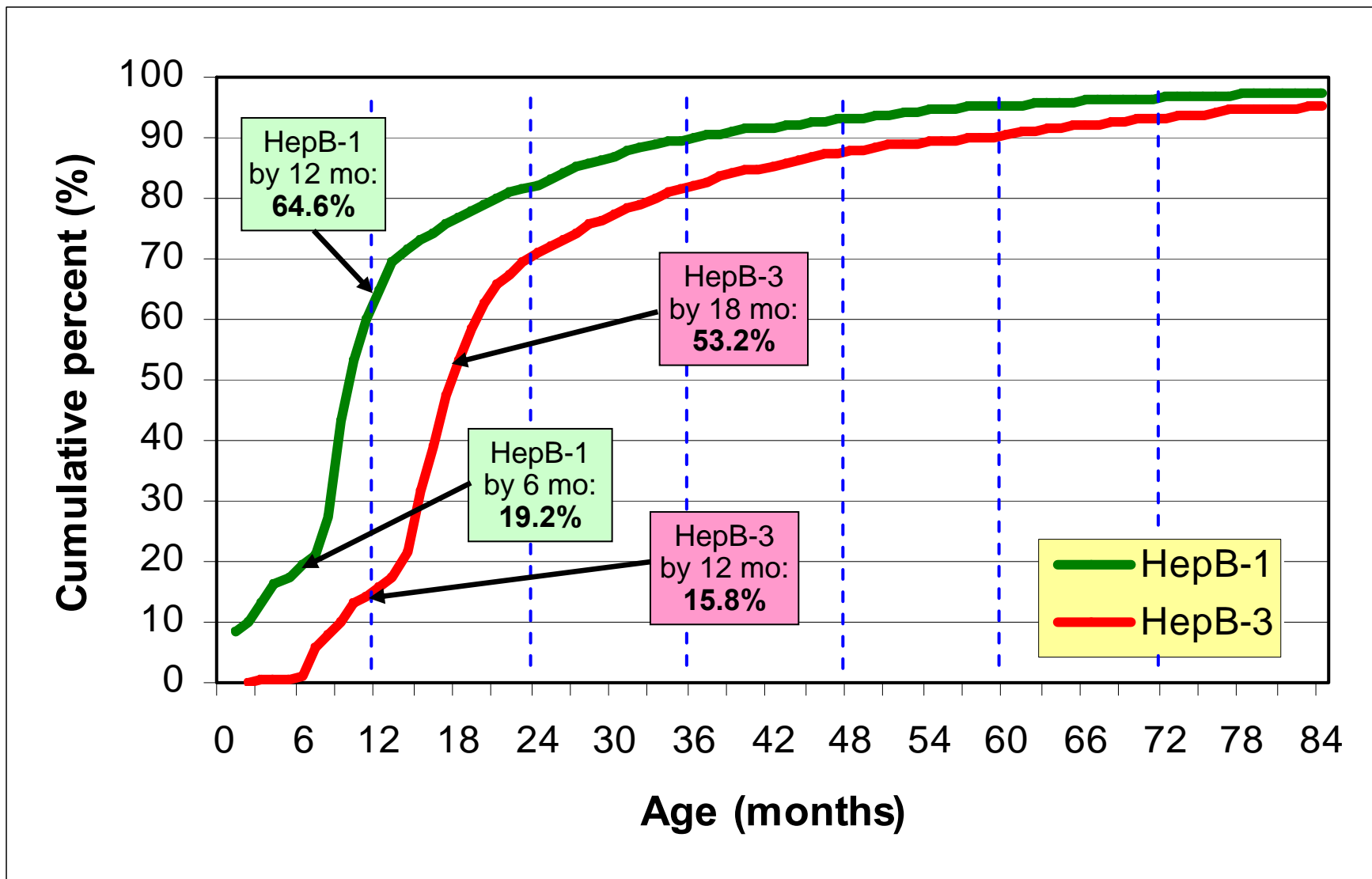
# HepA-2 (1st grade) coverage by region

<b>Gepgraphical region</b>	<b>n / N</b>	<b>%</b>	<b>95% CI</b>
Ipiros - Ionian islands	119 / 611	19,4	14,0-26,3
Kriti - Aegean islands	196 / 605	32,4	25,6- 40,0
Macedonia - Thessalia	243 / 639	37,0	30,8-43,6
Attiki	415 / 840	49,4	45,3-53,5
Stereia - Peloponnissos	191 / 608	31,2	24,6-38,6
Thraki	69 / 575	12,4	9,5-16,0
<b>TOTAL</b>	<b>1233 / 3878</b>	<b>36,9</b>	<b>34,1- 39,8</b>

# HepA-2 coverage (1st grade) by type of area and minority group

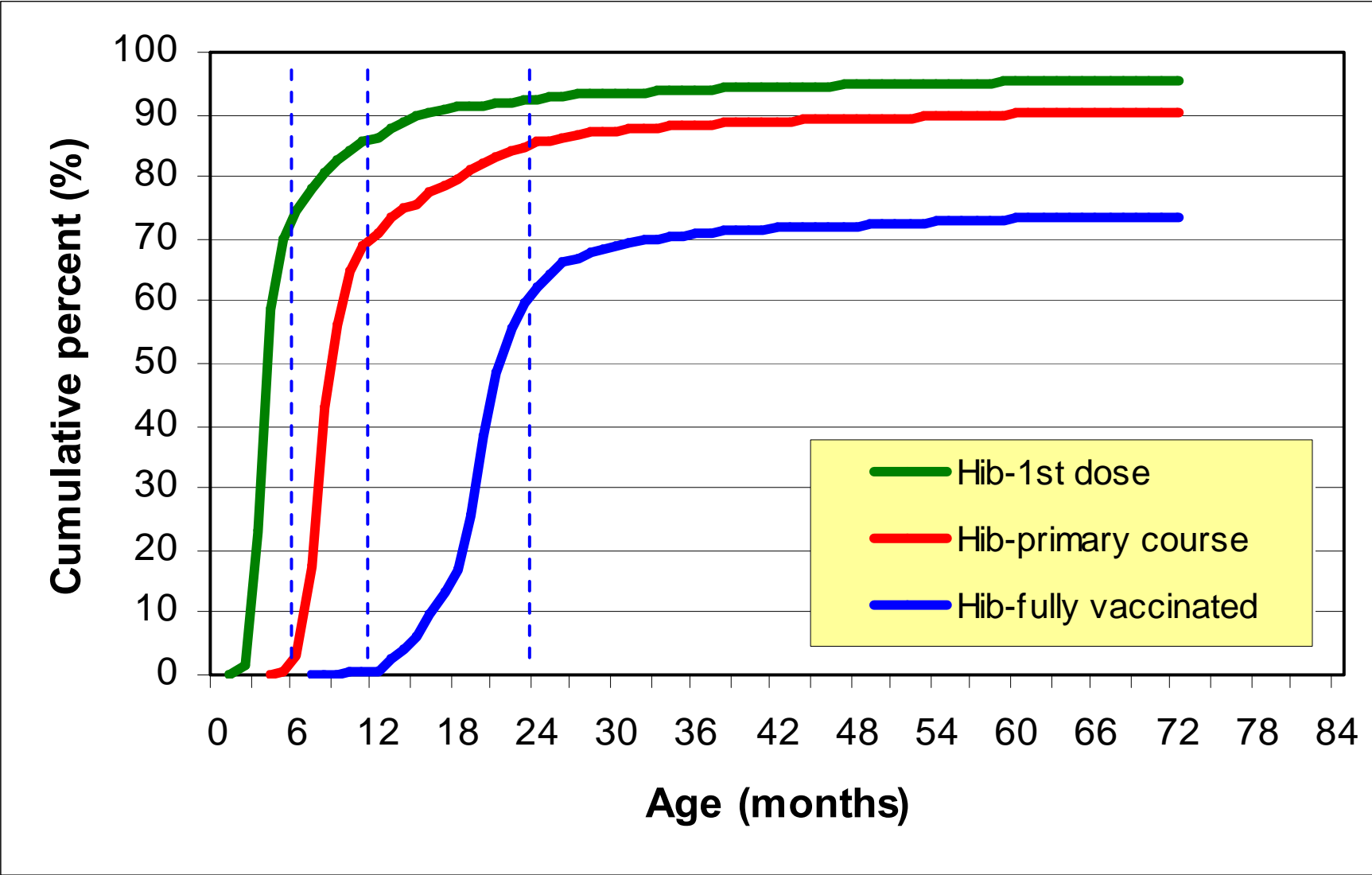
<b>Type of area</b>	<b>n / N</b>	<b>%</b>	<b>95% CI</b>
Urban areas	1040 / 2980	39,8	36,5-43,2
Rural areas	193 / 898	24,6	20,1-29,8
<b>Minority group</b>	<b>n / N</b>	<b>%</b>	<b>95% CI</b>
Non minority	1156 / 3221	40,0	37,0-43,1
Immigrant	43 / 303	14,7	10,1-20,9
Greek Muslim	29 / 290	10,8	6,9-16,5
Greek Roma	0 / 52	0	-
<b>TOTAL</b>	<b>1233 / 3878</b>	<b>36,9</b>	<b>34,1- 39,8</b>

# HepB uptake by age (1st grade)

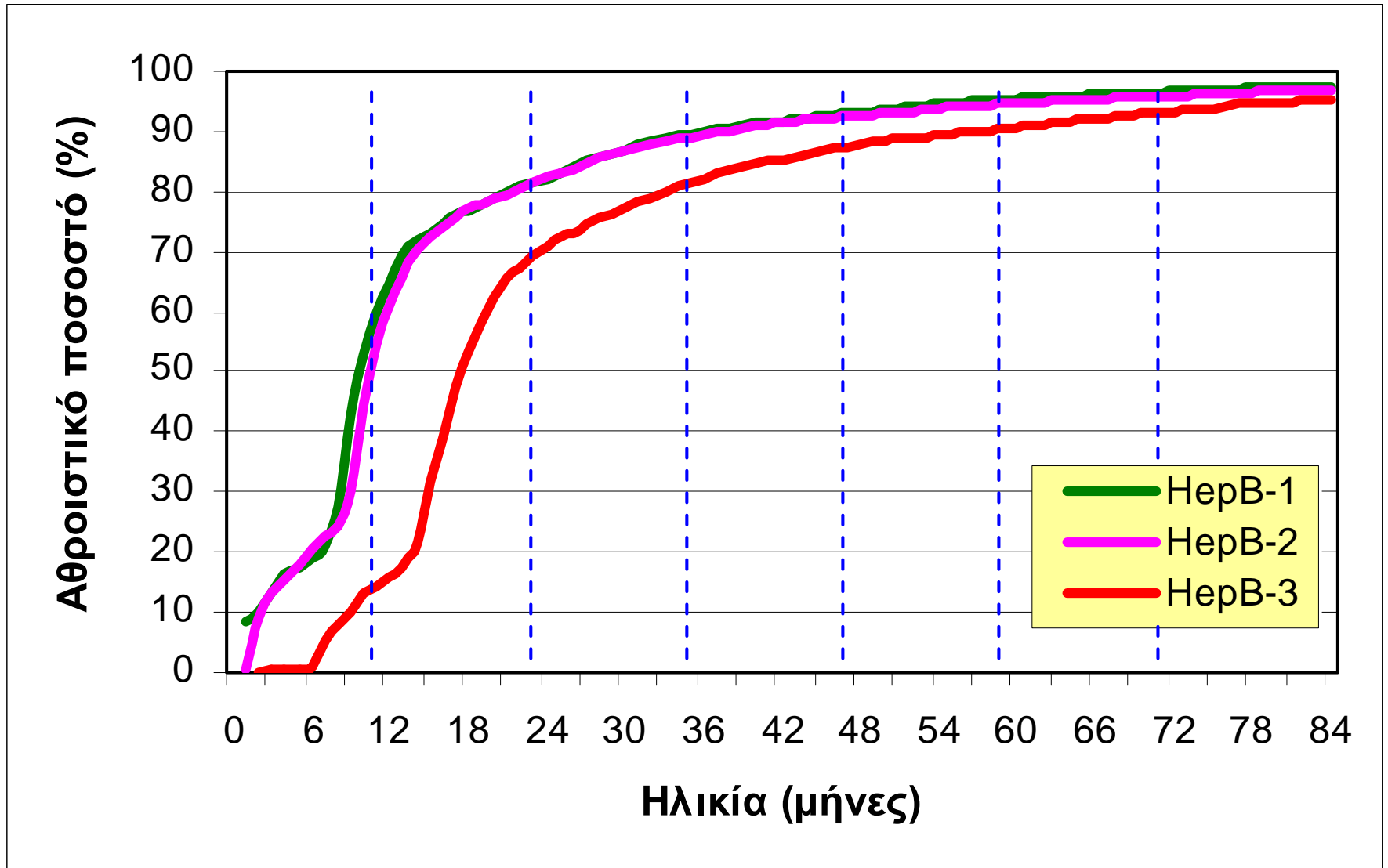




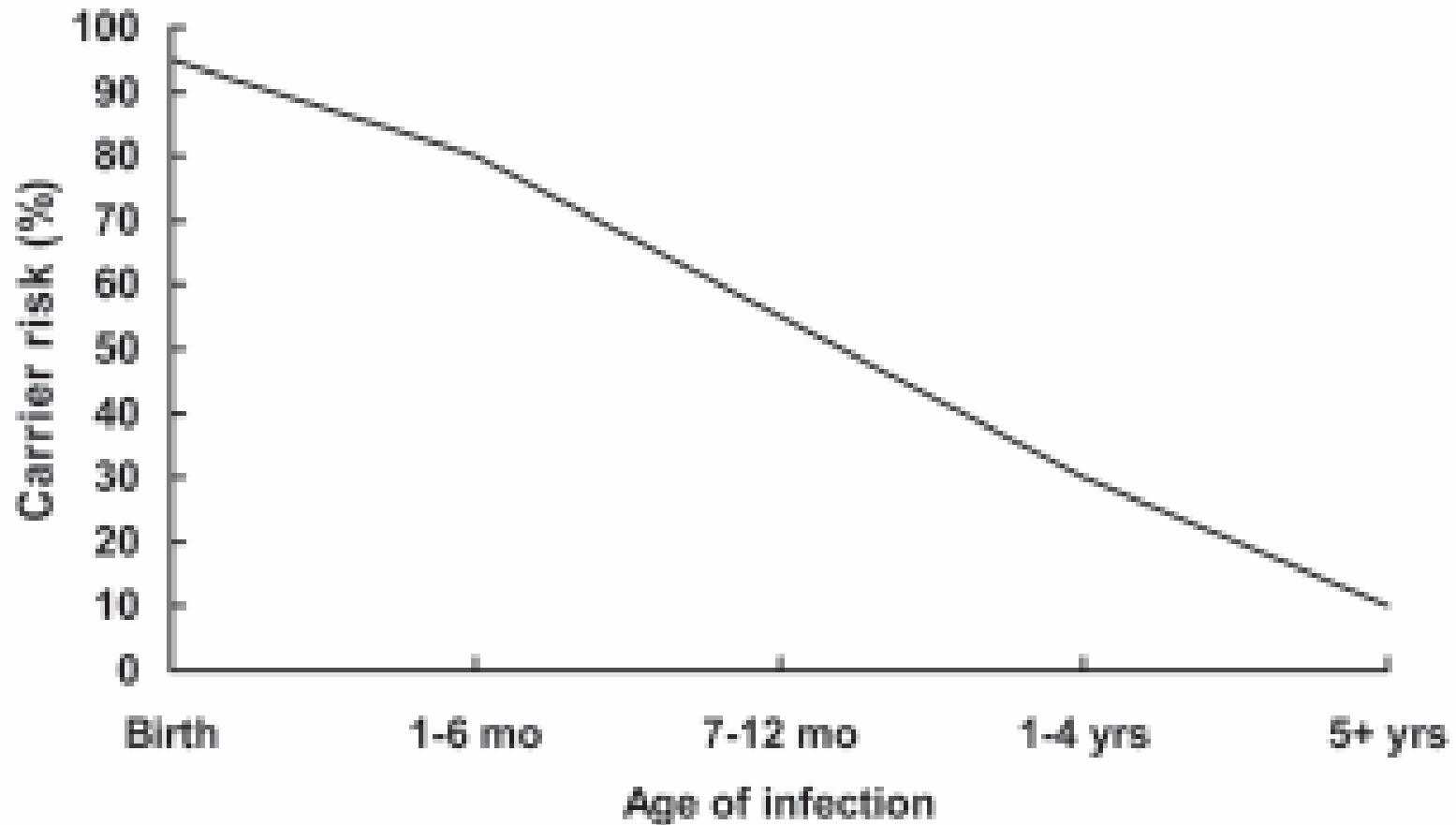
# Hib uptake by age (1st grade)



# HepB uptake by age (1st grade)

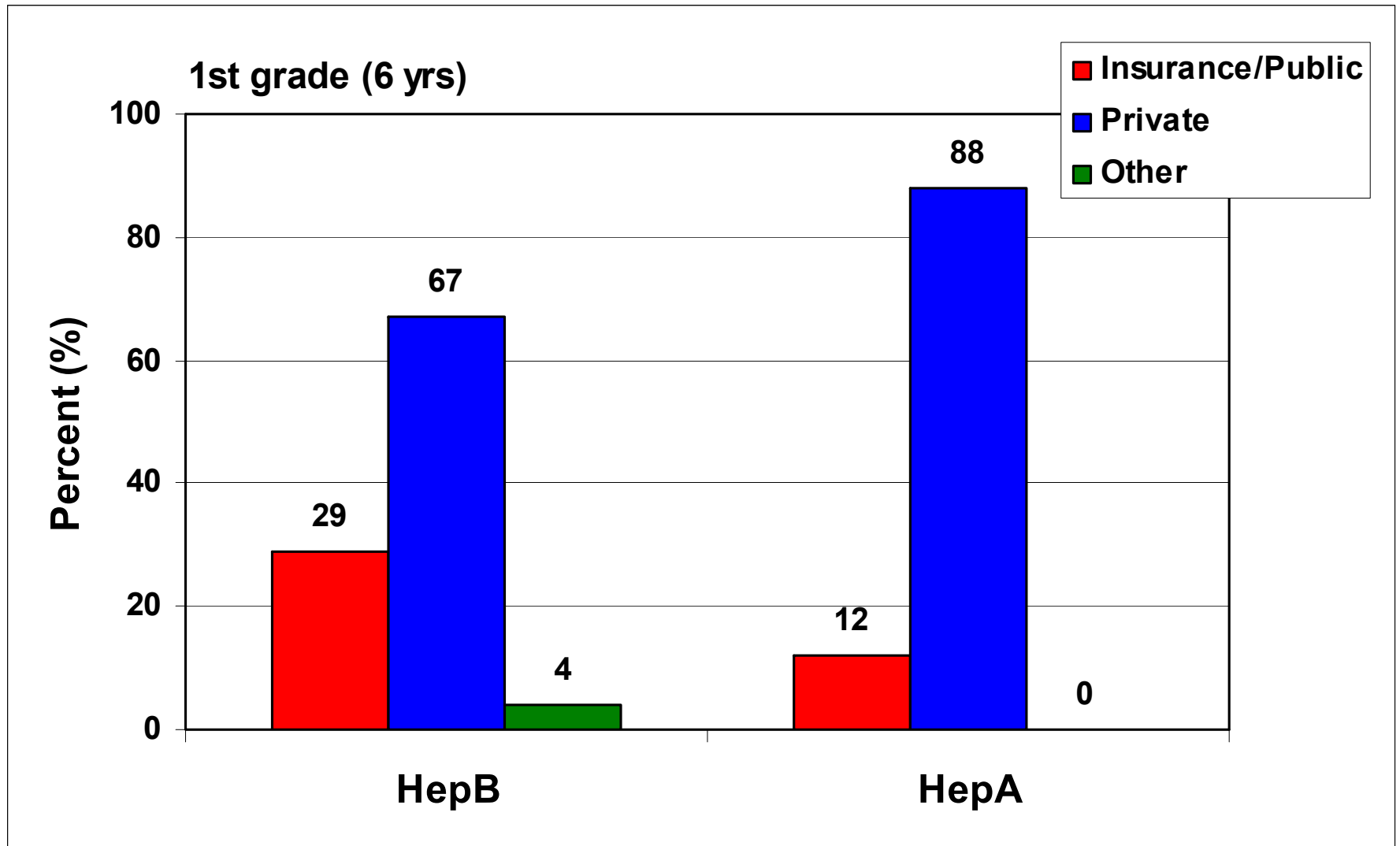


# Risk of Chronic HBV Carriage by Age of Infection



Source: CDC, 2007

# Type of service where vaccination was carried out



# Conclusions

- **HepB**
  - High vaccination coverage in young school-children
  - Less in adolescents
  - Good coverage of immigrant and Greek Mouslim children
  - Poor coverage of Greek Roma children
  - Delay in starting vaccination / completing primary course
- **HepA**
  - Not in National Vaccination Programme
  - Large differences in coverage between social groups: high risk groups vaccinated less
- **Vaccination largely carried out in private sector**
- **Need to comprehend rationale of vaccination/scheme**