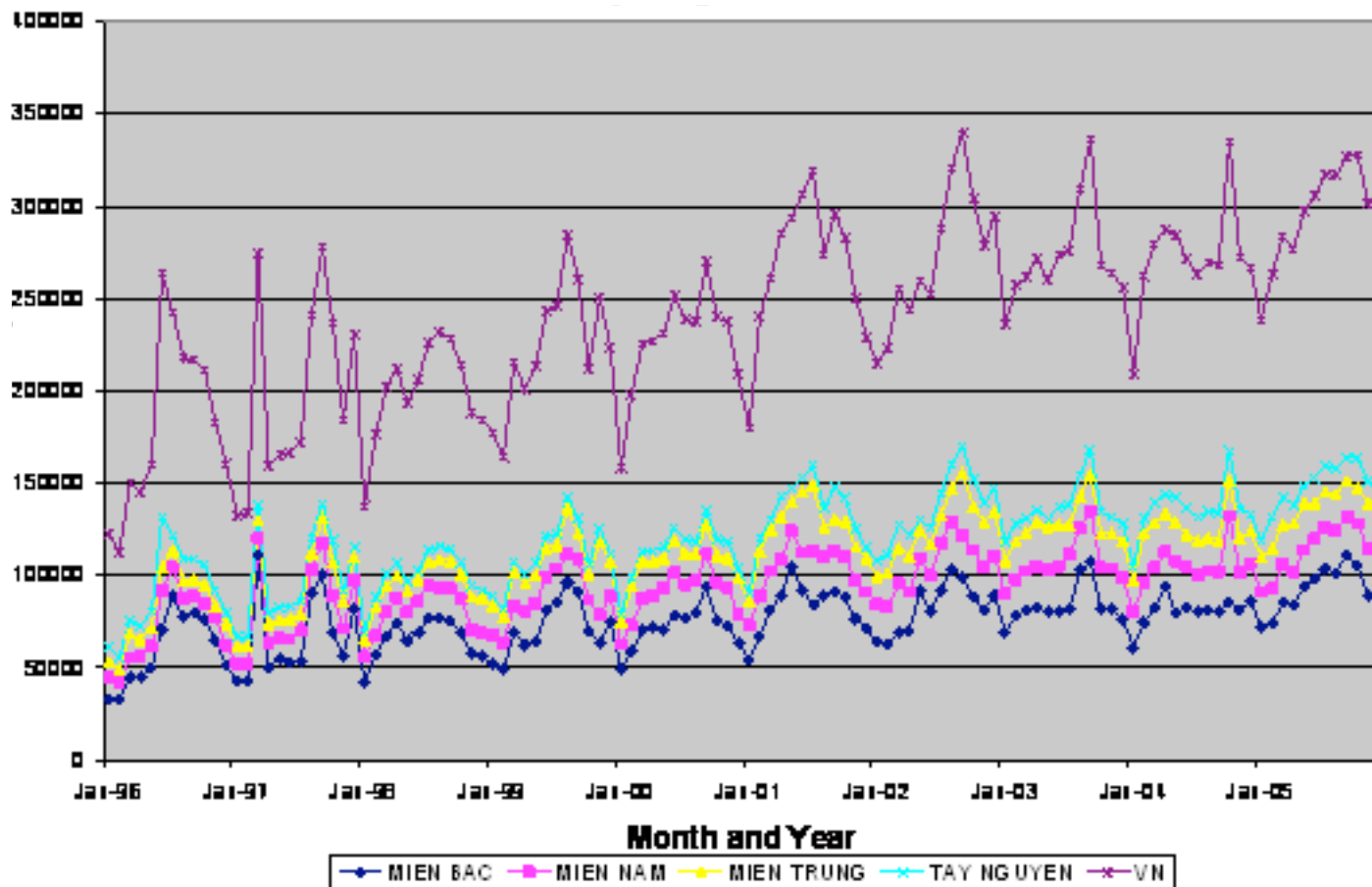


# National Influenza Sentinel Surveillance Viet Nam: 2006-2007

US CDC Collaboration and WHO Global  
Surveillance Network Partnership

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NIHE

# National reports of ILI 1996-2005



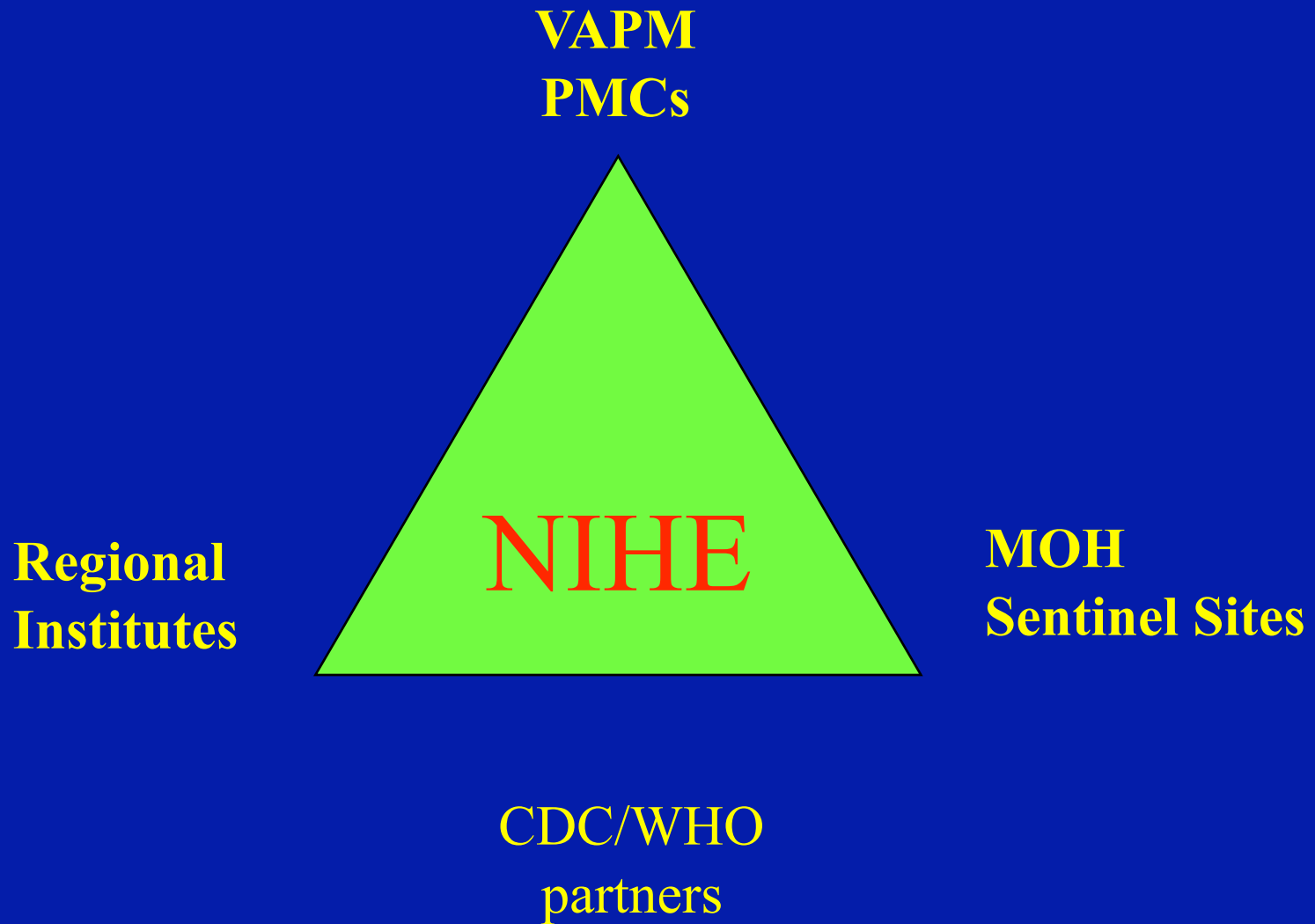
# General objectives

- Obtain epidemiological and virological information to guide influenza prevention and control policies and activities
- Establish a sustainable national influenza surveillance network in Vietnam

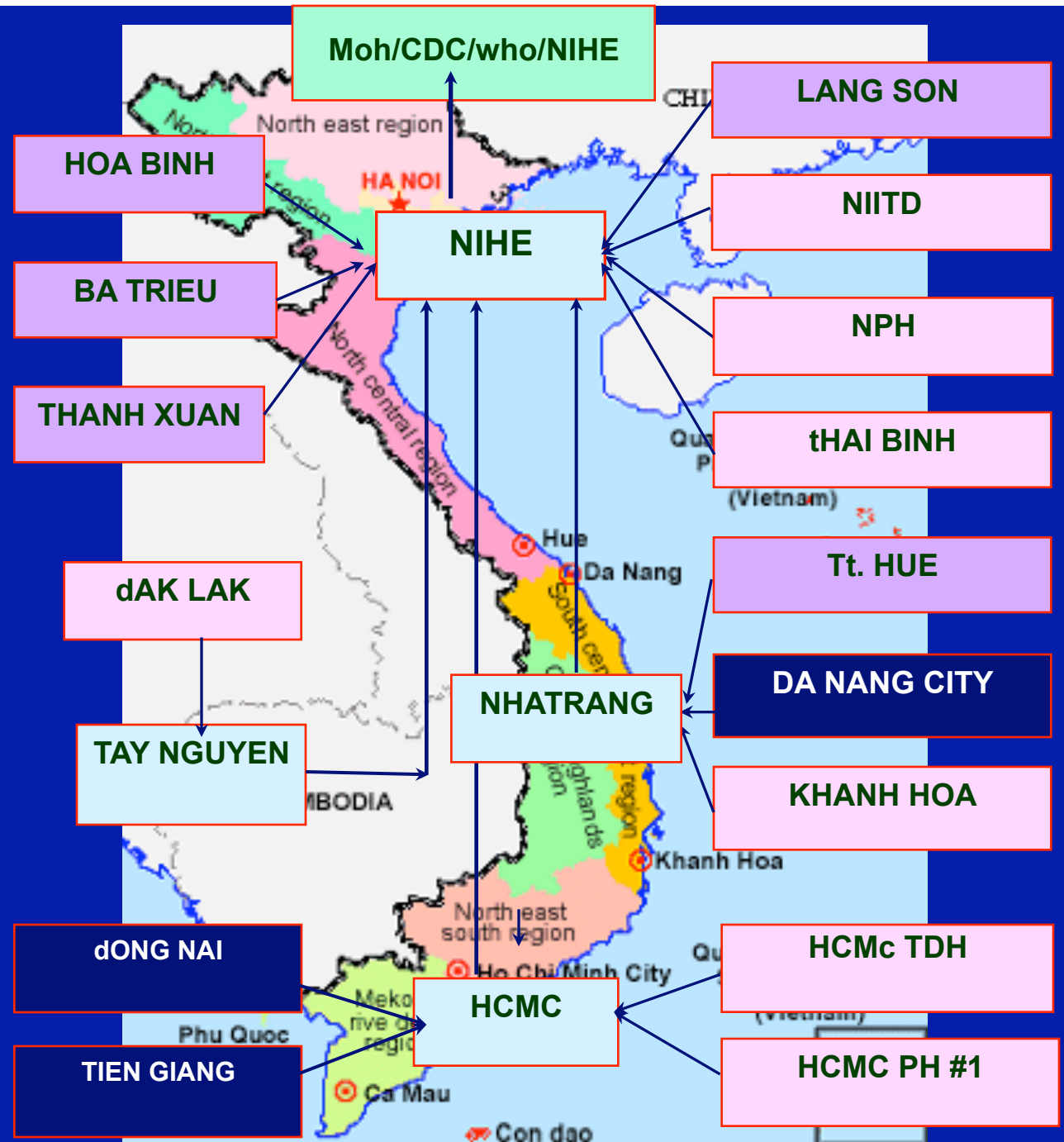
# Specific Objectives

- Determine influenza impact and seasonality
- Rapidly detect outbreaks
- Monitor circulating strains
- Contribute to influenza prevention and control
- Contribute to global surveillance and selection of virus strains for vaccine production

# Organization



# Organizational network of Institutes and sentinel sites



# Sentinel site characteristics

- Major ecological regions represented
- Adult and pediatric populations served
- Different levels of health services
  - Central referral hospitals
  - Provincial hospitals
  - District hospitals
  - Polyclinics / health centers

# Case definition ILI (WHO)

- Sudden onset of fever  $>38^{\circ}\text{C}$
- Cough and/or sore throat
- Absence of another diagnosis
- Onset illness within 3 days for cases selected for PCR testing

# ILI surveillance methods

- Total patient and ILI consultations recorded weekly at each site
- First 2 ILI patients each day sampled for investigation
- Throat swab collected and transported to regional laboratory
- RT-PCR testing at regional laboratories
- Virus sub-typing and isolations made if PCR +

# ILI surveillance Results

## Total and ILI outpatient visits by sentinel site

No.	Sentinel Site	Total Number Patient Visits	Number ILI Patient Visits	Percent ILI Visits (%)
01	NIITD, Hanoi	27713	775	2,8
02	Natl. Ped. Hosp., Hanoi	251664	75938	30,2
03	Ped. Hosp. #1, HCMC	154042	13127	8,5
04	Hosp. Trop. Dis., HCMC	108210	19862	18,4
05	Khanh Hoa Prov. Hospital	34189	10447	30,6
06	Dac Lac Prov. Hospital	42246	11172	26,4
07	Kien Xuong Dist. Hospital	259065	32099	12,4
08	Hoa Binh Dist. Hospital	38703	2863	7,4
09	Cao Loc Dist. Hospital	23009	1563	6,8
10	Huong Thuy Dist. Hospital	60770	1776	2,9
11	Ba Trieu Clinic, Hanoi	20200	1544	7,6
12	Thanh Xuan Clinic, Hanoi	23555	1422	6
13	Thanh Khe Dist. Hospital	31988	2263	7,1
14	Xuan Loc Dist. Hospital	52920	3230	6,1
15	Cai Be Dist. Hospital	51635	6440	12,5
<b>All sentinel sites</b>		<b>1179909</b>	<b>184521</b>	<b>15,6</b>

*Sites no. 08, 09, 11 and 12 initiated surveillance on June, 1st 2006*

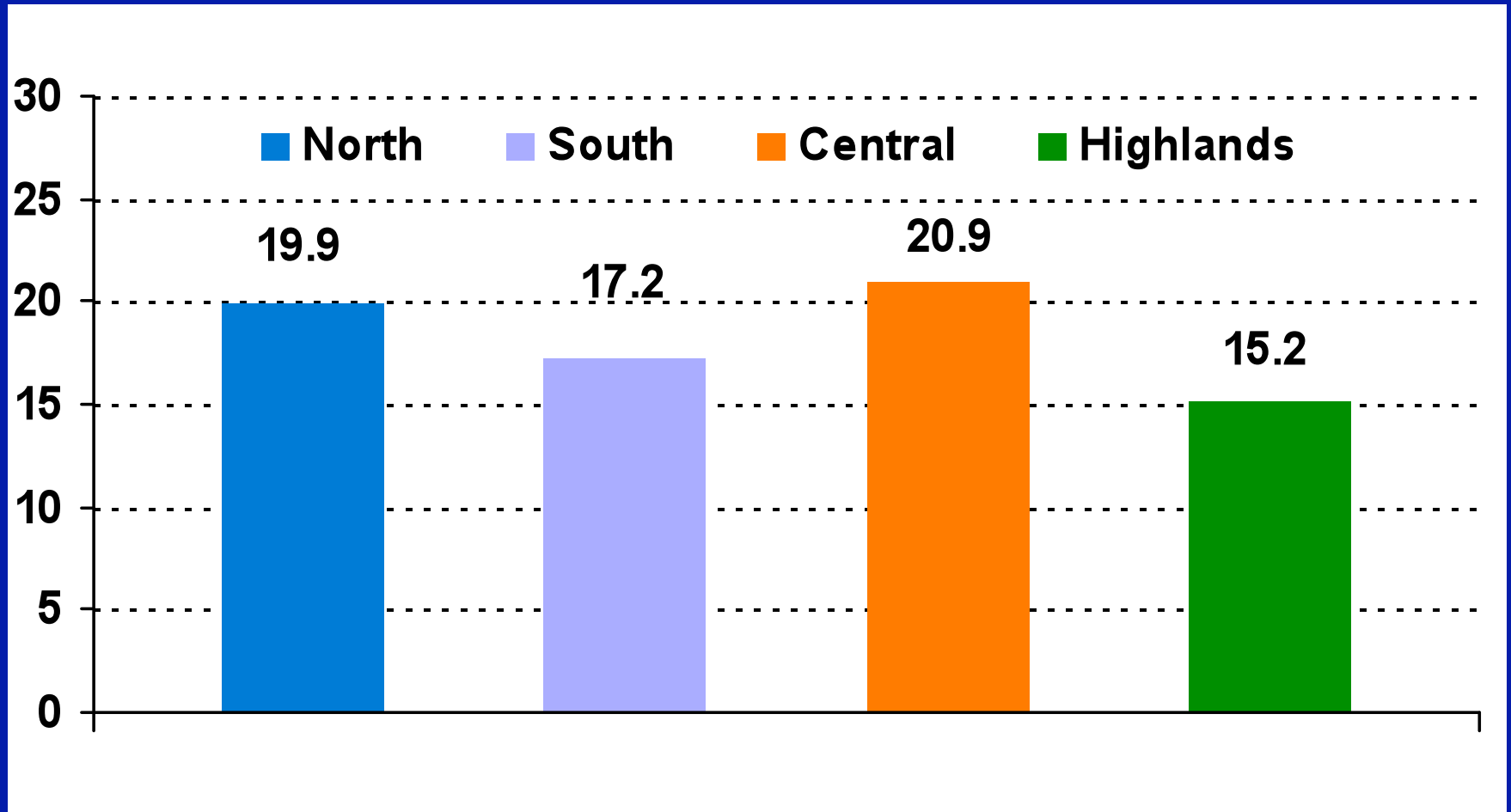
*Sites no. 13, 14, and 15 initiated surveillance on June, 1st 2007*

## RT-PCR positive ILI cases, by sentinel sites

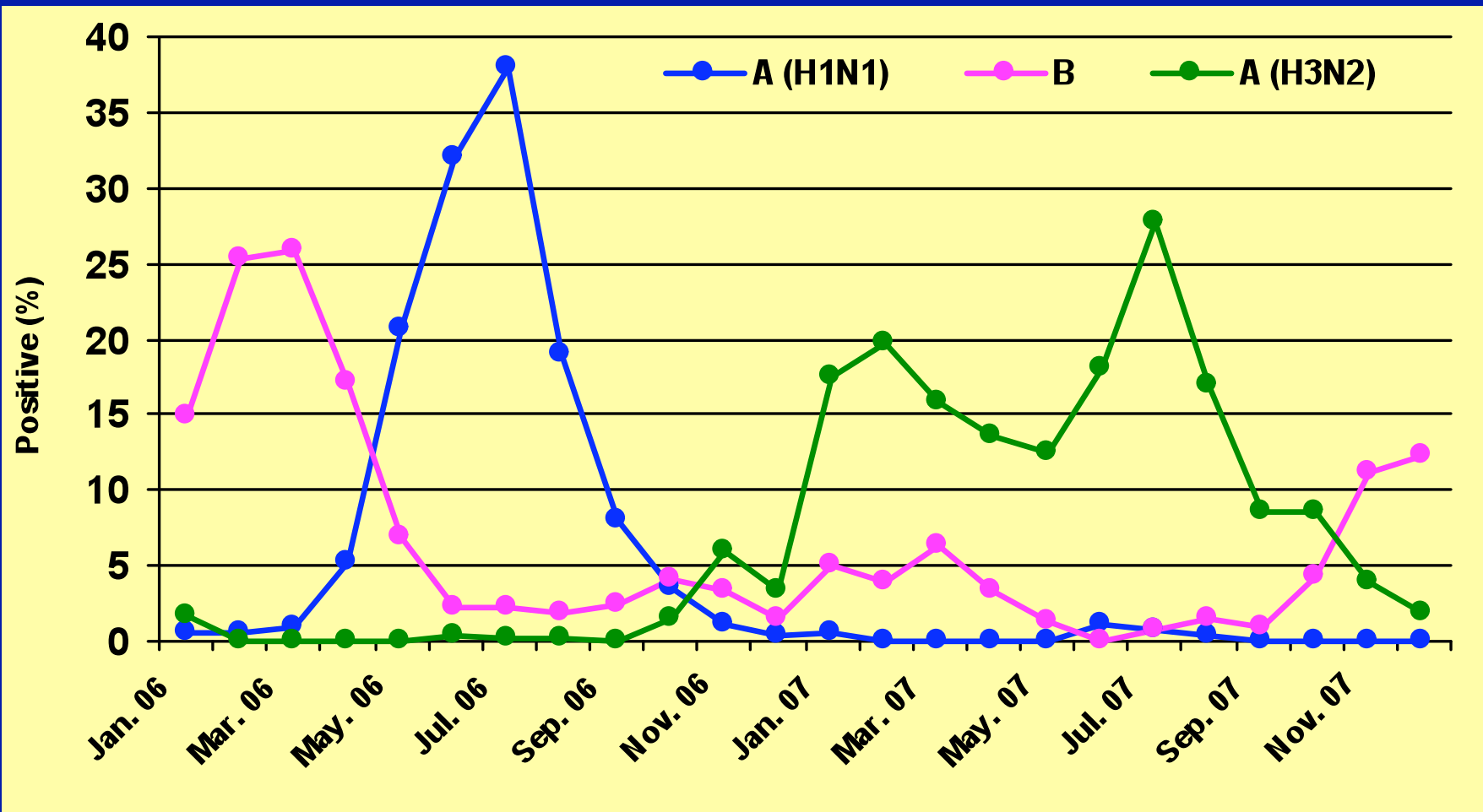
No.	Sentinel site	Number ILI patients tested	Number (%) A/H1 positive	Number (%) A/H3 positive	Number (%) A undeter- -mined	Number (%) Influenza B positive	Number (%) total Influenza Positive
01	NIITD, Hanoi	622	47 (7.6)	56 (9)	0	63 (10.1)	166 (26.7)
02	Natl. Ped. Hosp., Hanoi	869	76 (8.7)	97 (11.2)	1	69(7.9)	243(28.0)
03	Ped. Hosp. #1, HCMC	1000	69(6.9)	90(9.0)	0	77(7.7)	236(23.6)
04	Hosp. Trop. Dis., HCMC	999	39(3.9)	23(2.3)	0	52(5.2)	114(11.4)
05	Khanh Hoa Prov. Hospital	1000	53(5.3)	88(8.8)	2	56(5.6)	199(19.9)
06	Dac Lac Prov. Hospital	1001	27(2.7)	63(6.3)	0	62(6.2)	152(15.2)
07	Kien Xuong Dist. Hospital	1000	37(3.7)	58(5.8)	0	59(5.9)	154(15.4)
08	Hoa Binh Dist. Hospital	801	54(6.7)	71(8.9)	0	12(1.5)	137(17.1)
09	Cao Loc Dist. Hospital	682	42(6.2)	43(6.3)	0	12(1.8)	97(14.2)
10	Huong Thuy Dist. Hospt.	835	55(6.6)	81(9.7)	0	44(5.3)	180(21.6)
11	Ba Trieu Clinic, Hanoi	628	40(6.4)	60(9.6)	0	14(2.2)	114(18.2)
12	Thanh Xuan Clinic, Hanoi	778	43(5.5)	105(13.5)	0	12(1.5)	160(20.6)
13	Thanh Khe Dist. Hospital	309	8(2.6)	47(15.2)	0	14(4.5)	69(22.3)
14	Xuan Loc Dist. Hospital	278	0(0.0)	33(11.9)	0	25(9.0)	58(20.9)
15	Cai Be Dist. Hospital	280	0(0.0)	19(6.8)	0	14(5.0)	33(11.8)
	<b>All sites</b>	<b>11082</b>	<b>590(5.3)</b>	<b>934(8.4)</b>	<b>3</b>	<b>585(5.3)</b>	<b>2112(19.1)</b>

*Sites no. 08, 09, 11 and 12 initiated surveillance on June, 1st 2006  
 Sites no. 13, 14, and 15 initiated surveillance on June, 1st 2007*

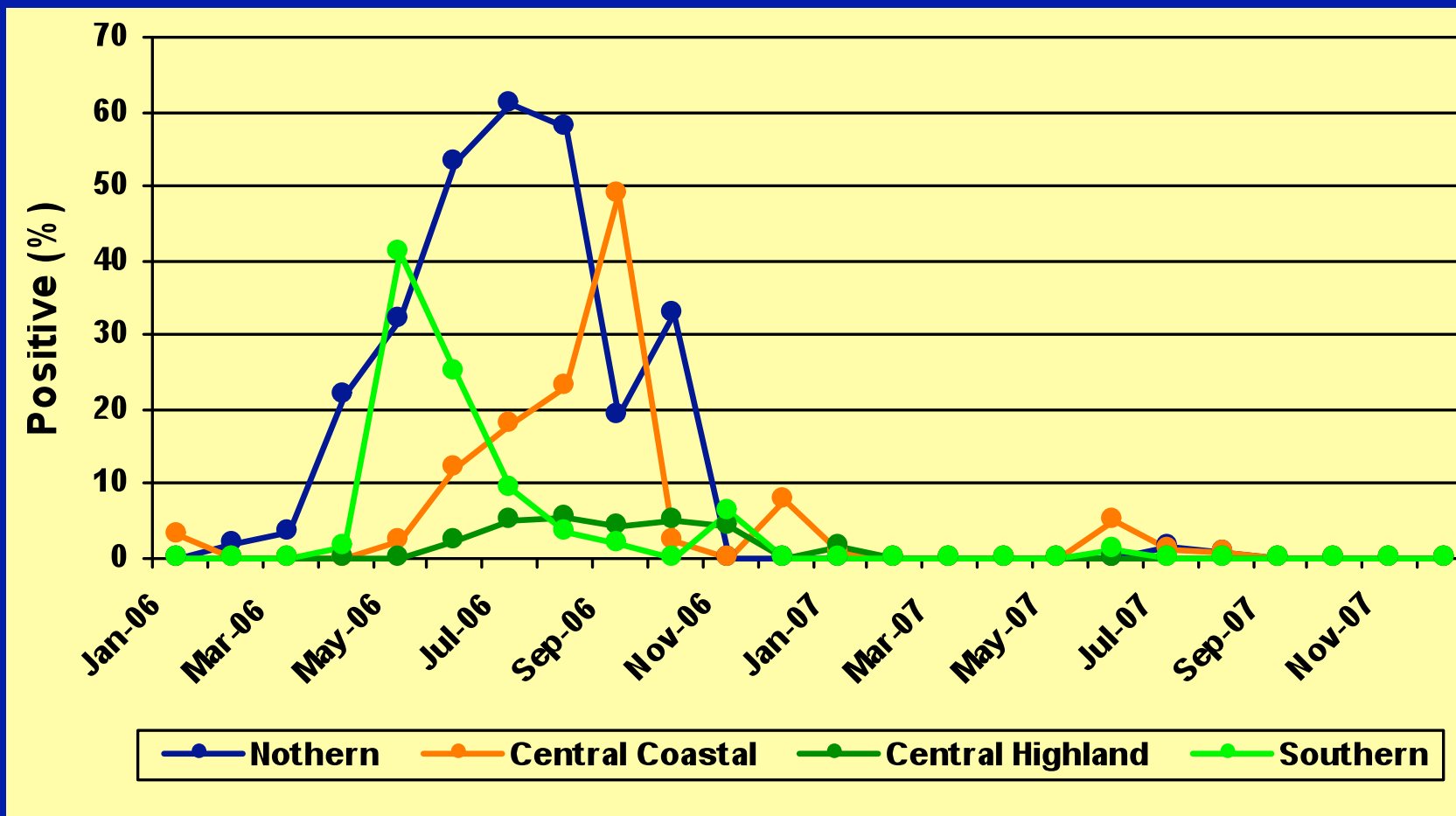
# Influenza percent positive by region



# Influenza types/subtypes circulating in Viet Nam, 2006-2007 (N=2112 virus detections)



# Percent of ILI testing positive for influenza A/H1N1, by month and region

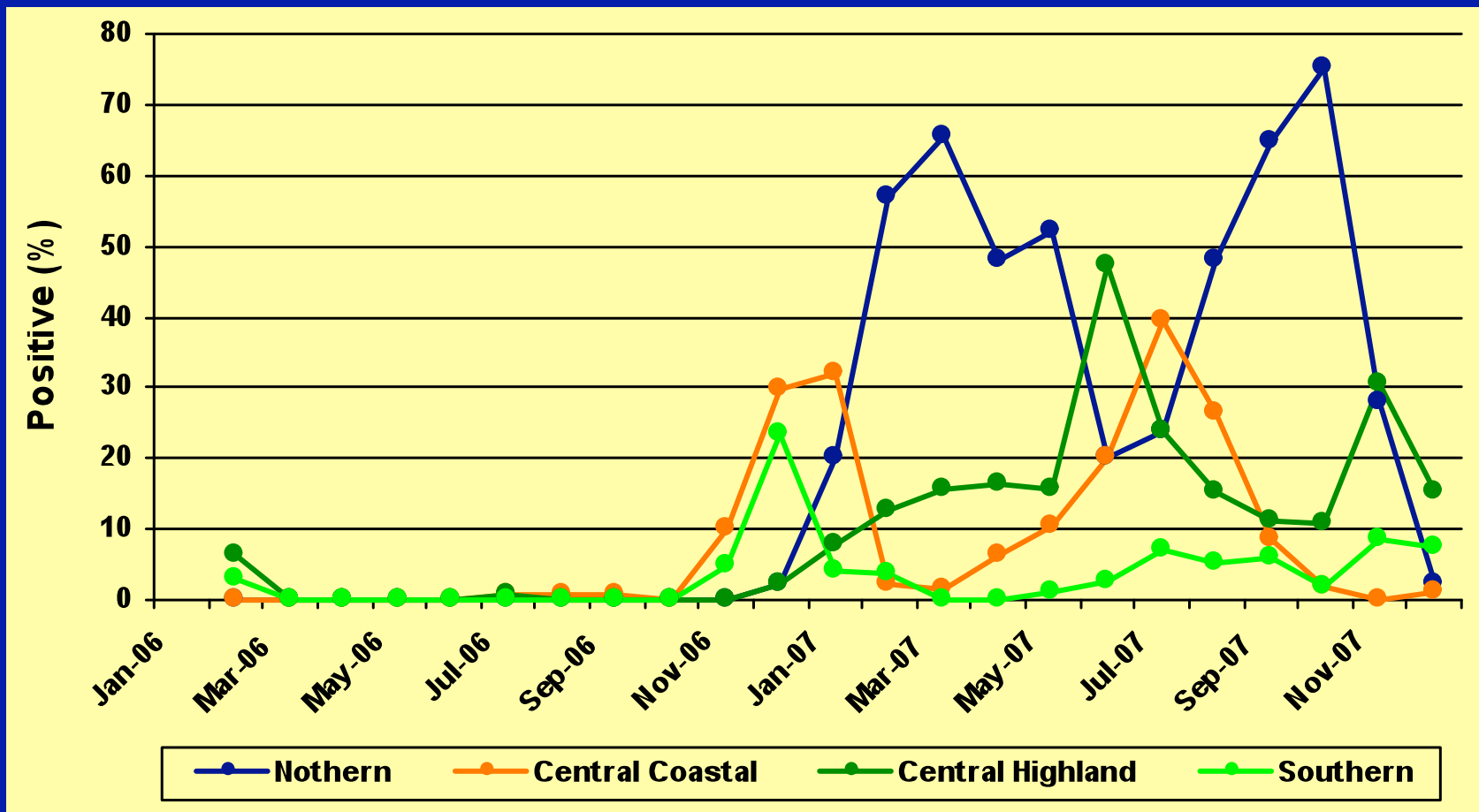


# H1N1 subtype, 2007

## Results of Sequencing

- H1N1 subtype in 2007 had 99% homology with A/Solomon Islands/3/2006 subtype
- H1N1 subtypes isolated in Vietnam were homologous with the subtype selected for flu vaccine production in 2007

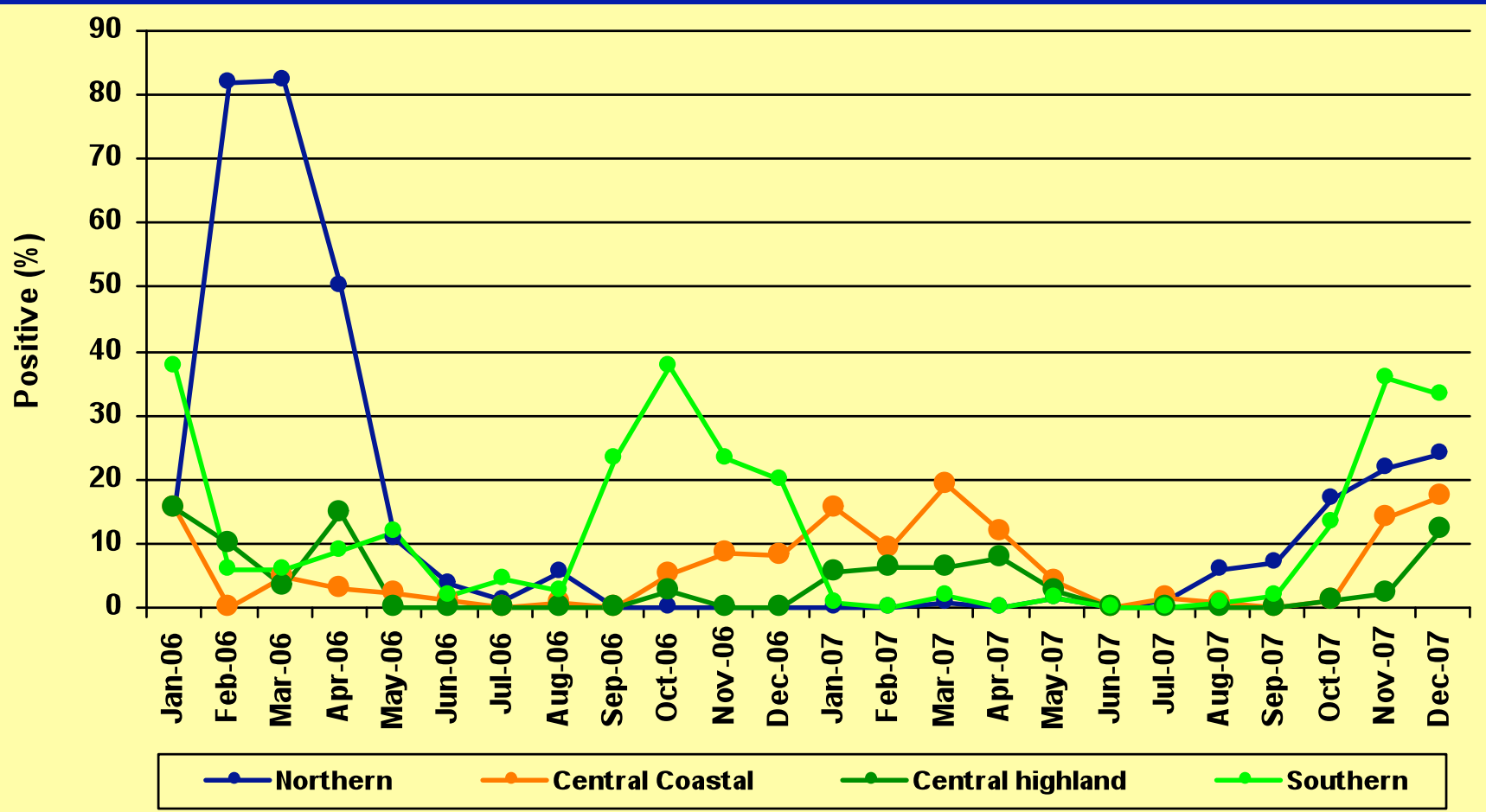
# Percent of ILI testing positive for influenza A/H3N2, by month and region



## H3N2 subtype, 2007

- H3N2 subtype in 2007 showed 99% sequencing homology with A/California/UR06-0463/2007 subtype
- H3N2 subtypes isolated in 2007 in Vietnam differed from the subtype used for flu vaccine production in 2007.

# Percent of ILI testing positive for influenza B, by month and region



## B flu virus subtype, 2007

- B subtype in 2007 showed 99% sequencing homology with B/Florida/02/2006 subtype
- B subtypes isolated in Vietnam in 2007 were homologous with the virus used for vaccine production in 2007.

# ILI results summary

- ILI is a major health care burden
- High proportion ILI cases are influenza
- Influenza detected all times of year, in all regions, at all sites
- All common subtypes endemic
- Seasonal fluctuations occur in subtype activity
- Regional synchrony subtype activity observed

# Challenges

- Achieve greater efficiency, sustainability
- Apply results to policies and practices
- Capabilities strengthening needed all levels
- Strengthen lab and epidemiology ties
- Strengthen links human and animal sectors
- Increase scientific collaborations, publications
- Increase role in WHO Global Network

Thank You