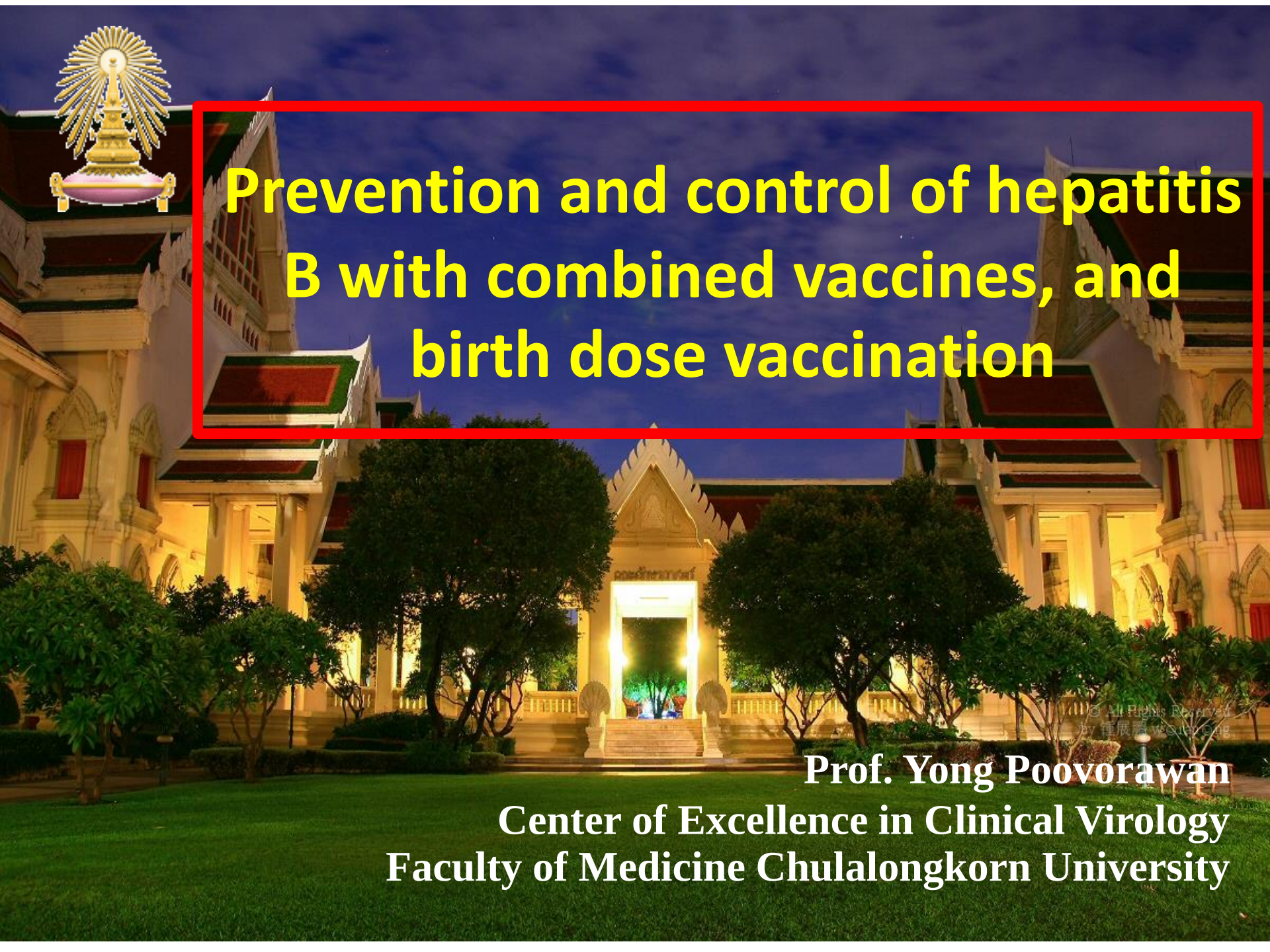
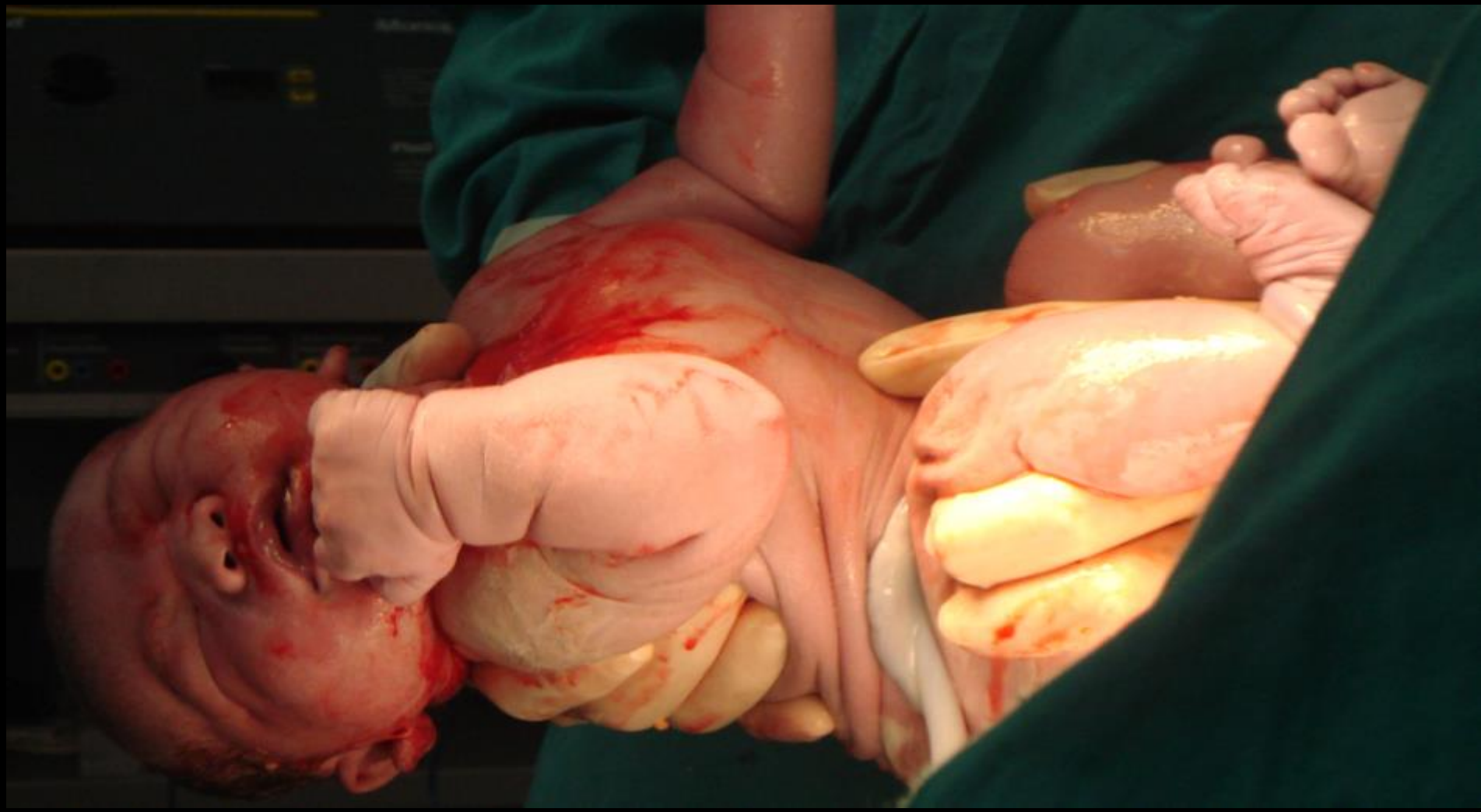


Prevention and control of hepatitis B with combined vaccines, and birth dose vaccination

Prof. Yong Poovorawan
Center of Excellence in Clinical Virology
Faculty of Medicine Chulalongkorn University

The mode of transmission of HBV in SE is perinatal transmission



Therefore, immature of immunity in children are not effect to protective from HBV infection

In 1992, WHO

has recommended HB vaccine in immunization programs to infants for all countries by the year 1997.

In the year 1986
We started pregnant women screening

Neonates born from HBV carrier mothers were immunized with HB vaccine

Protective efficacy of hepatitis B vaccine without immunoglobulin in high-risk neonates

NCBI Resources How To

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Display Settings: Abstract

JAMA. 1989 Jun 9;261(22):3278-81.

Protective efficacy of a recombinant DNA hepatitis B vaccine in neonates of HBe antigen-positive mothers.

Poovorawan Y, Sanpavat S, Pongpunlert W, Chumdermpadetsuk S, Sentrakul P, Safary A.

Department of Pediatrics, Faculty of Medicine, Chulalongkorn University and Hospital, Bangkok, Thailand.

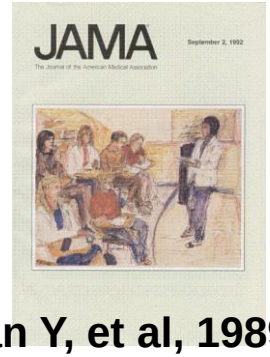
Abstract

We have assessed the protective efficacy of a recombinant DNA hepatitis B vaccine alone in infants of women who were positive for the surface antigen a additional doses 1, 2, and 12 months later. No significant adverse reactions to vaccination were observed and the vaccine was highly immunogenic. Only evidenced by the persistent presence of hepatitis B surface antigen in serum samples. Without immunoprophylaxis, 65% to 90% of such infants would be hepatitis B immunoglobulin, therefore, considerably decreased the incidence of the carrier state.

PMID: 2523981 [PubMed - indexed for MEDLINE]

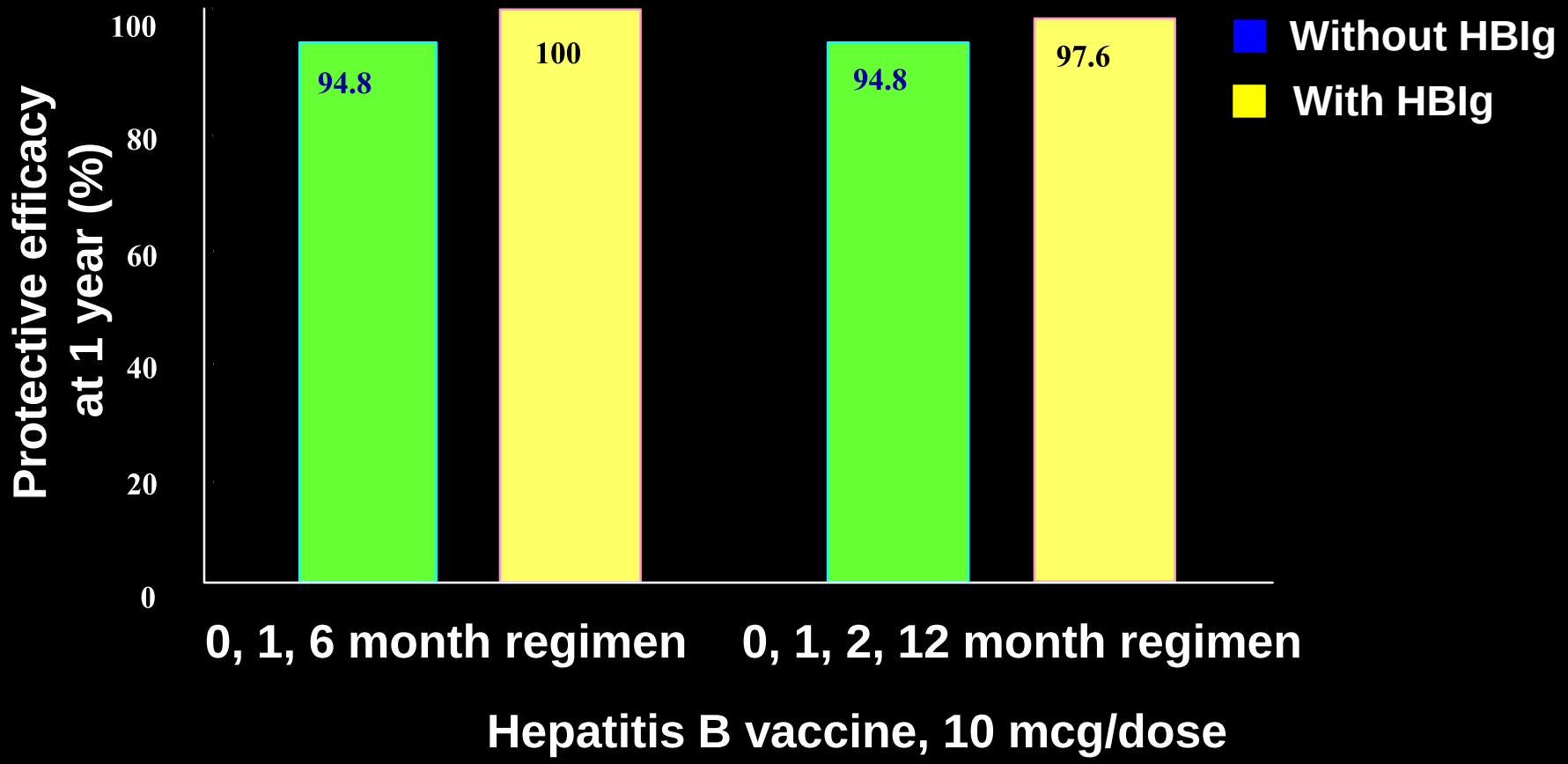
MeSH Terms, Substances

LinkOut - more resources



Poovorawan Y, et al, 1989

High Protective Efficacy in Neonates with or without HBIg



Poovorawan, Y et al. Pediatr Infect Dis J. 1992; 11:816-21

Hepatitis B immunization programe in Thailand

August 1988 : Demonstrate methods of incorporating HB vaccine into EPI program

Program sites : 2 provinces

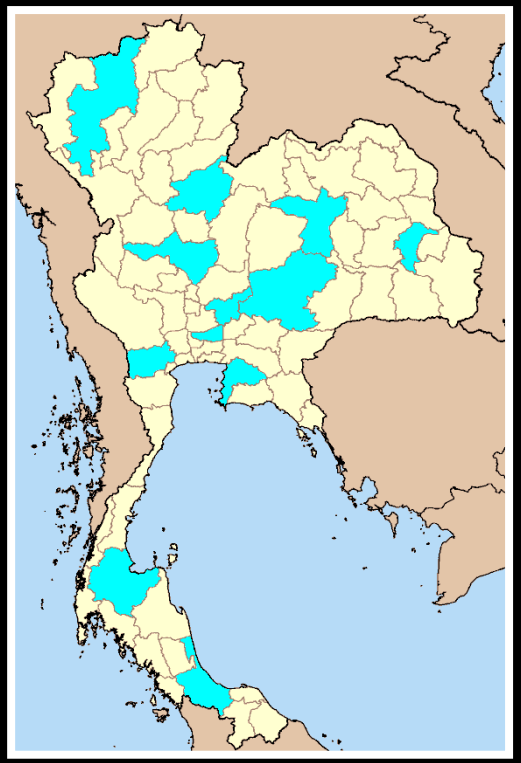
- **Chiengmai**
- **Chonburi**

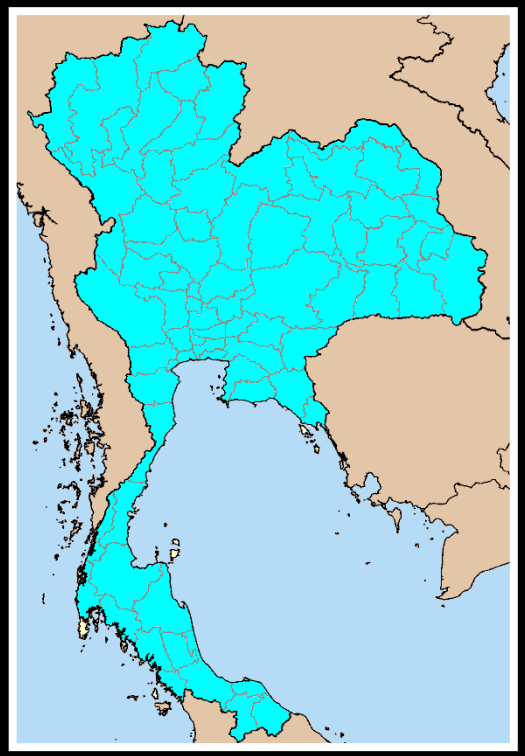
Thailand EPI

- At birth — **HB1**, BCG
- 2 months — OPV1, DPT1, **HB2**
- 4 months — OPV2, DPT2
- 6 months — OPV3, DPT3, **HB3**
- 9-12 months — Measles or MMR
- 18 Months — OPV4, DPT4,
  JE1 & 2
  (2 weeks apart, booster 1 yr after)
- 4-6 years — OPV5, DPT5, Measles

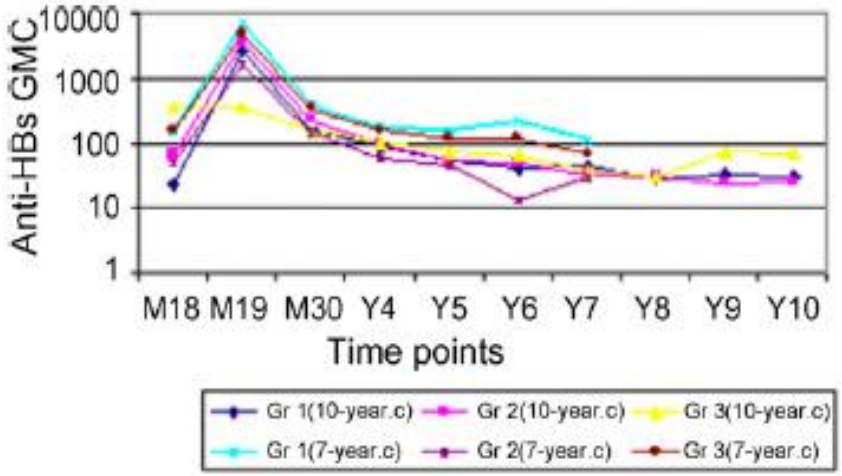
Universal HB vaccination in Thailand

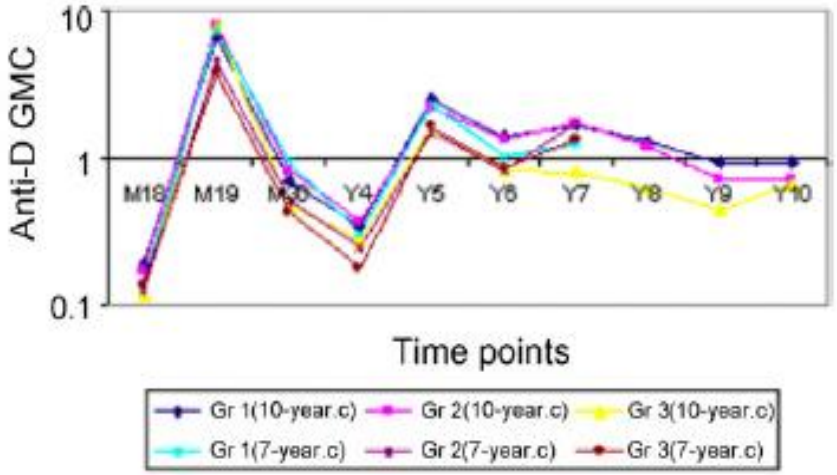
- 1988 implemented in 2 provinces
- 1990 included in 10 more provinces
- 1992 all newborns

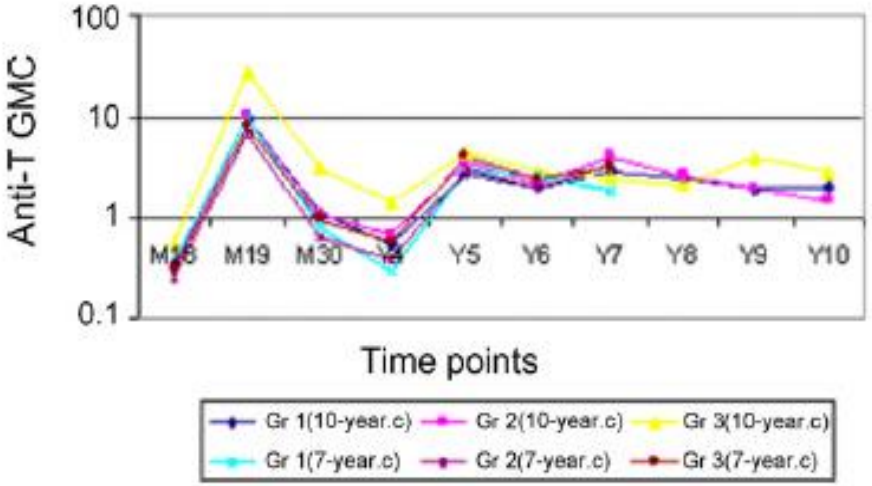


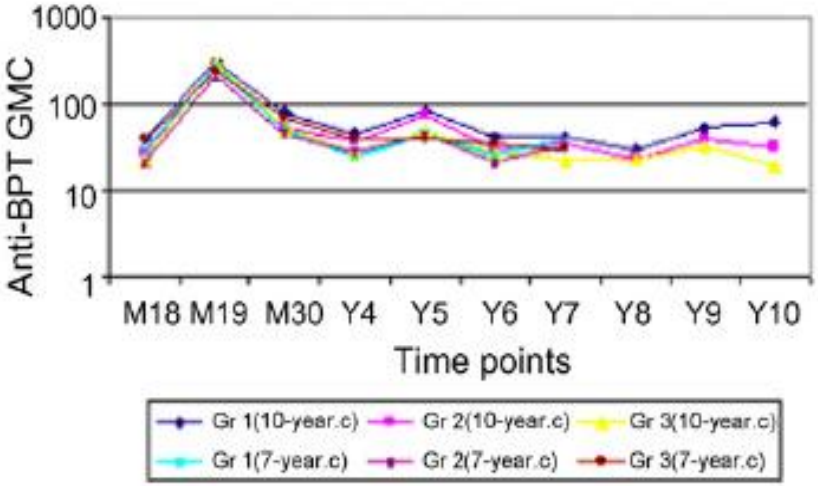


Long term study of DTP-HB in Thai children









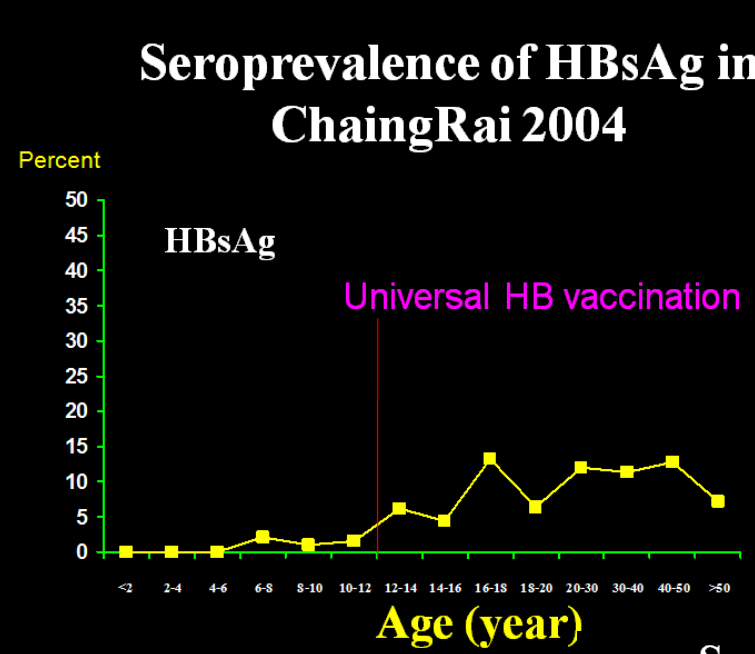
Poovorawan Y, et al. Vaccine. 2008 Mar 17;26(12):1535-40.

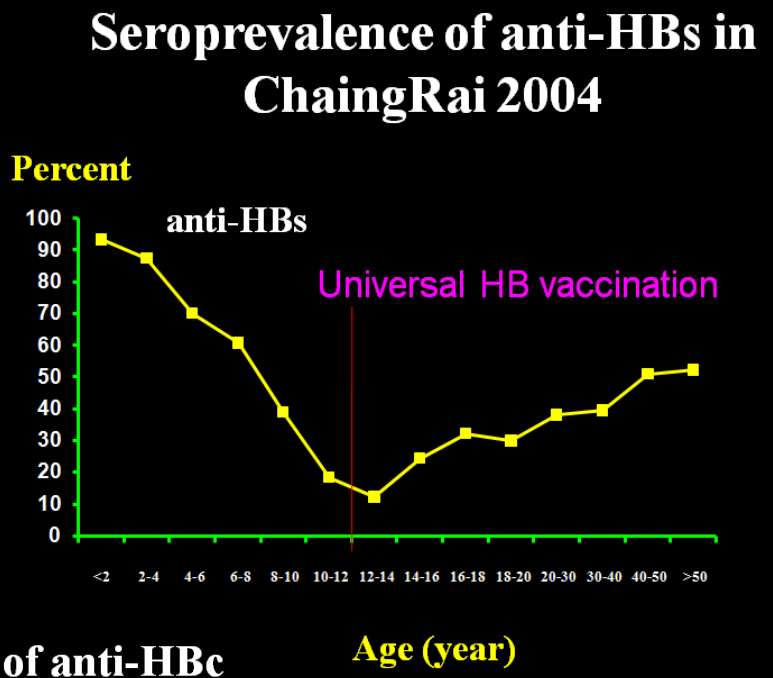
Combine HBV-DTP vaccine was started in 1994

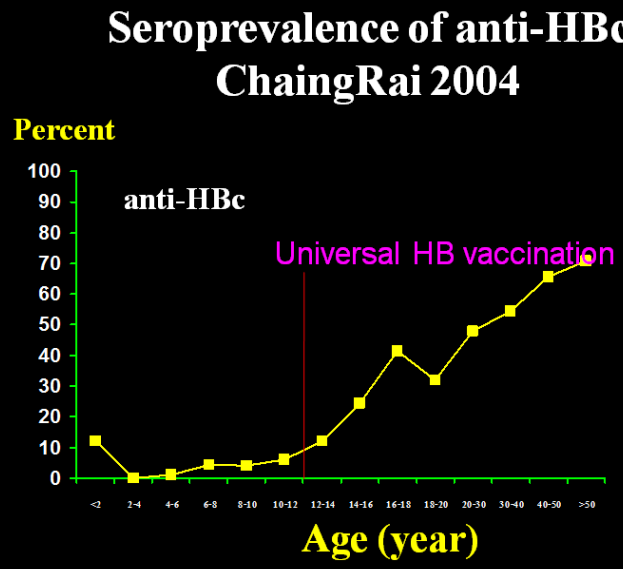
The schedule for HB vaccine

Birth	BCG HB vac
2 mos	OPV, DTPw-**HB**
4 mos	OPV, DTPw-**HB**
6 mos	OPV, DTPw-**HB**
9-12 mos	MMR1
18 mos	OPV, DTPw (JE vac 0, 1, 6-12)
4-6 yrs	OPV, DTPw, MMR2

Sero survey of HBV markers in ChaingRai province, 2004







Chongsrisawat V et al. 2006

Effect of dose number and interval between the first two doses of hepatitis B vaccine on the carrier rate of infants born to hepatitis B surface antigen positive mothers

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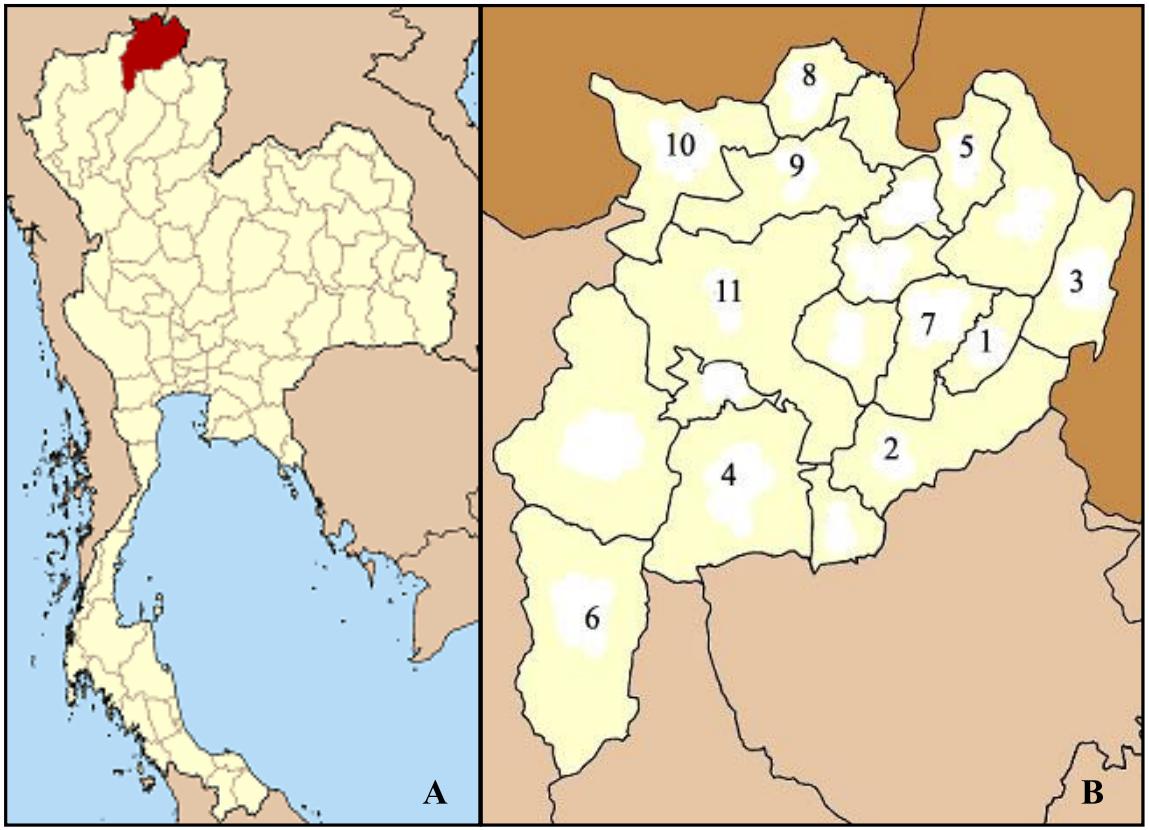


(A) Location of Chiangrai, the northern most province of Thailand
(B) 11 district hospitals participating in this study
The number in B stands for 1 - Khun Tan; 2 – Thoeng; 3 - Wiang Kaen; 4 - Phan;
5 - Chiang Saen; 6 - Wiang Pa Pao; 7 - Phaya Mengrai; 8 - Mae Sai; 9 - Mae Chan;
10 - Mae Fa Luang and 11 - Mueang Chiangrai districts.

Tharmaphornpilas P , Rasdjarmrearnsook A, Plianpanich S , Sa-nguanmoo P, Chongsrisawat V , Poovorawan Y

Recommended HB vaccination schedule for newborns of HBsAg positive and negative mothers, Chiangrai, 2004 - 2006

Group	Age					
	Birth	1 month	6 weeks	2 months	4 months	6 months
Children born from HBsAg negative mother	HB			DTPw-HB	DTPw - HB	DTPw - HB
Children born from HBsAg positive mother						
- Group 1	HB	HB		DTPw-HB	DTPw - HB	DTPw - HB
- Group 2	HB		DTPw- HB		DTPw - HB	DTPw - HB

Tharmaphornpilas P , Rasdjarmrearnsook A, Plianpanich S , Sa-nguanmoo P, Chongsrisawat V , Poovorawan Y

HBV carrier rate by HB1-2 interval in the study

Interval	Total children	No of HB carrier	HB carrier rate (%) and 95%CI
Group 1	277	4	1.44 , 0.46 - 3.91
Group 2	240	11	4.58, 2.43 - 8.28
By HB1-2 interval			
• Less than 6 weeks	21	1	4.76, 0.25-25.87
• 6 – 7 weeks	30	1	3.33, 0.17-19.05
• 8 – 9 weeks	89	2	2.25, 0.39-8.65
• 10 weeks above	100	7	7.00, 3.1-14.38

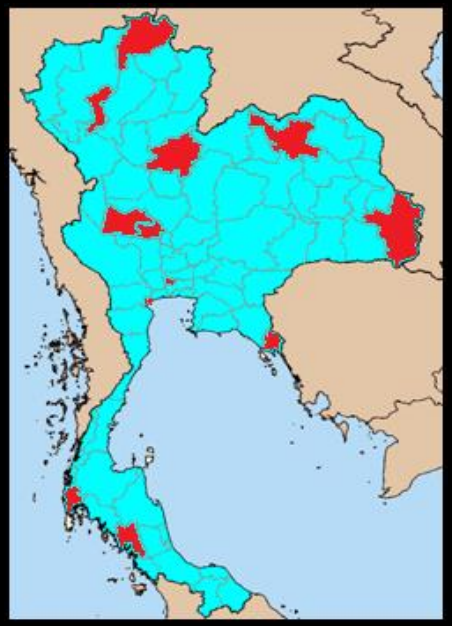
Tharmaphornpilas P , Rasdjarmrearnsook A, Plianpanich S , Sa-nguanmoo P, Chongsrisawat V , Poovorawan Y

Thailand EPI
since 2009

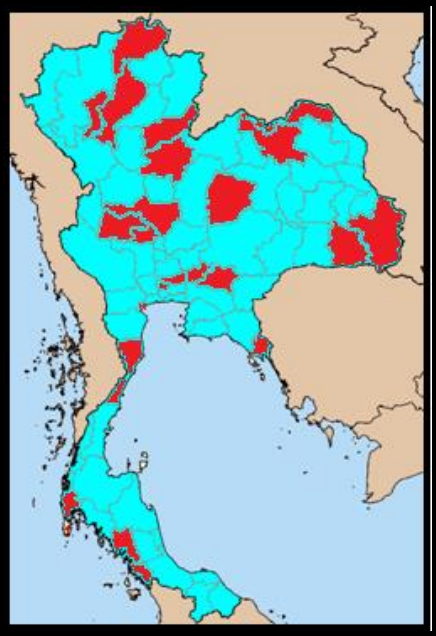
Birth	**BCG HB vac**
1 mo	(HBsAg+ve mother) **HB vac**
2 mos	OPV, DTPw-**HB**
4 mos	OPV, DTPw-**HB**
6 mos	OPV, DTPw-**HB**
9-12 mos	MMR1
18 mos	OPV, DTPw (JE vac 0, 1, 6-12)
4-6 yrs	OPV, DTPw, MMR2

1994-1998

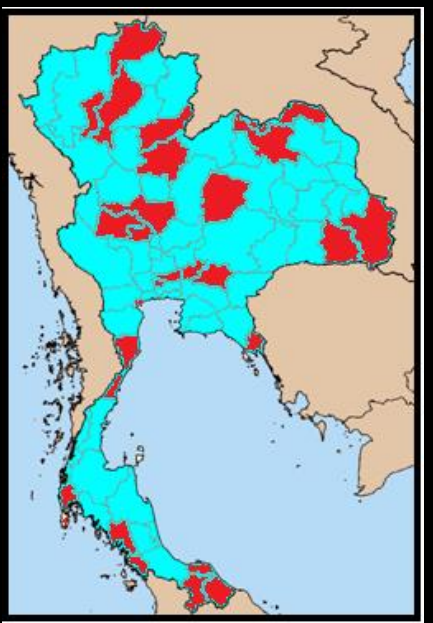
2005



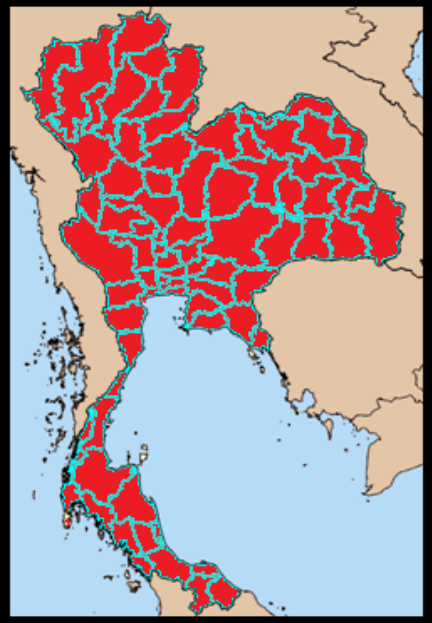
2006



2007



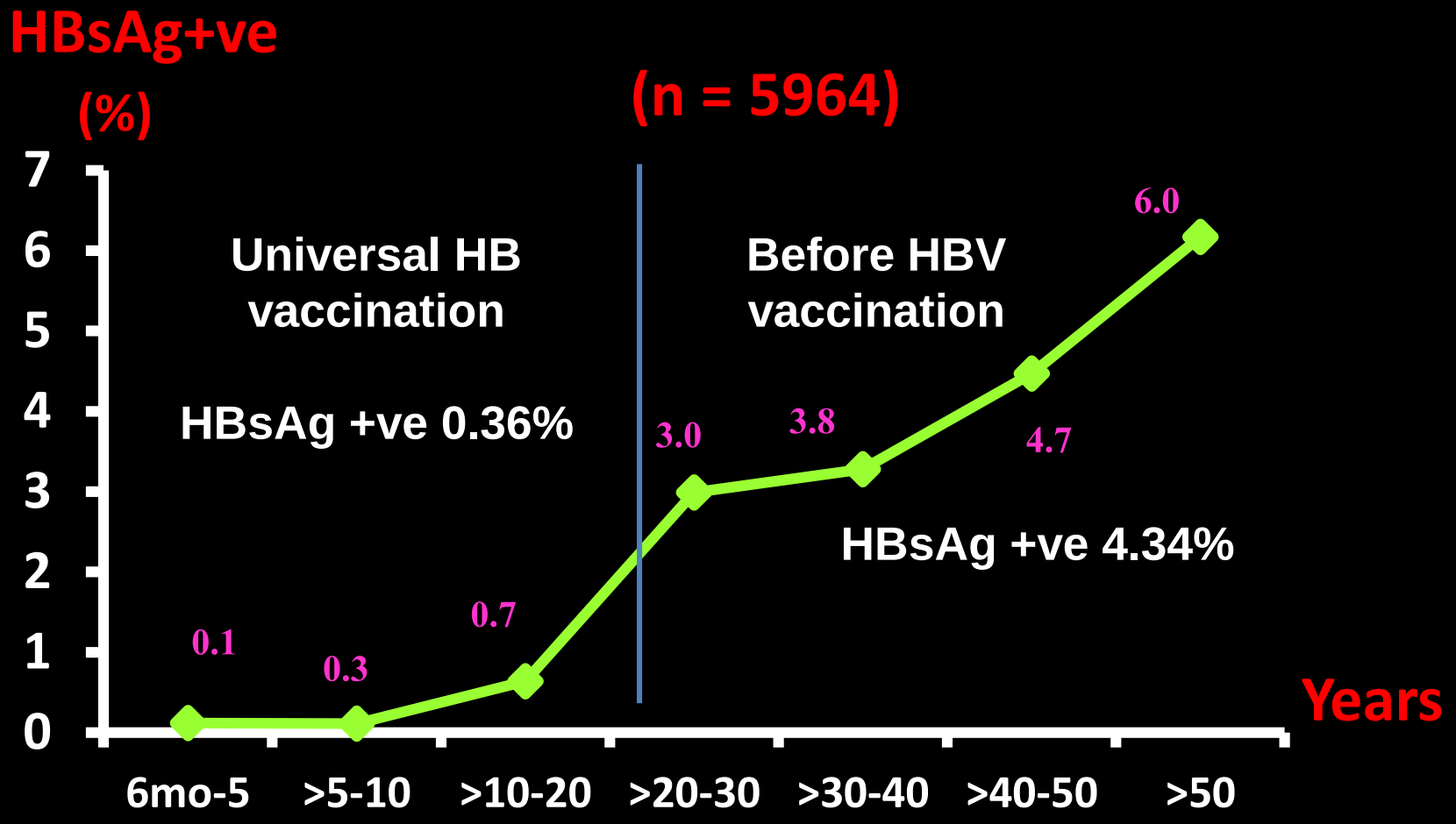
2008



Combine DTPw-HB vaccine into Thailand EPI program

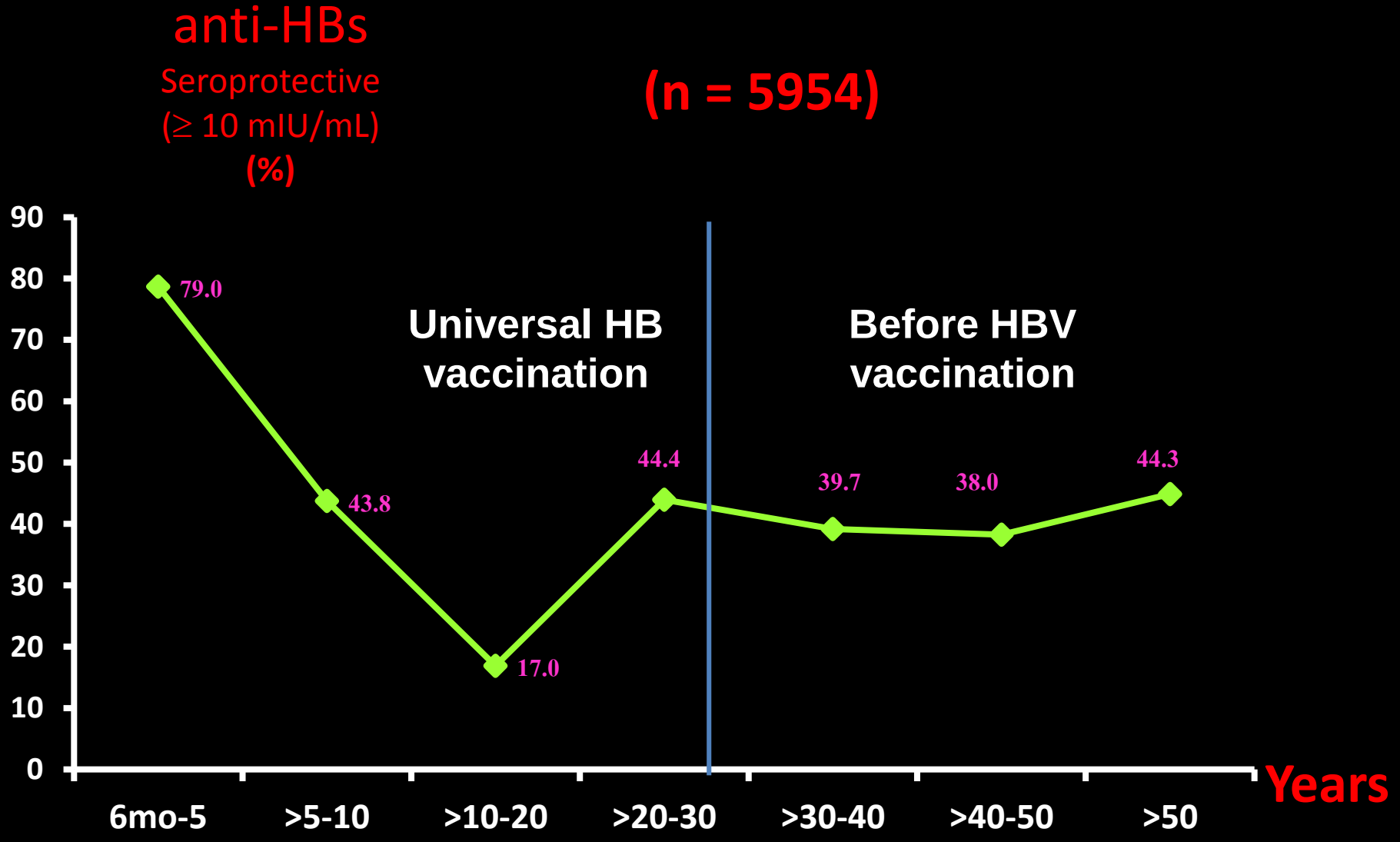
Study of the Impact of universal HB immunization as part of EPI program (2014)

Impact of universal HB vaccination in Thailand since 1992



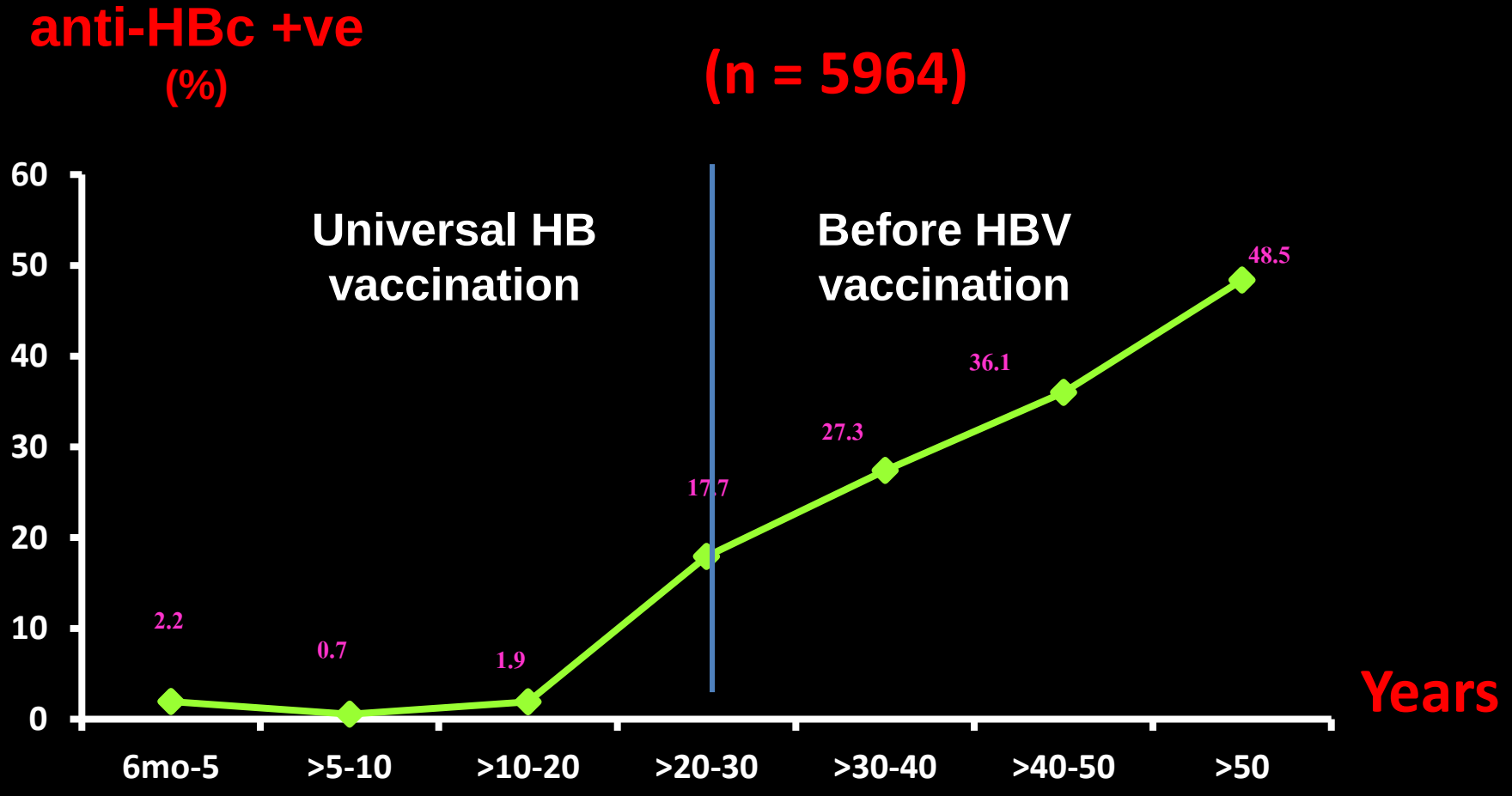
Poovorawan et al. 2014

Impact of universal HB vaccination in Thailand since 1992



Poovorawan et al. 2014

Impact of universal HB vaccination in Thailand since 1992



Poovorawan et al. 2014

Conclusion

By the year 2030

We hope that HBV will be eliminated by universal HB vaccine into newborn and effective HBV therapy

Acknowledgement