

2009 H1N1 Influenza Response in China

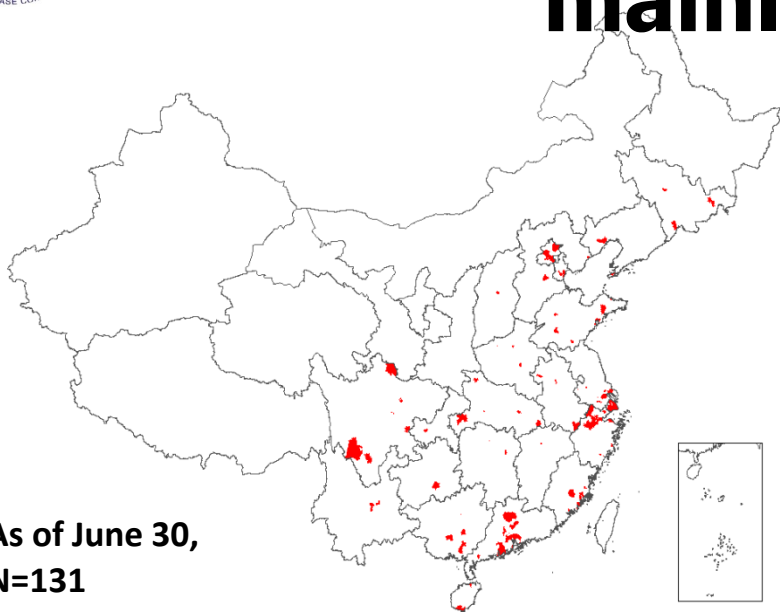


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Control and Prevention**

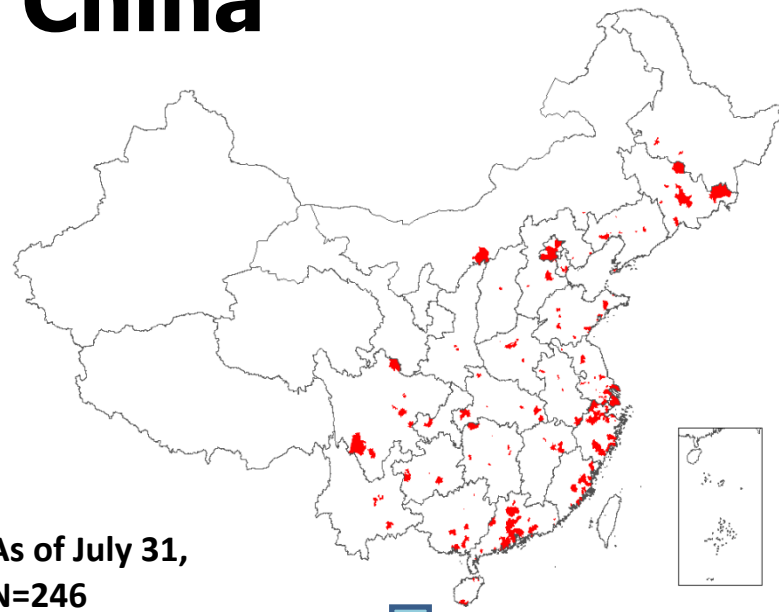
Current situation in China

Spreading of Pan(H1N1) influenza in mainland China

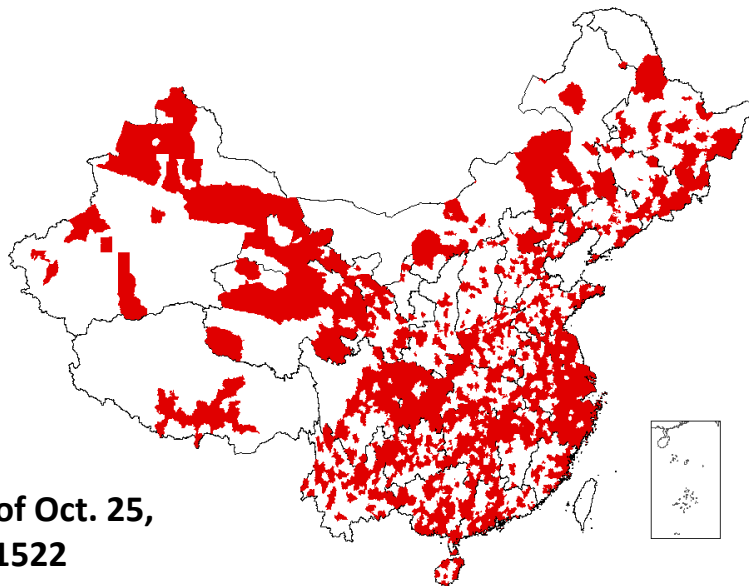
As of June 30,
N=131



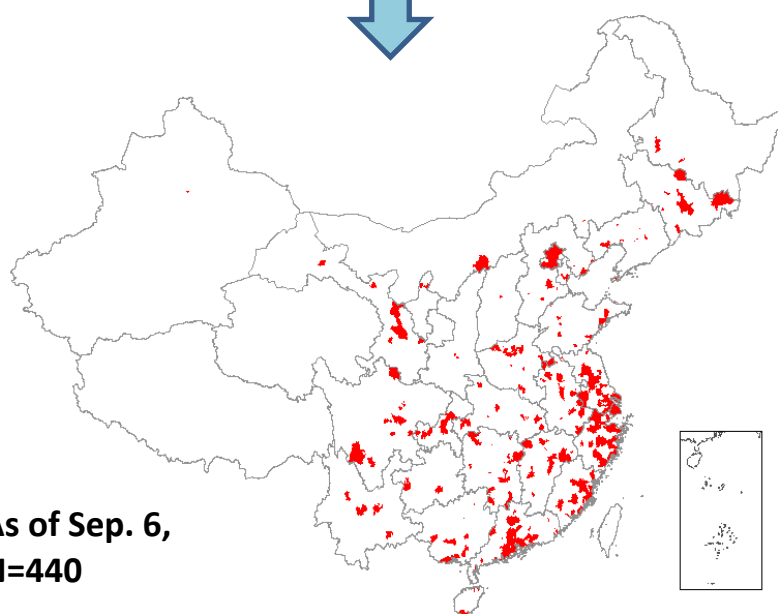
As of July 31,
N=246



As of Oct. 25,
N=1522

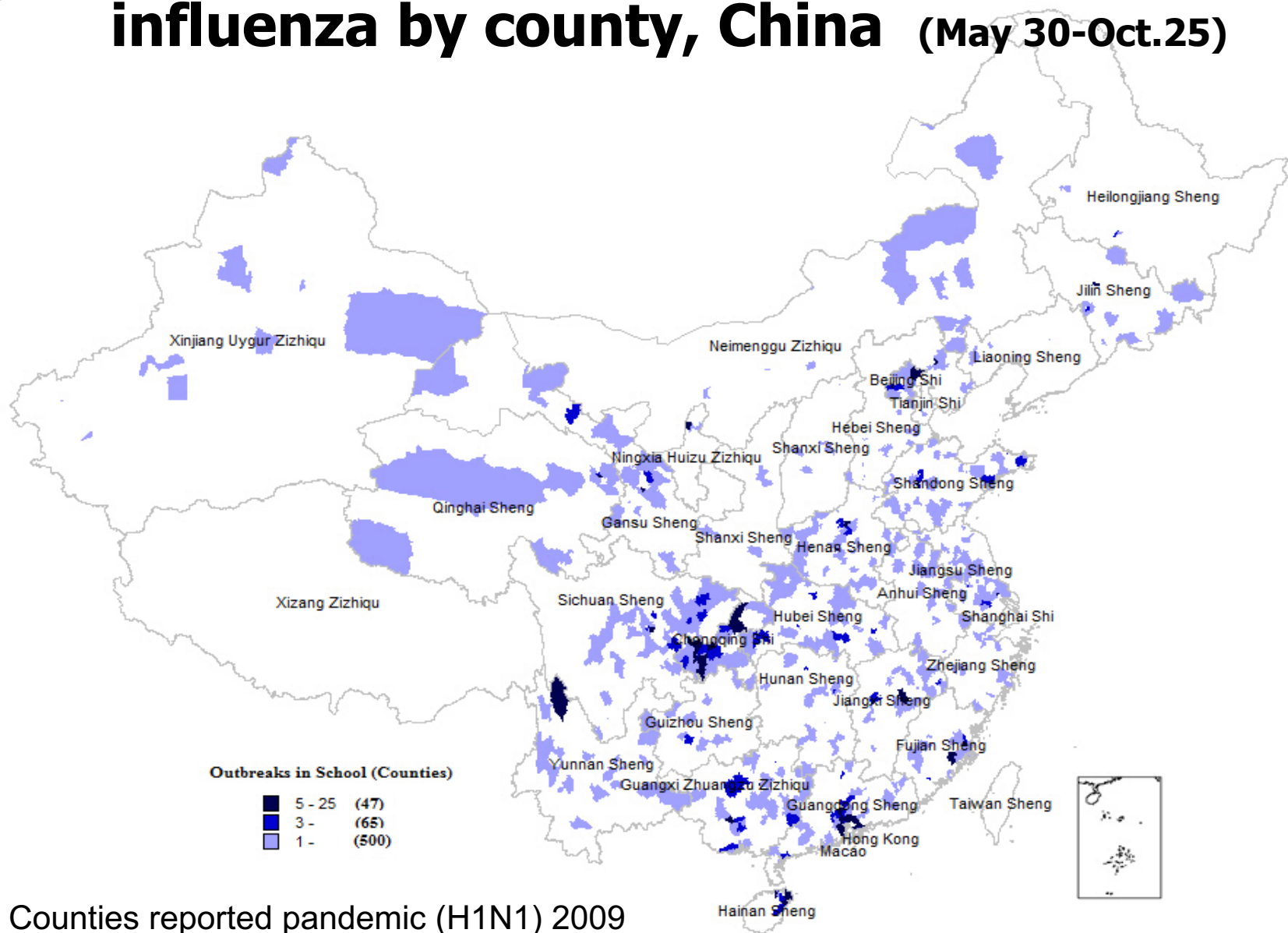


As of Sep. 6,
N=440





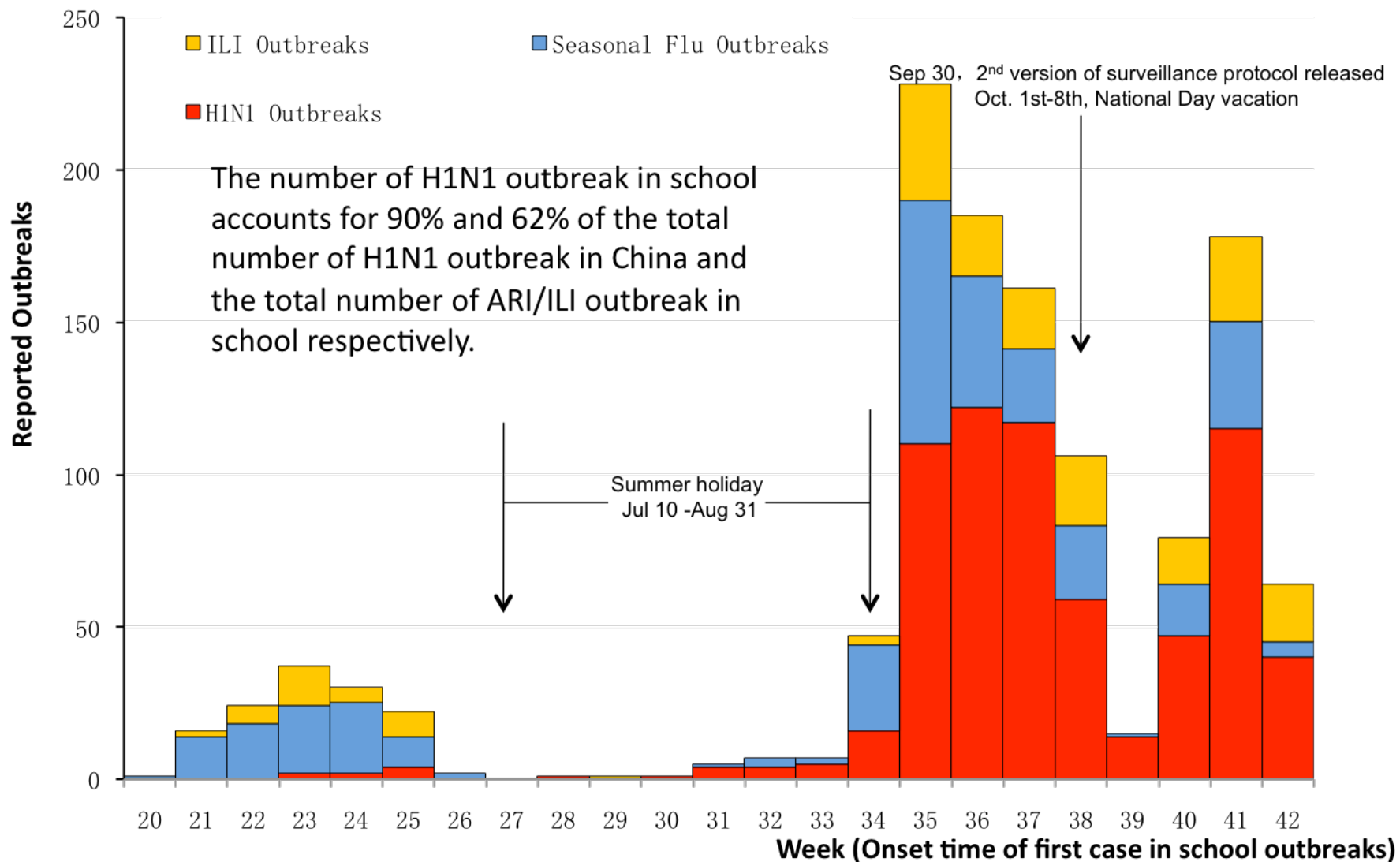
School outbreaks of pan(H1N1) 2009 influenza by county, China (May 30-Oct.25)

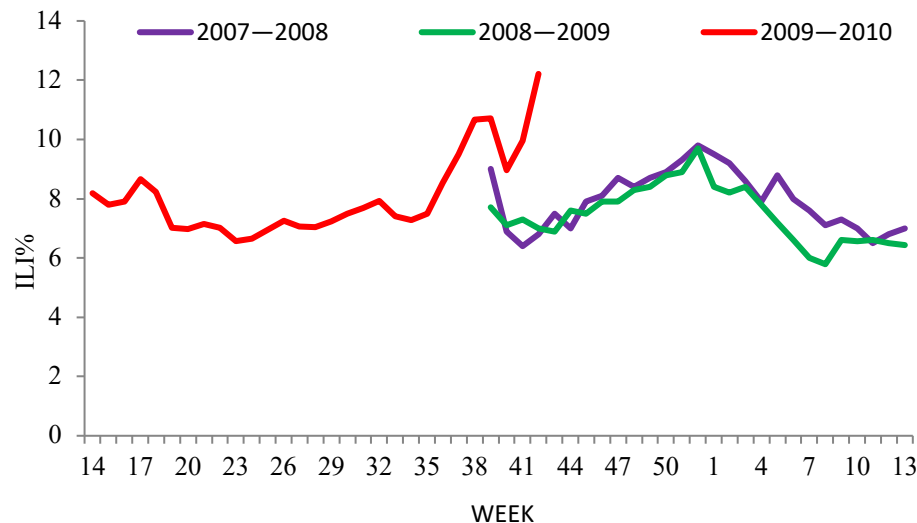
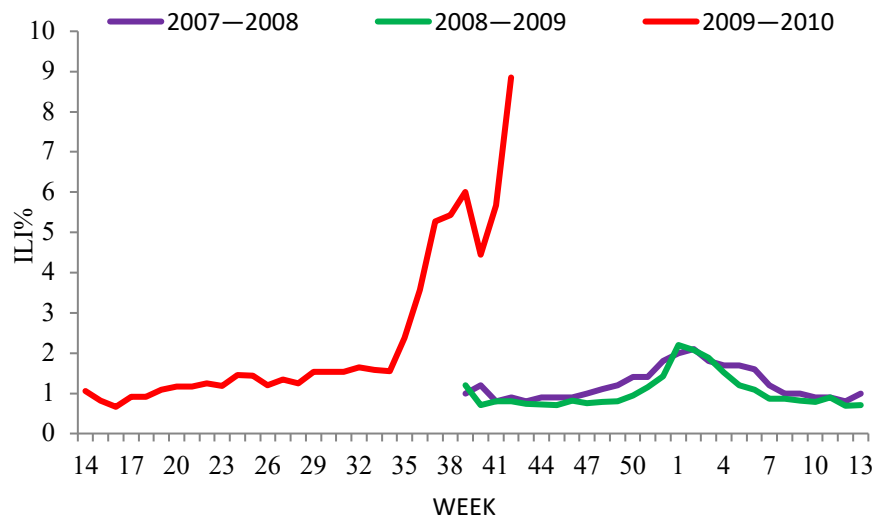
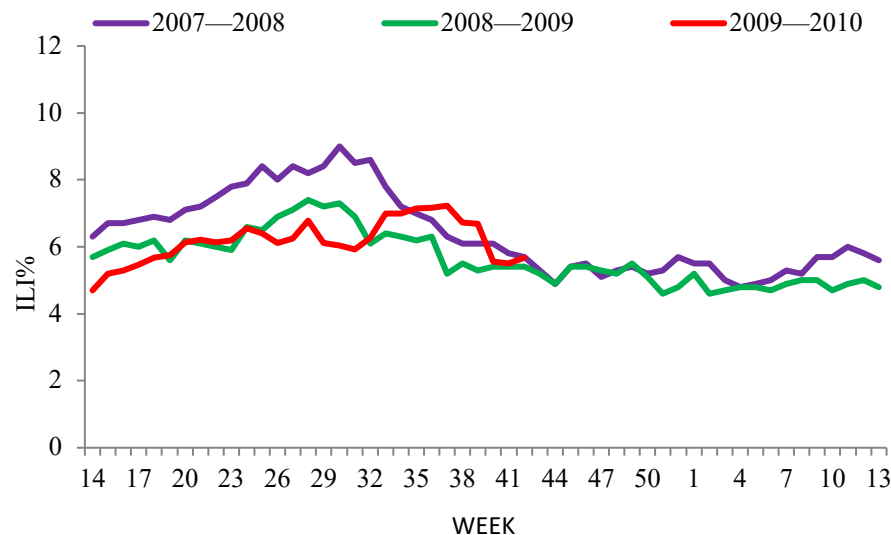
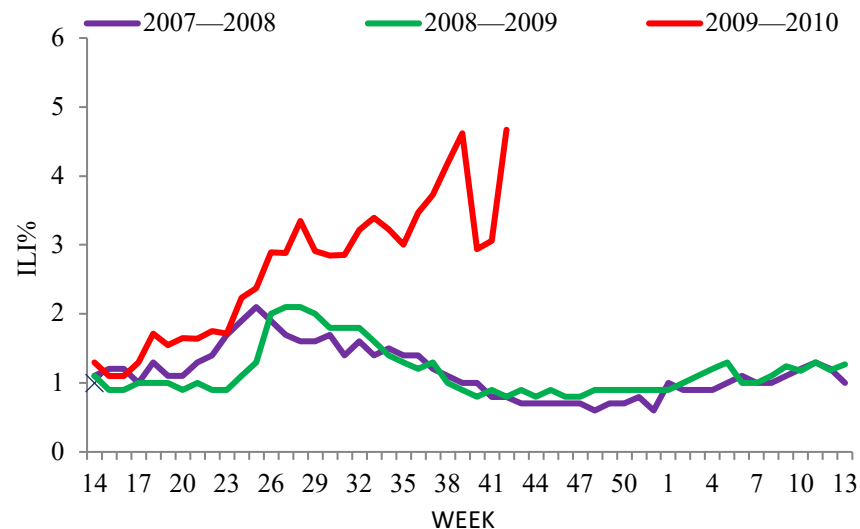


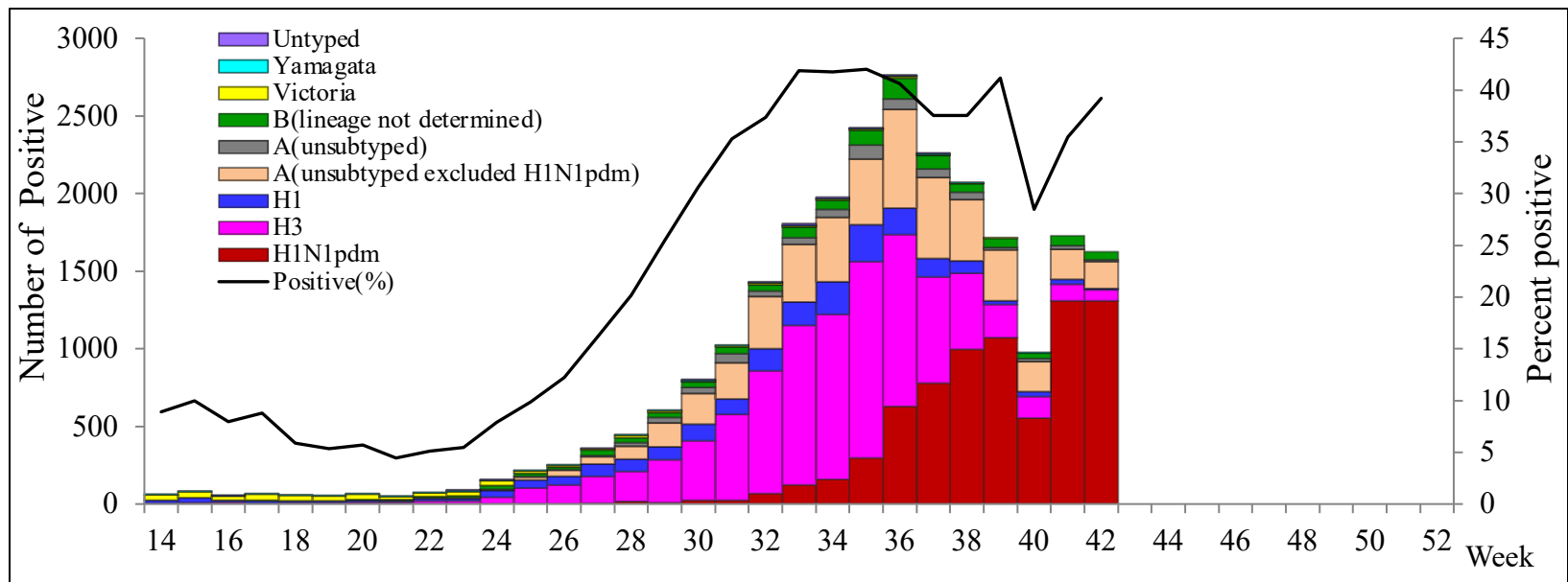
612 Counties reported pandemic (H1N1) 2009 influenza school outbreaks.



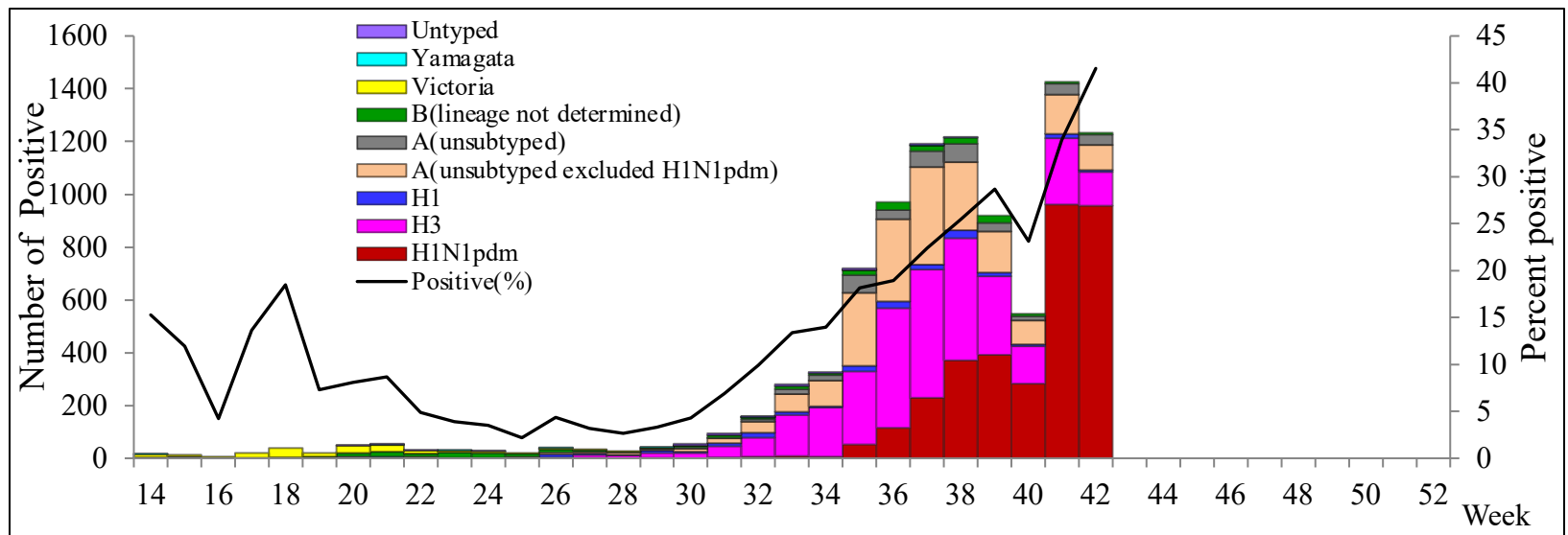
Epi-Curve of pan(H1N1) 2009 Influenza outbreaks in schools, China (May 30-Oct.25)







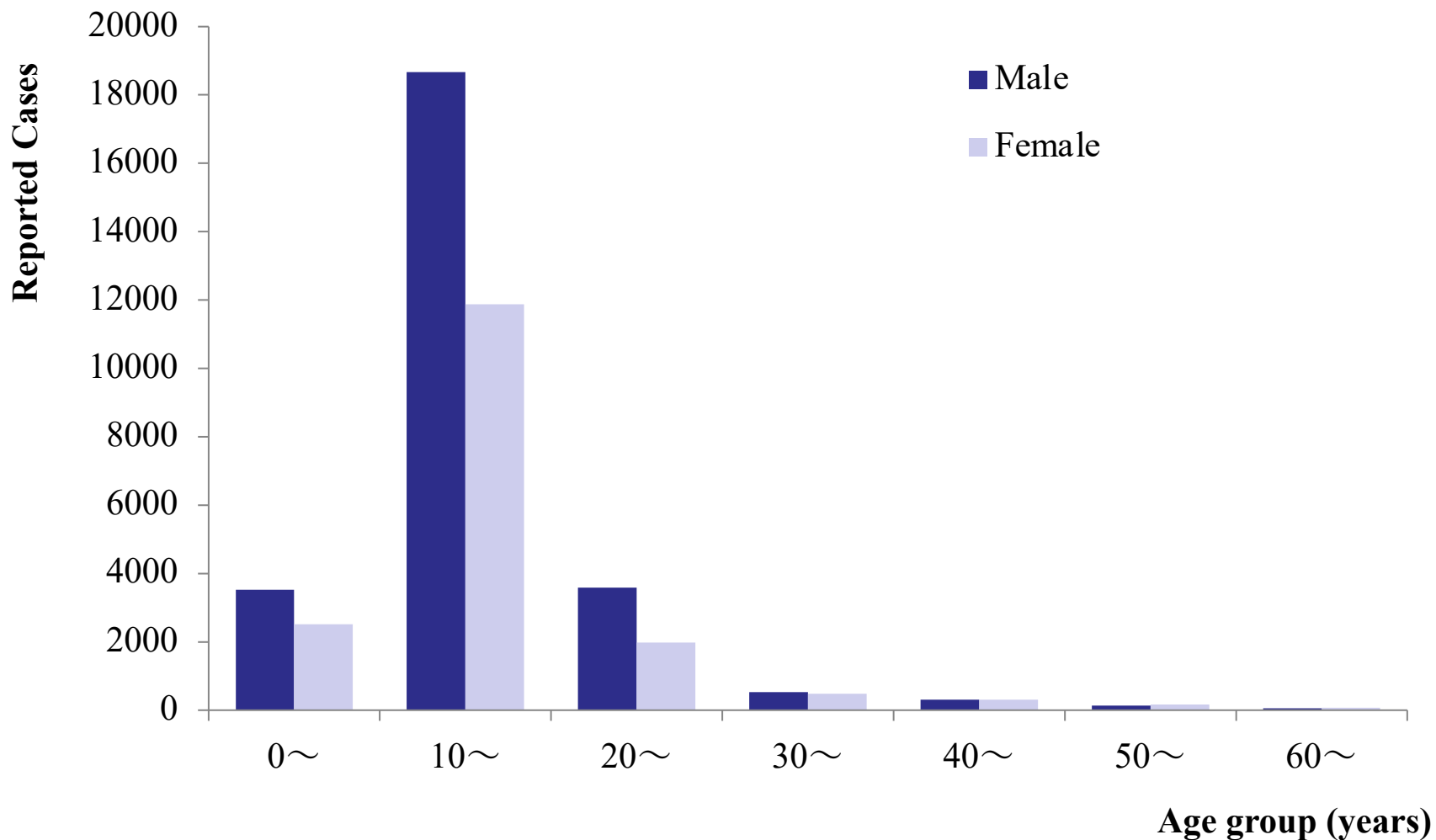
Percent of Specimens Positive for Influenza Reported by Influenza Lab Network: Novel Influenza A(H1N1) vs. Seasonal Influenza by Week, southern China, 2009



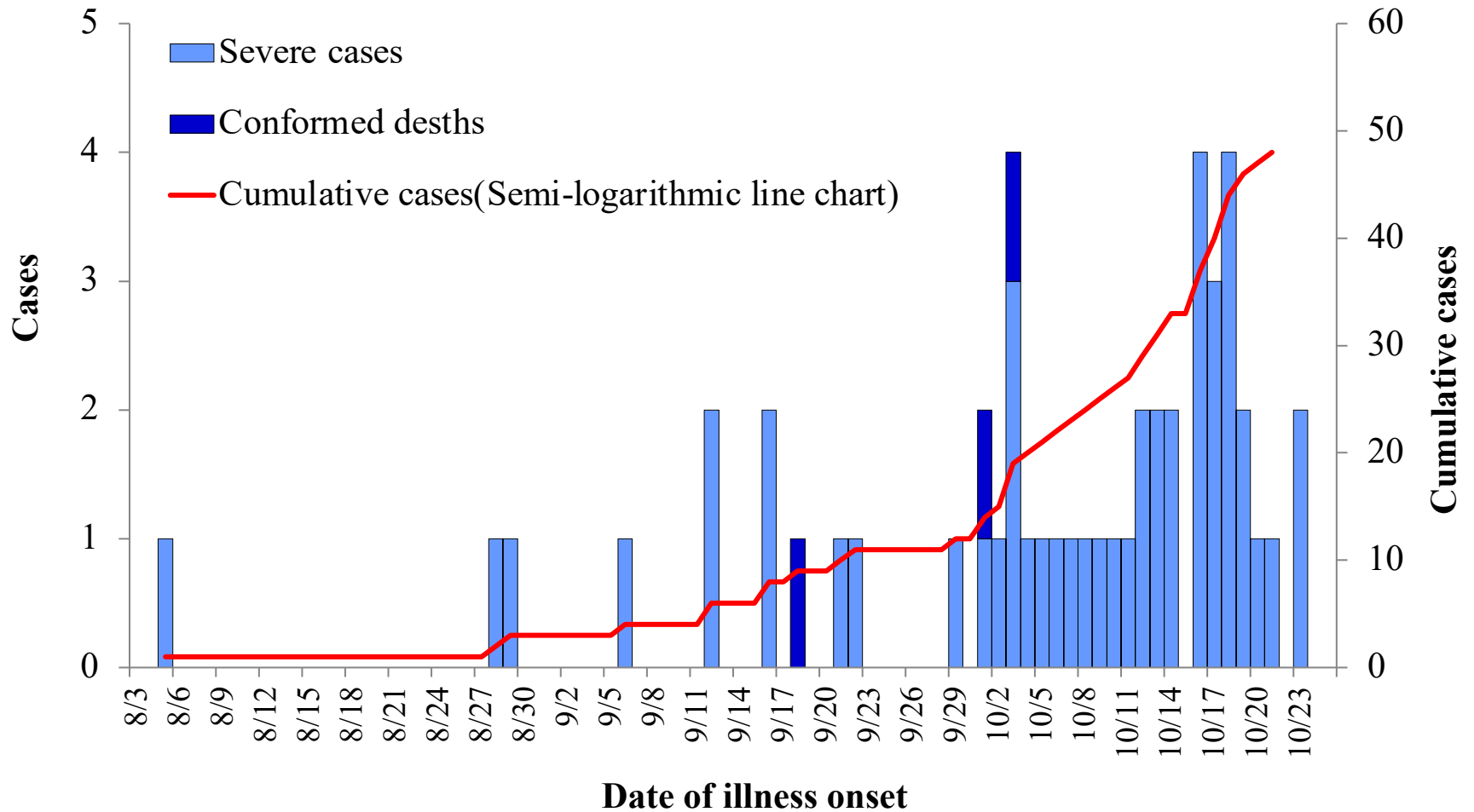
Percent of Specimens Positive for Influenza Reported by Influenza Lab Network: Novel Influenza A(H1N1) vs. Seasonal Influenza by Week, Northern China, 2009



Number of reported case, by age and sex



Reported severe case and death by onset time





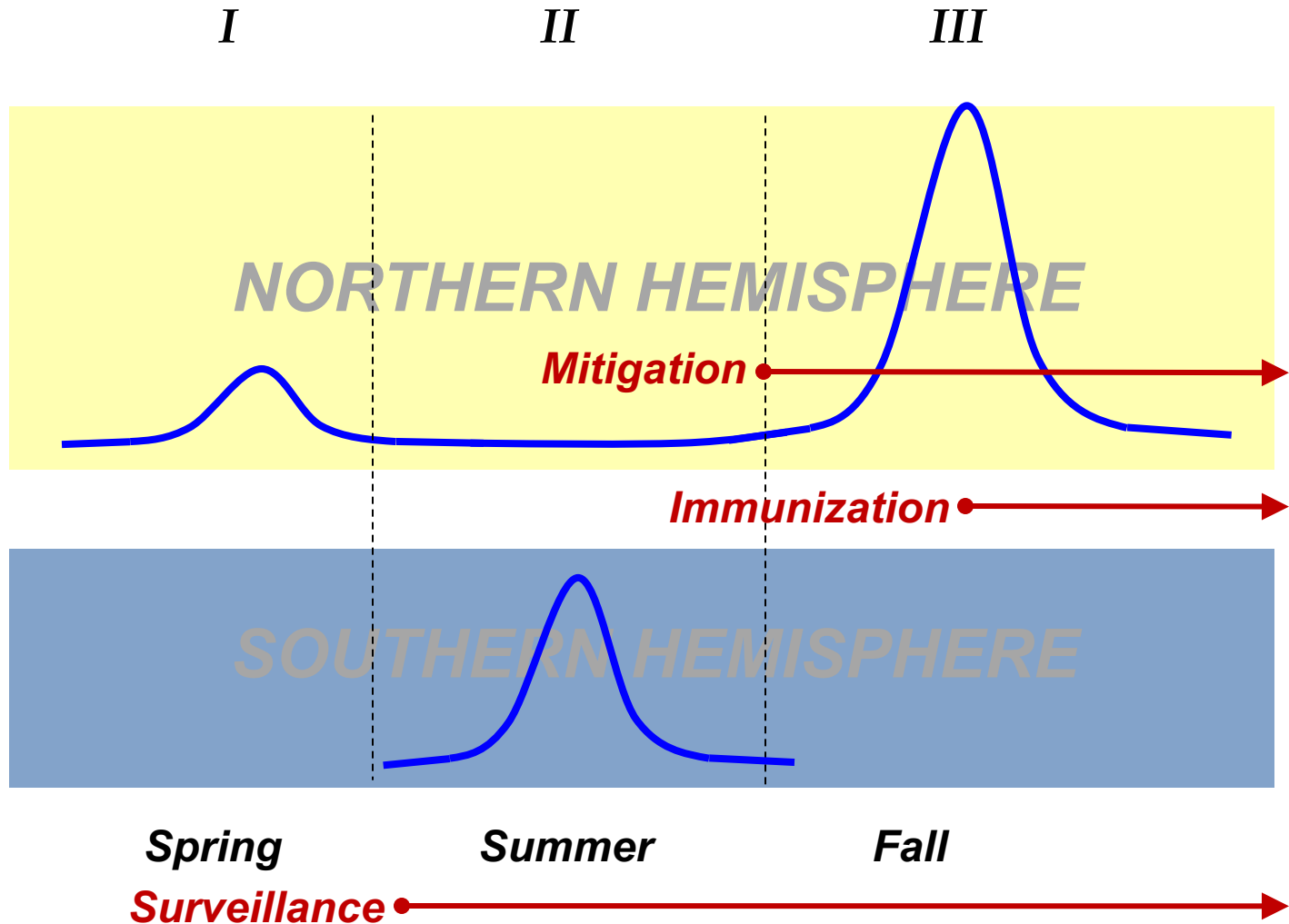
Characteristic of severe ill cases

(As of Oct. 25)

- **49 severe ill cases (4 deaths included)**
- **Gender: 31 male, 18 female**
- **Median age: 19 yo ,range:7 mo-72 yo**
- **Oseltamivir: 100%(7/7)**
- **ICU: 22.7%(5/22)**
- **Ventilator: 43.8%(14/39)**
- **Underly condition: 54.5%(24/44)**
 - **Diabetes, COPD, Hypertension, Uraemia, TB, Hepatitis B, Heart disease**
- **Complications :**
 - **pneumonia: 81.8%(18/22)**
 - **Respiratory failure: 54.5%(12/22)**

Response to pandemic(H1N1) 2009 influenza

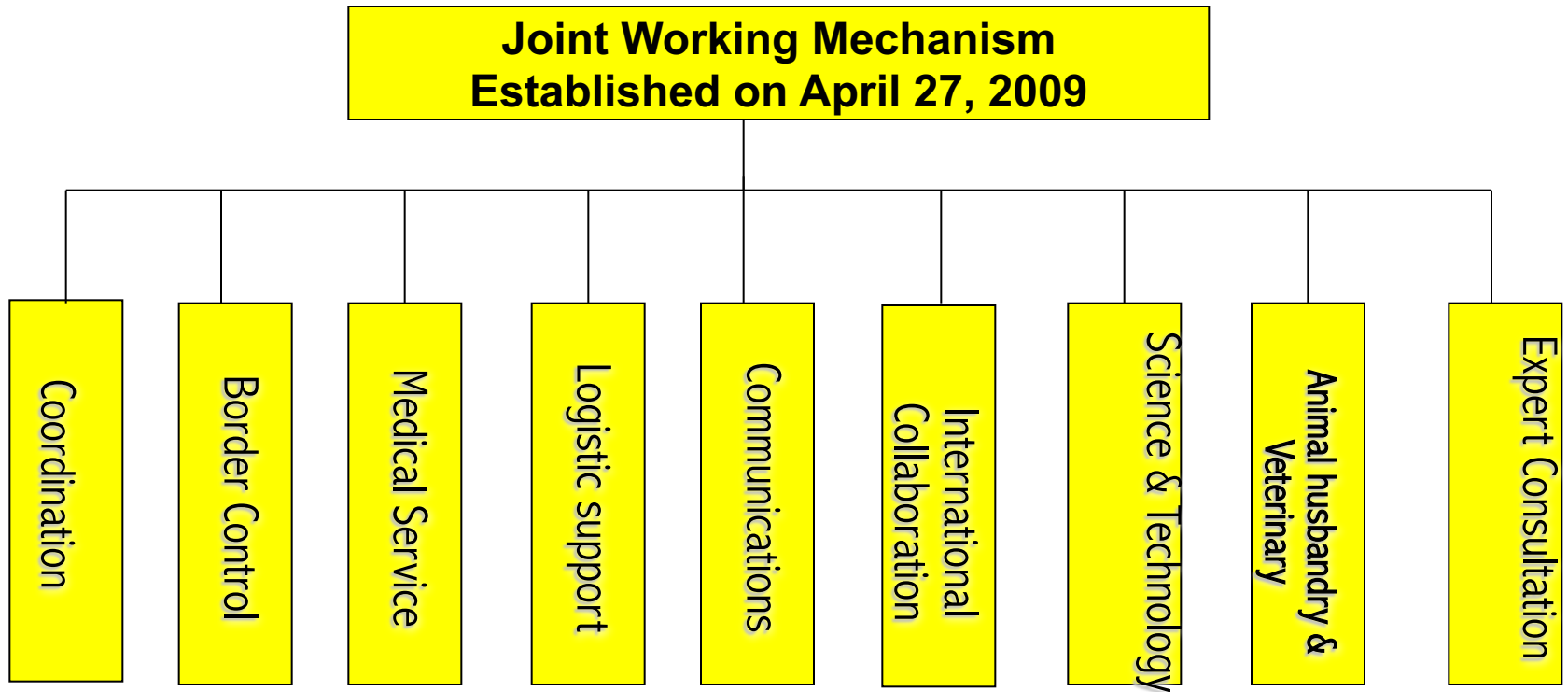
Pandemic Trajectory



Quick Response

- Government emergency response
- Border screening
- Expanding laboratory testing capacity (training)
- Enhancing surveillance
- Case isolation, close contact quarantine
- Anti-viral drug production and stockpiling
- Vaccine development and innoculaton
- Public health education and communication
- Timely technical guidelines updating according to the situation evolution
- International cooperation, WHO, USCDC, eCDC

National Joint Working Mechanism in Response to Pandemic(H1N1) 2009 Influenza in China



由卫生部牵头、中宣部、外交部、发改委、科技部、质检总局、农业部等33个部门组成，分为8个组和1个专家委员会



Change of Response Strategies

- **April 25-July 10**
 - **Containment of transmission caused by imported cases**
- **July 10-**
 - **Mitigation of community-level spreading**
 - **Preparation for winter season**



Border Entry Screening

- **As of August 23, 56 million travelers screened**
- **17,909 febrile patients found by fever screening**
- **757(4.2%) confirmed infection with novel H1N1 influenza**





Containment Stage

- **Border entry screening (BES)**
- **Case isolation and contact quarantine**
- **Expanding surveillance system and laboratory diagnosis capacity**
- **Development of guidelines**



WHO External Quality Assessment Programme for the Detection of Influenza Virus Type A by PCR

Panel 5 Preliminary Report

Dispatch dates:	19 Jan 2009
	30 Jan 2009
	2 Feb 2009
	4 Feb 2009
	5 Feb 2009
	9 Feb 2009



May 11, first H1N1 case of mainland China was confirmed by Sichuan province CDC.



Case Isolation & Contact quarantine

- **Case isolation**

- **Admitted to designated hospitals**
- **Strict isolation in single room**

- **Contact quarantine**

- **As of Aug10, tracing 9,938 close contacts quarantined at home or at designated hotels**
- **Among them , 551 (5.5%) confirmed infection with novel H1N1 influenza**



Expanding surveillance system and laboratory diagnosis capacity

- **Diagnostic kit development, distribution and training**
- **Influenza laboratory network expanded to all prefecture CDCs**
- **Expand ILI sentinel hospital surveillance system**
- **Mandatory reporting requirement of novel H1N1 influenza case**

Expand ILI Surveillance Sentinel Hospitals and Influenza Lab Network

• **Laboratories: 63**

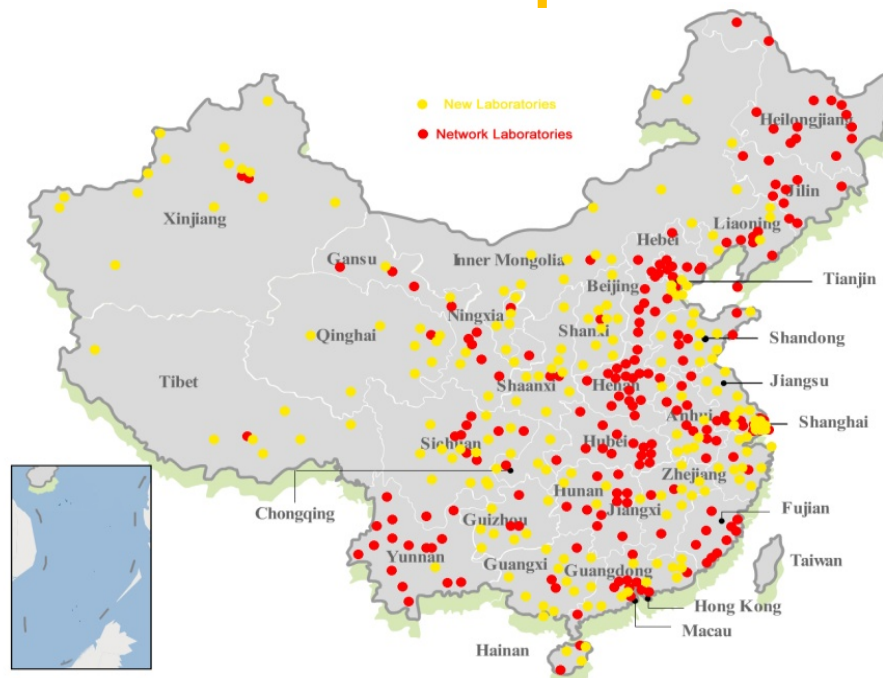
• **Sentinel Hospitals: 197**



Before May, 2009

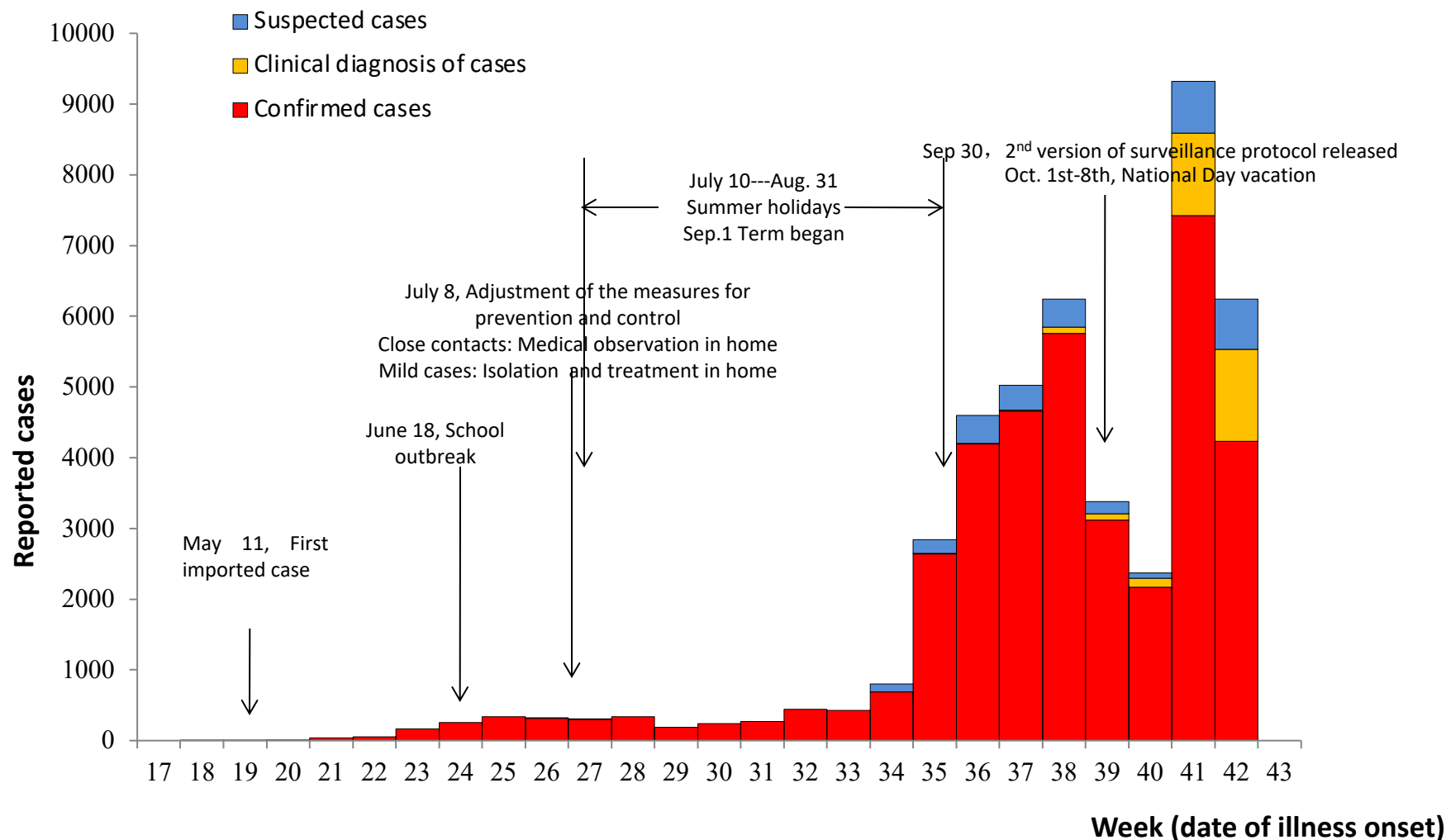
• **Laboratories: 411**

• **Sentinel Hospitals: 556**



After June 2009

Epidemic Curve of Pan(H1N1) Influenza Cases, China (As of Oct. 25, 2009, N= 44212)



Note: April 27 (Monday of Week 17), Oct. 25 (Sunday of Week 42)



Mitigation stage

- Change case reporting requirement
- Mass campaign of health education focusing personal hygiene and community prevention
- Control and management of school outbreak



Case reporting requirement

- Emphasizing severe ill case and death
- Laboratory diagnosis focus on
 - severe ill cases
 - cases with underlying medical condition
 - Outbreak confirmation



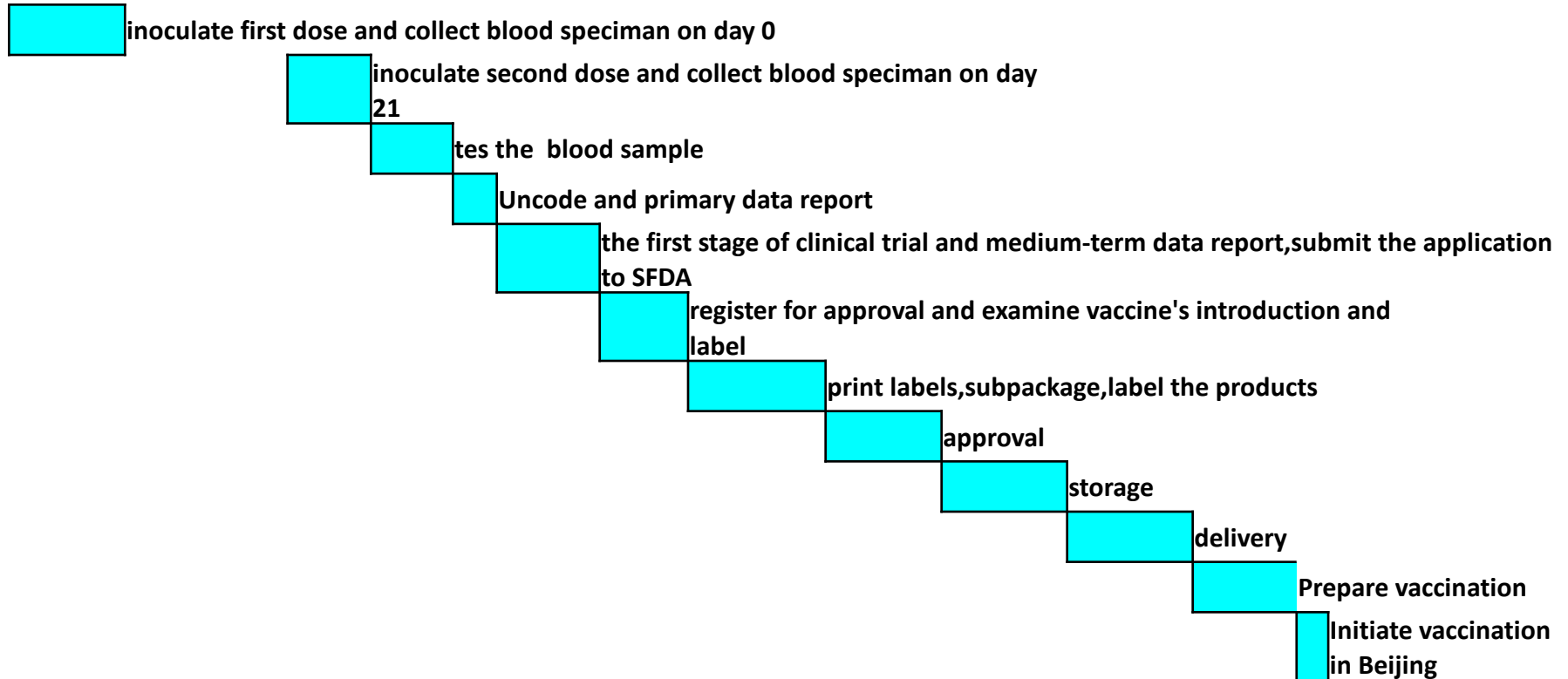
Vaccine and immunization

- **Clinical trial conducted by China CDC**
 - **10 candidate vaccines**
 - **3 formulas of vaccines: adjuvant whole virus inactivated vaccine , unadjuvant whole virus inactivated vaccine, unadjuvant split virus vaccine**
 - **13,800 subjects and 4 age groups**
 - **3 -11years, 12-17years, 18-60years and >60years**
 - **study design: randomized, double-blinded and controlled**
 - **Intervention: two IM dose novel H1N1 separated by 21 days**
 - **7.5 mcg, 15mcg and 30mcg**
- **Field studies launched on July and completed by 26, August**
- **SFDA conferred licenses to 10 domestic manufactures on September 14**
 - **Unadjuvant split virus vaccine**
 - **One dose for > 3 years old population**



Timeline of novel H1N1 flu vaccine R&D and immunization

22-26 Jul	27 Jul-11 Aug	16 Aug	17-20 Aug	21 Aug	22-23 Aug	24-26 Aug	27-29 Aug	30 Aug-13 Sep	14 Sep	15-17 Sep	18-22 Sep	21 Sep -
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H1N1 vaccine clinical trials of 10 manufactories

北京天坛股份有限公司
BEIJING Tiantan Corporation Limited



中国生物技术集团公司
长春生物制品研究所
Changchun Institute of Biological Products

上海生物制品研究所
Shanghai Institute of Biological Products

- ▶ 天坛生物-广西
- ▶ 科兴-北京
- ▶ 华兰-江苏
- ▶ 上海生物-湖南
- ▶ 兰州生物-内蒙古
- ▶ 长春生物-江苏
- ▶ 长春长生-广西
- ▶ 雅利峰-河南
- ▶ 天元-河北
- ▶ 延申-河南



HUALAN



江苏延申生物科技股份有限公司
本地图的长三角形地标——常州，其注册地



Safety Result-AEs Occurrence rate by Vaccine Type

Company A

Rate (%)

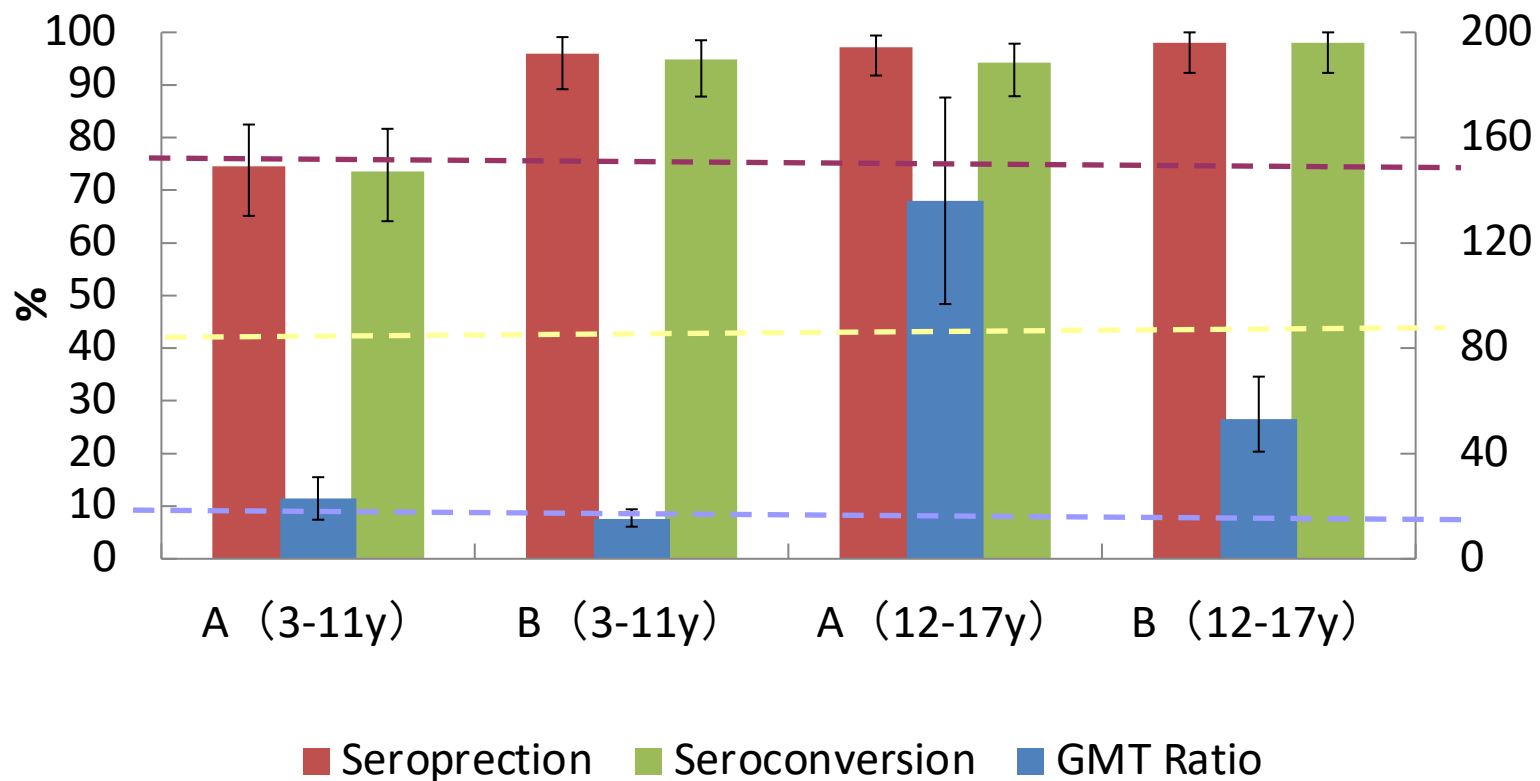
Vaccine Type	No.	I	II	III	IV	Total
Without Adjuvant 15µg	440	10.7	0.7	0.0	0.0	11.4
Without Adjuvant 30µg	440	14.1	1.1	0.7	0.0	15.9
with Adjuvant 15µg	440	9.1	0.7	0.0	0.0	9.8
With Adjuvant 30µg	330	9.1	0.3	0.0	0.0	9.4
With Adjuvant 7.5µg	440	8.6	0.5	0.0	0.0	9.1
Total	2200	9.9	0.6	0.1	0.0	10.6

Local reactions: Pain, Swelling, Induration, Rash, Itching

Systemic reactions: Fever, Fatigue, Muscle Pain, Diarrhea, Allergy, Headache



Immunogenicity by Age, without Adjuvant-15ug





Antiviral drug

- **Emergency authorization on Oseltamivir production for domestic manufacture**
- **Increasing production**
- **National stockpile and deployment**
 - **1.3 million of treatment doses by 30 Sep. 2009**
 - **Second Lot. by November**
- **Priority of antiviral drug treatment**
 - **severe ill cases**
 - **cases with underlying medical conditions**

Health education campaign for personal hygiene and community prevention

- **Core information delivered**
 - **Hand washing**
 - **respiratory etiquette**
 - **stay home when sick with flu-like illness**





Control and management of school outbreaks

- **Promoting hand hygiene and respiratory etiquette**
- **Morning fever screening**
- **Stay home when sick with flu-like illness**
- **Separate students with ARI and ILI from the healthy**
- **School closure and class dismissal**

Preparing for fall/winter season



Preparing for winter season

- **Enhance surveillance**
- **Vaccine production and innoculaton**
- **Antiviral drug stockpiling and distribution**
- **Medical service preparedness**
- **Monitoring of medical care burden and guidance for social distancing measures**
- **Public communication and advice**



Enhance surveillance

- **Strengthen situation analysis and awareness**
- **Establish severe acute respiratory infection (sARI) surveillance in selected sentinel hospitals**
- **Analysis of hospital mortality reporting**



Vaccine and immunization

•Results and conclusions of clinical evaluation:

- All vaccine formulations were well tolerated without immediate serious adverse events.**
- Seroconversion rate and protective rate was >85% among both 15µg and 30µg group without adjuvant**
 - 1 dose split-virion vaccine without adjuvant had better immunogenicity than vaccine with adjuvant**
 - Adolescent and adult had better response than children and elder**
- The AEs occurrence rate similar as seasonal influenza vaccine**
- Considering safety, immunogenicity and cost, 15µg split vaccine without adjuvant could be used for future vaccination**



Vaccine and immunization

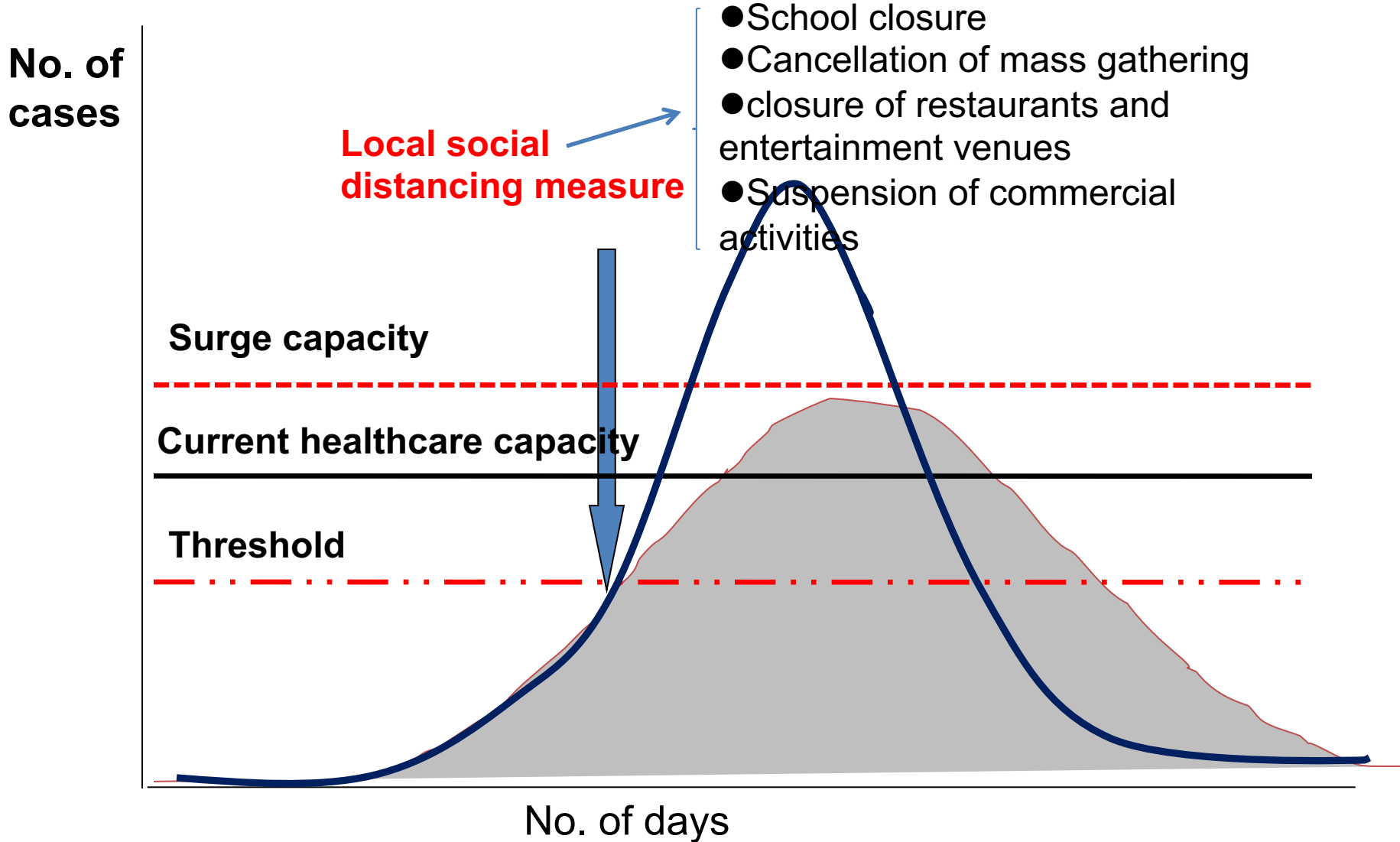
- **Vaccine production and distribution**
 - **As of Oct. 21, 20 millions doses distributed and 222 thousands of persons vaccinated**
 - **100 million doses of vaccine expected to be produced by the end of first qua of year**
- **Priority of population groups:**
 - **primary and middle school student**
 - **health care workers and other essential service worker**
 - **people with underlying medical condition**
- **Enhance surveillance of AEFI(adverse events following immunization)**



Surge capacity of medical care

- Development of clinical management of severe ill case and patients triage guidelines
- Development of infection prevention and control guidelines
- Ventilator stockpile and increasing ICU capacity
- Physicians training

Guidance for reduce surge burden on Local medical care





Communication and advice service

- **Continued mass campaign of health education to promote personal respiratory hygiene and prevention**
- **Main topic of public communication**
 - **Rationale of vaccination priority group policy**
 - **Vaccine safety concern**
 - **Mild case “self-isolation” and home care**
 - **Dealing with stress and anxiety for increasing of severe case and death**



Public communication and advice





Challenges

- Huge population vs. limited resources
- Uneven development between eastern and western areas.



Thanks