

Typhoid Vaccine Used in Vietnam and its Impact

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Vietnam

population: 92 m.

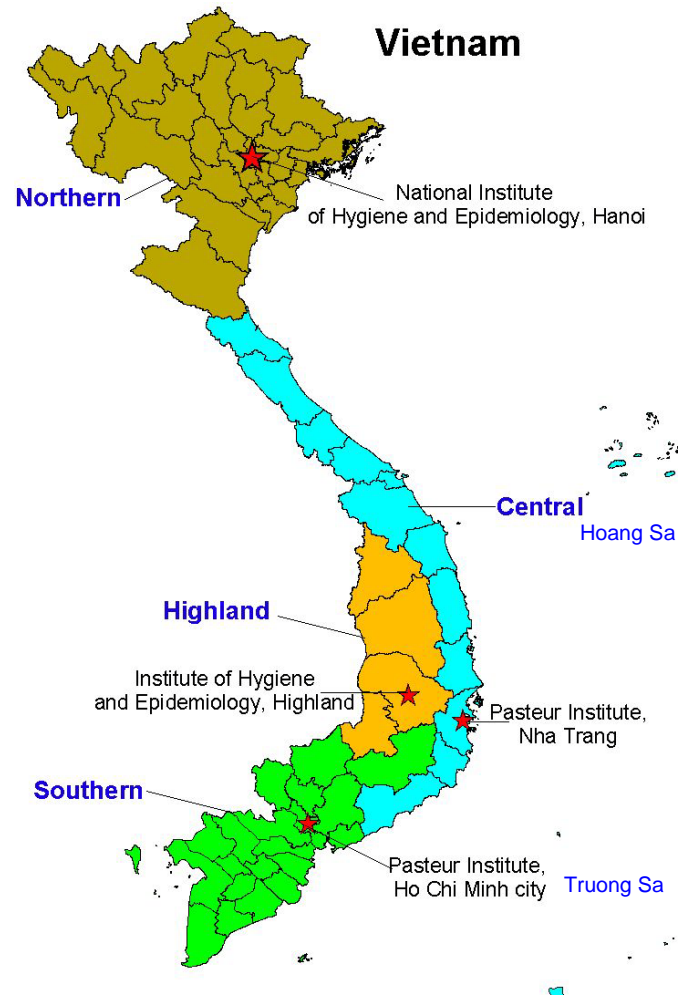
< 1 year old: 1.7 m.

regions: 4

provinces: 63

districts: 696

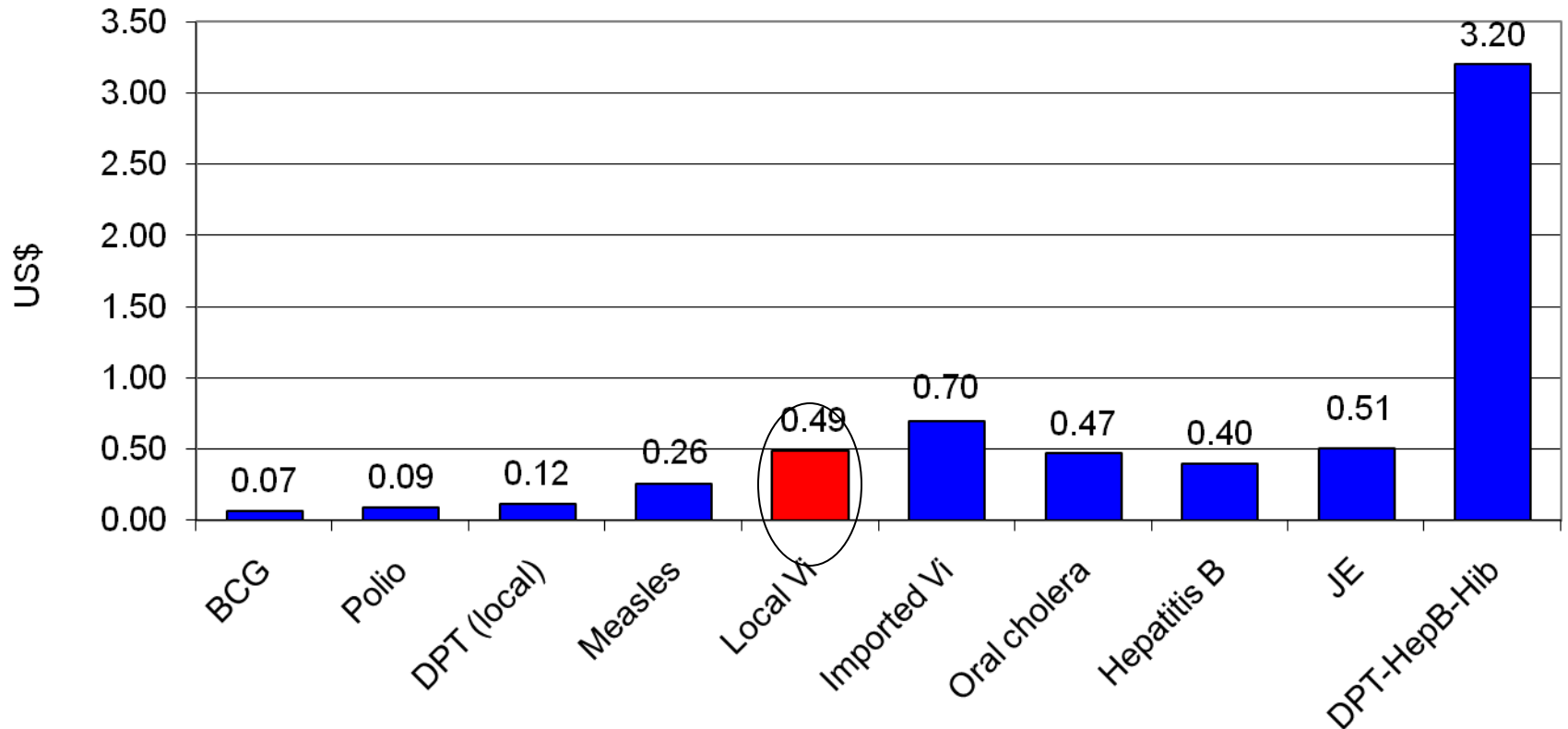
communes: 11,138



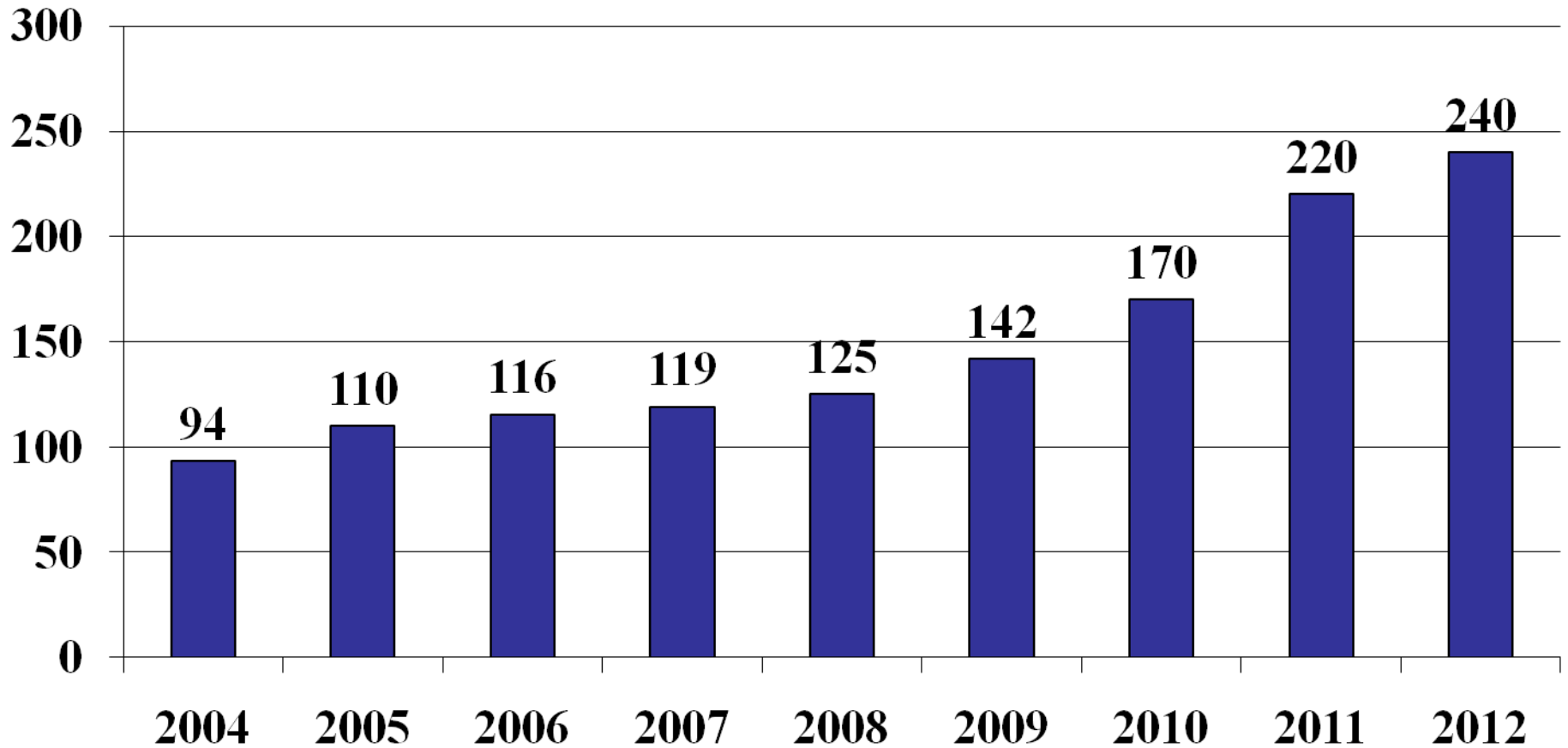
EPI vaccines in Vietnam

Vaccine	Schedule	Year start	% Coverage area 2012
<i>BCG</i>	<i>Birth</i>	<i>1981</i>	<i>100</i>
<i>DPT-HepB-Hib</i>	<i>M2, M3, M4</i>	<i>2010</i>	<i>100</i>
<i>DPT</i>	<i>M18 (DPT4)</i>	<i>2011</i>	<i>100</i>
<i>OPV</i>	<i>M2, M3, M4</i>	<i>1981</i>	<i>100</i>
<i>Measles</i>	<i>M9, M18</i>	<i>1981</i>	<i>100</i>
<i>HepB</i>	<i>Birth</i>	<i>1997</i>	<i>100</i>
JE	M12, +W2; Y2	1997	80
Typhoid	Y3-Y5; Y3 - Y10	1997	5
Cholera	Y2-Y5	1997	2
<i>TT</i>	<i>PW; +M1; +M6; +Y1; +Y1</i>	<i>1981</i>	<i>100</i>

Vaccine Price per Series to Vietnam EPI Program



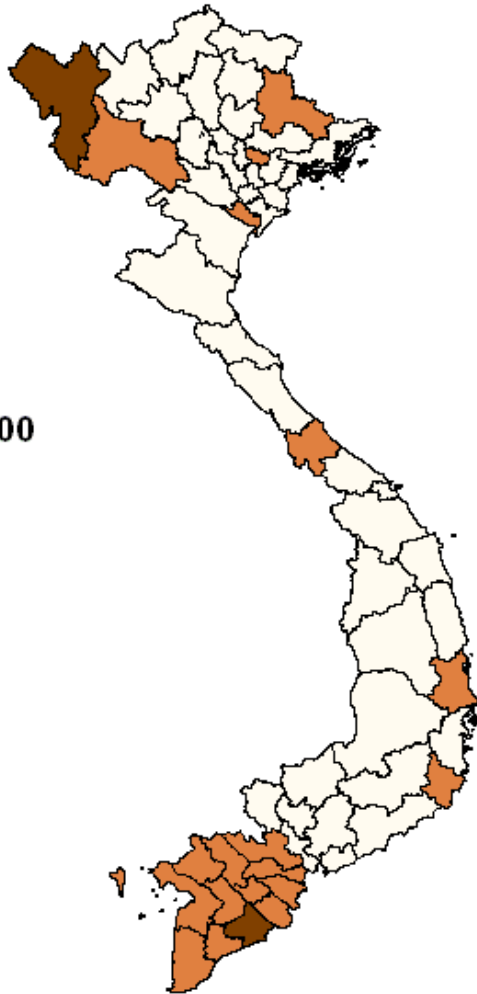
Total financing from Government for EPI (billion VND)



Target population 2012

- **7 EPI vaccines for <1y: 1.7million**
- **JE vaccine: ~2.5 million**
- **Oral cholera vaccine: 200,000**
- **Typhoid vaccine: 240,000**
- **Pregnant Women for TT: 1.7 million**
- **CBAW (15-35) in HRDs for TT: 1.2 million**
- **OPV SIAs in HRDs for 1-5y: 1.1 million**

Estimated Average Annual Incidence of Typhoid (all ages) (1999-2003)



- Average annual number of cases nation-wide, all ages (1999 - 2003): 11,696
- Average annual incidence rate: 14.7 per 100,000

Out of 61 provinces:

- 2 have **high** over incidence (>100/100,000) in all age groups combined.
- 18 have **medium** incidence (10 - 100/ 100,000)

Age Groups

Estimated annual age-specific incidence nation-wide, based on meta-analysis (*using age-specific rates from Dong Thap province*)

Age group (years)	Avg. Annual incidence/ 100,000 (1999-2003)	Percent
< 2*	--	--
2-4	26.5	21%
5-9	39.4	31%
10-14	31.8	25%
15-19	11.3	9%
20-29	11.1	9%
30-39	3.8	3%
40 and over	2.4	4%
All ages	14.7	100%

56% } **77%**

* No cases in children < 2 years were found in Dong Thap, so incidence in this age group could not be estimated

Children < 15 years old are most at risk.

Overall incidence of 5-14 year olds per year: **35.6** per 100,000

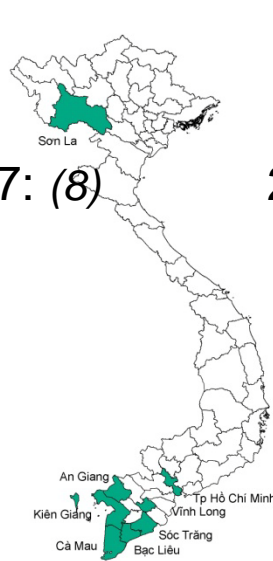
Selection of target population and HRDs

- Target group:
 - Y3 - Y5: TYPHIM Vi, Aventis Pas. (1997 - 2003)
 - Y5 - Y10: Vaccine from Aventis Pas. and Typhoid Vi polysaccharide, VTN (2004 - 2010)
 - Y3 - Y10: Typhoid vaccine, VTN (from 2011)
- HRDs with high incidence by looking at number of reported enteric fever cases.
- Available of fund for vaccine

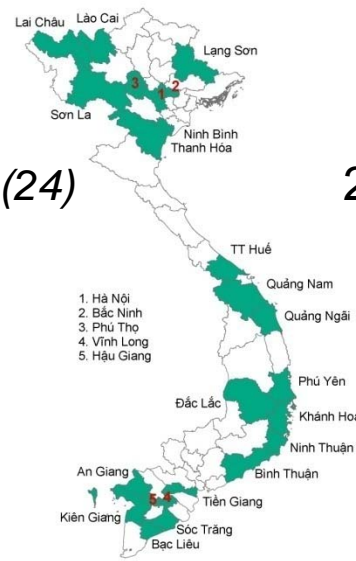
provinces introduce Typhoid vaccine, 1997-2012

Year	# Pro.	# Dis.
2000	20	36
2001	27	64
2002	24	64
2003	29	81
2004	32	118
2005	35	147
2006	30	101
2007	24	73
2008	0	0
2009	3	15
2010	2	13
2011	5	29
2012	5	26

1997: (8)



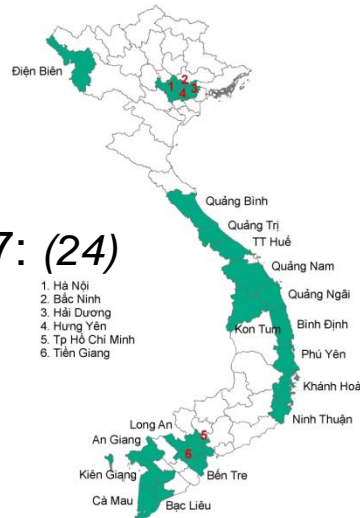
2002: (24)



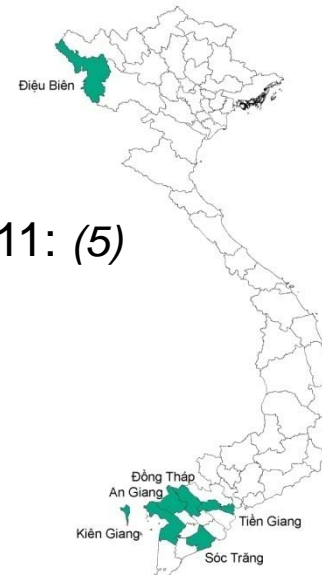
2005: (35)



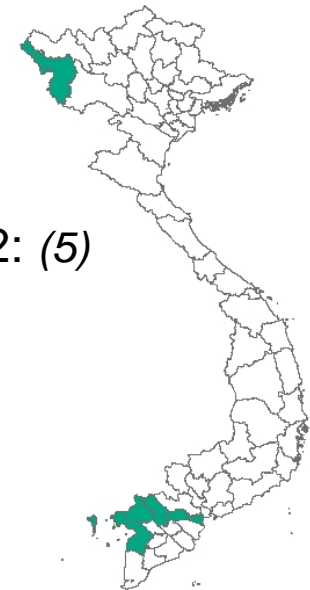
2007: (24)



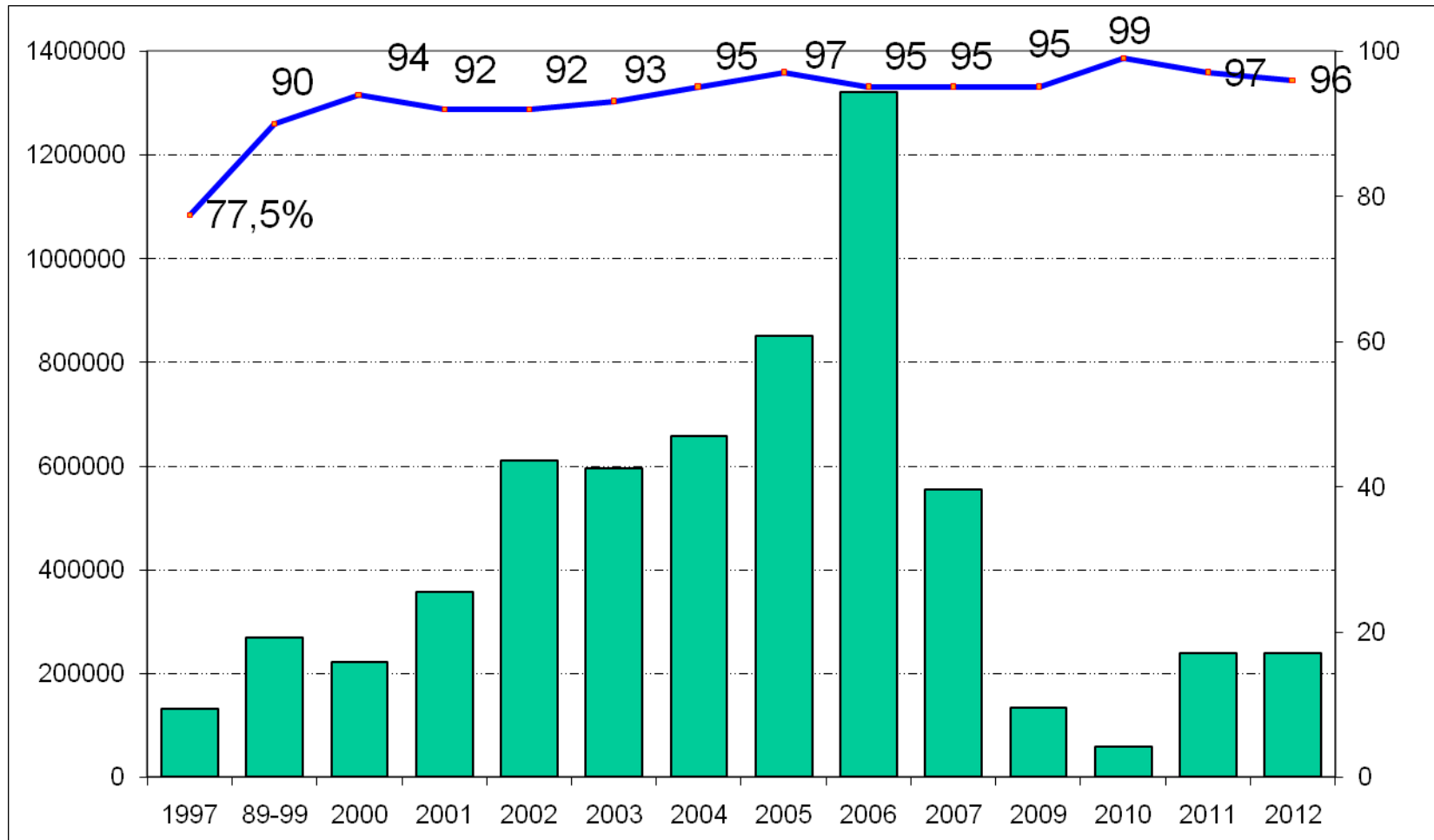
2011: (5)



2012: (5)



Target population and coverage rate, 1997-2012



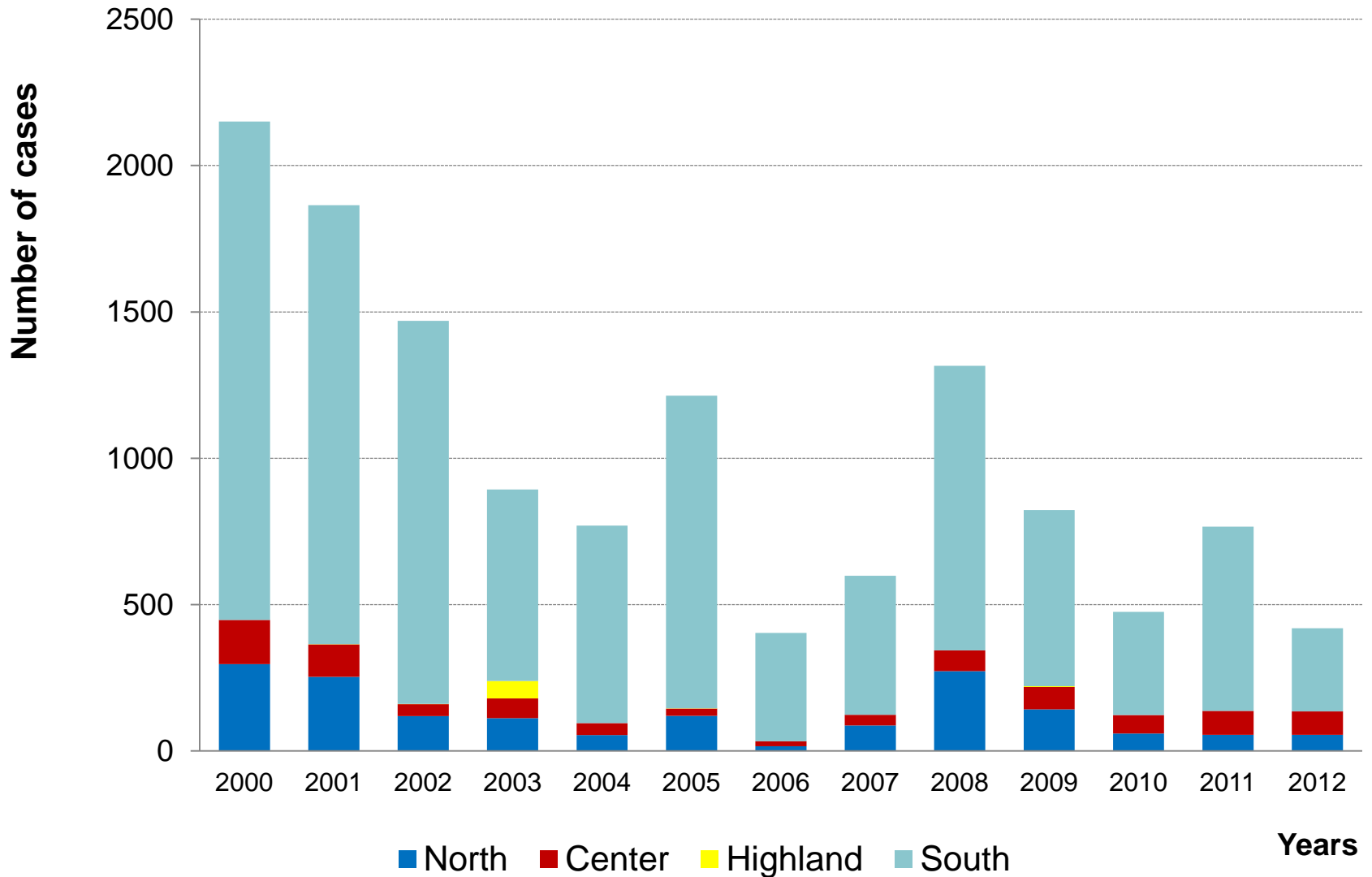
Type vaccine	# doses	Year
TYPHIM VI (Aventis Pas.)	4,300,000	1997 - 2006
Typhoid Vi polysaccharide, VTN	2,680,000	2004 - 2012

Delivery strategies

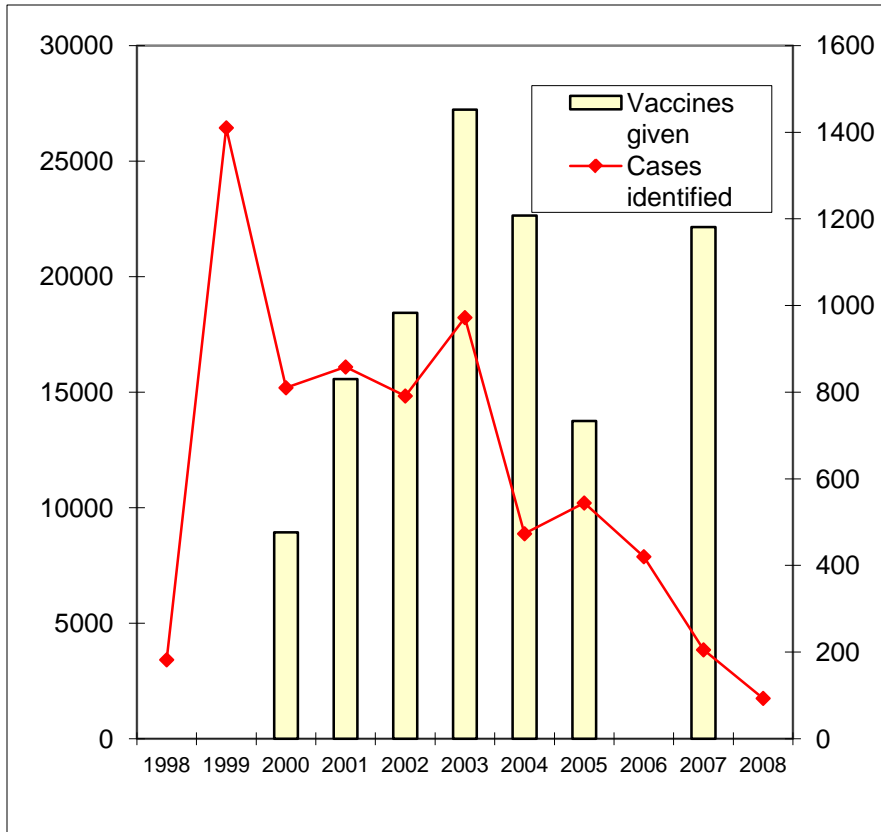
Conduct campaign by district (vaccine presentation: 20 doses/vial): every 3 years for target population Y3 - Y5

- Only one dose/child
- Prepare the list of target population
- Not the same days with immunization section days for routine EPI
- Immunization points: inside and outside commune health center

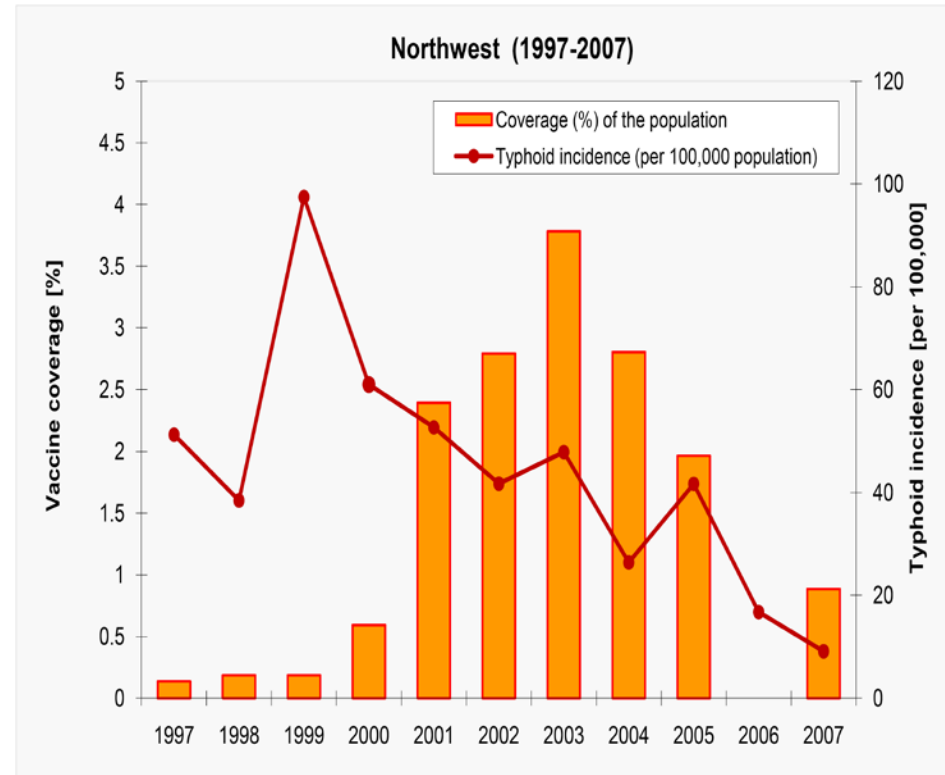
Number Typhoid cases in Viet Nam, 2000 - 2012



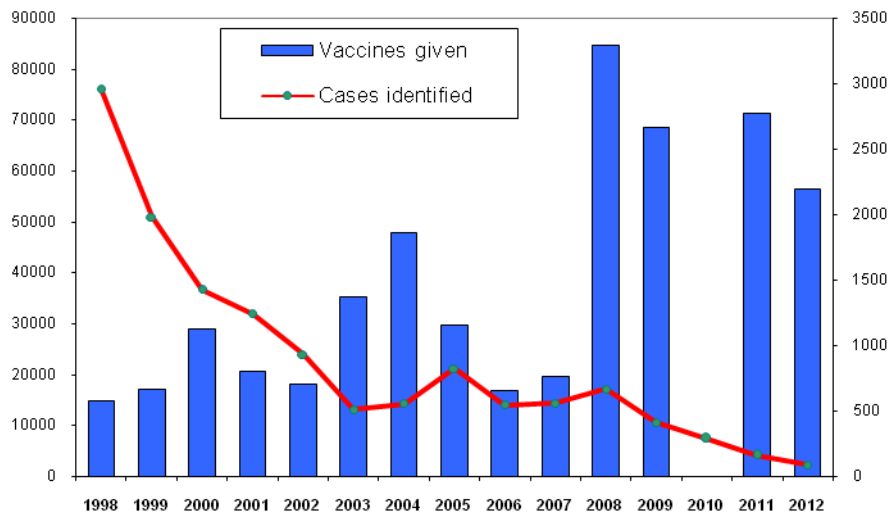
Vaccines given and cases in Dien Bien province, 1998 - 2008



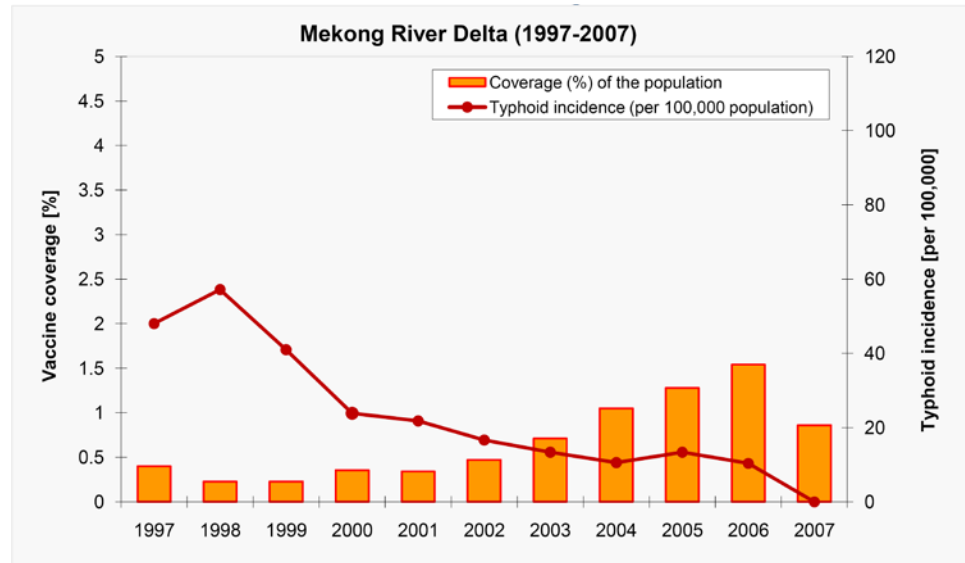
Vaccine coverage and Typhoid incidence (DOMI) Northwest (1997-2007)



Vaccines given and cases in An Giang province, 1998 - 2012



Vaccine coverage and Typhoid incidence (DOMI) in Mekong River Delta (1997-2007)



Conclusions

- Nationwide decrease in typhoid fever incidence in parallel with nationwide increase in vaccine coverage in high risk selected areas.
- Conduct SIA campaign in HRDs for target population (Y3 - Y5) every 3 years
- Reduction in typhoid fever disease burden could also be attributed to other common preventive measures than just immunization
- *Long term and detail plan include surveillance need to be prepared (WHO in 3 provinces in 2013)*
- *Support from international organization.*

Thank you!