



Hepatitis B birth dose vaccination: coverage and barriers to timely vaccination in the Mekong River delta, Vietnam

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Background: existing research collaboration with NIHE, Hanoi, Viet Nam





Extension of the scientific collaboration with Can Tho University of Medicine and Pharmacy

(South Initiative, inter-university collaboration)



HEPATITIS.

TIME TO TEST. TIME TO TREAT. TIME TO CURE.



World Hepatitis Day – July 28

HEPATITIS ATTACKS THE MOST VULNERABLE

Over 90% of new hepatitis B infections occur through mother-to-child transmission and during early childhood. But other groups are also at higher risk of both hepatitis B and C, including people who inject drugs; men who have sex with men; people who have had tattoos or acupuncture; partners of people living with hepatitis B; and health care workers.

#TestTreatHepatitis #WorldHepatitisDay



Introduction

- Vietnam is highly endemic for hepatitis B:
 - >8% of adults HBsAg+ (11 to 19% in the Mekong River delta)
- introduction of hepatitis B vaccine in the national childhood immunization program in 2002 and the inclusion of a birth dose vaccination in 2003.
- in the Mekong delta, 10-13% of pregnant women are HBsAg carriers (> 25% HBeAg positive)

LinhPV et al. Can Tho J Med & Pharma, 2016 Phuong DTM. J Ho Chi Minh City Medicine 2015

Introduction: hepatitis B birth dose vaccination

- 2004-2006: high VCR reported (> 90% in some provinces)
- 2007/2009/2013: AEFI after HBV BD: coverage declined from 64% to 27%
- 2009 & 2015 survey: slow recovery from 13% (2009) to 56% (2015)
- WHO global summary report 2018:
 - HBV BD coverage 68% (2016) and 77% (2017)
 - BCG: offered at birth: 95-98% (2016-2017)

Nguyen TD et al. Human Vaccines & Immonutherapeutics, 2015 Duong TH et al. Vietnam J Preventive Medicine 2016

Introduction: timely birth dose, survey 2015 (Duong, VJPM, 2016)



Proportion of fully immunized children (FIC) and HepB BD within 24 hours among children 12-23 months in different cities/ provinces

Methodology

- A cross-sectional survey among 9-11 months old children, Mekong River delta
 - 2015-2016
 - 3-stage sampling method adapted from the WHO 30-cluster sampling method
 - 3 out of 13 provinces in Mekong River delta
 - Can Tho (urban area)
 - Vinh Long (rural, farming area: # 6)
 - Ca Mau (remote/coastal area: # 6)
 - 3 districts per selected province (central, rural, remote)
 - 3 communes randomly selected per district (4 for Can Tho)
 - All children < 12m. listed per commune, and 17 randomly selected

Map of Vietnam and of the Mekong River Delta representing the three selected provinces





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Methodology

- Vaccination data obtained
- Immunization cards
- Health center listings
- Questionnaires adapted from WHO standard EPI cluster survey forms, including reasons for non-vaccination
- Validated during preparatory visits
- Univariate/multiple logistic regression analysis
- Approved by Scientific and Technical committee of Can Tho University (CTUMP)

Mothers have a vaccination card or immunization book where all the vaccines are registered / vaccination listing at health centre









Home visit – Can Tho @ commune health centre



Results

Place of birth of infant, No. (%)	At home	1 (0.2)
	Commune health center	12 (2.3)
	Public Provincial Hospital	302 (57.4)
	Public District Hospital	168 (31.9)
	Private Provincial Hospital	36 (6.8)
	Private District Hospital	2 (0.4)
	In midwife's house	5 (1.0)
Distance from home to	<30 minutes	456 (86.7)
vaccination place, No. (%)		
	30 minutes - <1 hour	54 (10.3)
	1 hour - <2 hours	13 (2.5)
	2 hours or more	3 (0.6)

Hep B Vaccine within 24 hours of birth: N=526 infants participated





The coverage rate of BCG vaccine

BCG vaccine	Freq	%	HBV
\leq 24 hours after birth	234	44.5	46.6%
2 – 7 days	136	25.9	16.5%
>7 days	149	28.3	36.9%
Not given	7	1.3	
Total	526	100	

Coverage rate of hepatitis B BD within 24 hours: overall and per region (N=526)



Parents of infants who did not receive / missed their HBV BD within 24 hours mentioned following reasons (52%):

Reasons for delayed or missing vaccination mentioned by parents	Freq	%	
Not offered by Health Care Workers	137	50.9	
Illness of infants at the moment of vaccination	78	29.0	
Vaccine not available	22	8.2	
Vaccine was administered according to parents but not registered on vaccination card	14	5.2	
Parents do not know it's important	5	1.9	
Others	13	4.8]
Total	269	100	

Unadjusted and adjusted odds ratios with 95% confidence interval of determinants from univariate and multiple logistic regression models for vaccination with HBV vaccine within 24 hours after birth:

- number of children, ethnicity, housing conditions, province, socio-economic situation, working activities, place of birth, mode of transportation, education level of father/mother, ...

Predictive factor	Univar	iate Analysis	Multiple regression		
			Overall p-	Adjusted OR (95%CI)	
	Unadjusted OR (95%CI)	P-value	value		P-value
Province			<0.001		
Can Tho (urban)	Ref			Ref	
Vinh Long (farming)	1.82 (1.17-2.82)	0.008		1.87 (1.18-2.95)	0.007
Ca Mau (coastal)	3.69 (2.36-5.75)	<0.001		3.36 (2.08-6.42)	<0.001
Education of the father			<0.001		
No schooling/ Primary school	Ref			Ref	
Secondary school	2.03 (1.25-3.31)	0.004		1.86 (1.11-3.14)	0.018
Bachelor degree	2.45 (1.49-4.03)	<0.001		2.29 (1.35-3.90)	0.002
Master degree or higher	3.71 (1.80-7.65)	<0.001		2.76 (1.27-5.96)	0.010

6

Coverage rate and percentage of children vaccinated on time and median age at vaccination for each infant hepatitis B (HBV) and oral polio (OPV) vaccine dose

						\frown			
Vaccine	Timely definition	Children with	(Coverage rate	e	Vaccinated	on time	Age at vac (in we	ccination eeks)
	in weeks (days)	valid dose		%		n(%)	95%CI	Median	IQR
HBV1	6 – 12	520		98.9		374 (66.7)	62.6-	11.7	9.8 –
	(46-90 days)						70.7		14.2

Of those who received their HBV BD on time, 67% received their first infant HBV on time, and 68% for the first polio. No difference with those who did not receive their HBV BD on time.

	days)						
	(106 – 150				44.8		27.7
OPV3	15 – 21	495	94.1	220 (44.4)	40.1-	22	19.7 –
	days)						
	(106 – 150				48.7		27.5
HBV3	15 – 21	489	93	217 (44.4)	39.9-	22	19.5 –
	days)						

Conclusion

- Current HBV BD data remain a concern in the Mekong River delta region
 - No optimal guarantee for post exposure prophylaxis and HBV prevention
- Reasons for delay or missing HBV BD same as in 2015 EPI survey:
 - HBV BD not offered by health staff
 - Infant's illness and contra-indication
 - Need for raising awareness of importance of intervention among HCP and parents
 - Training of HCP
 - Revise guidelines update list of real contra-indications
 - Understanding risk factors related to administration of timely HBV BD may help focus the intervention

