

Epidemiology of Influenza in Malaysia & Surveillance System

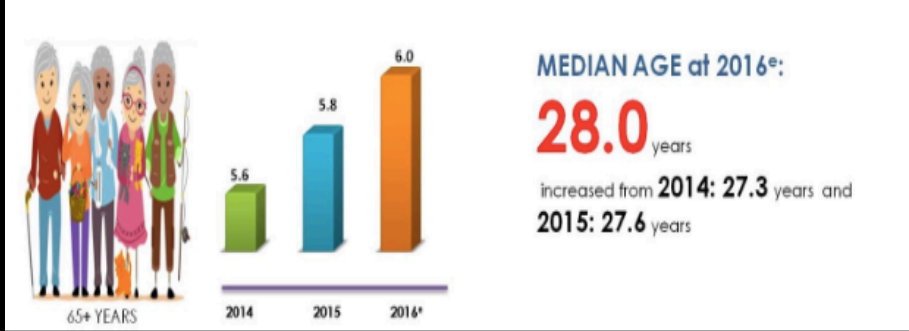
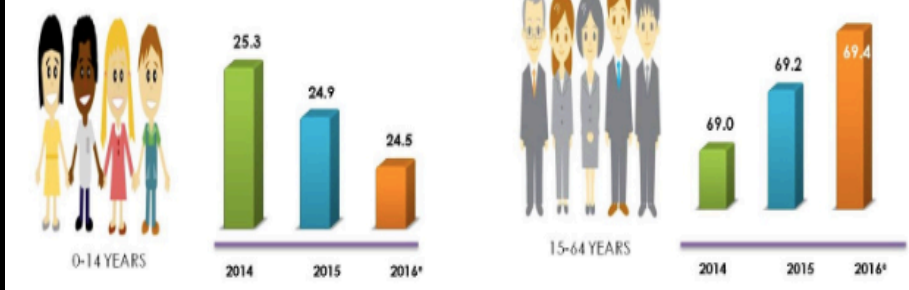
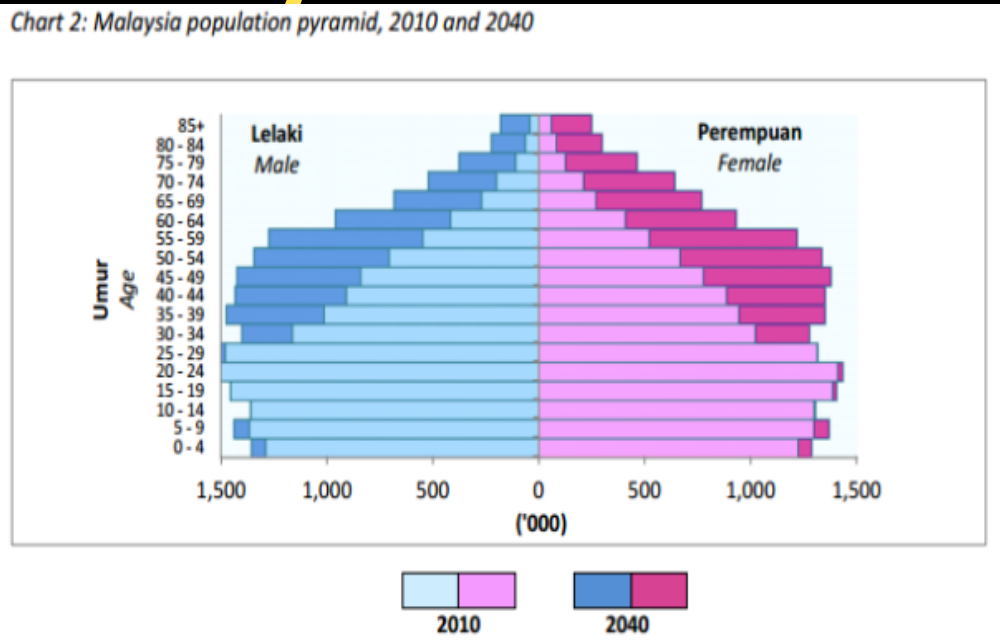
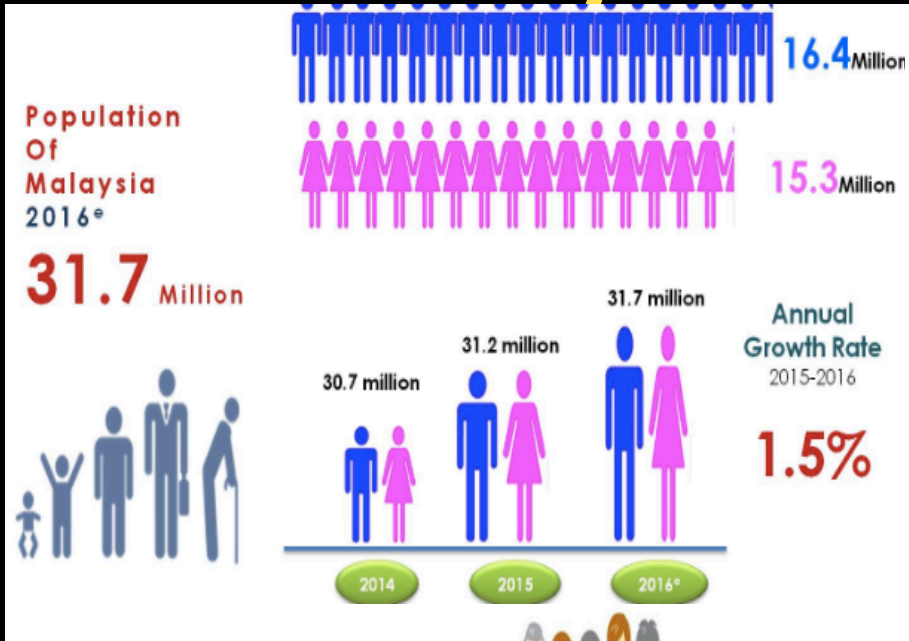
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Malaysia –Country Profile

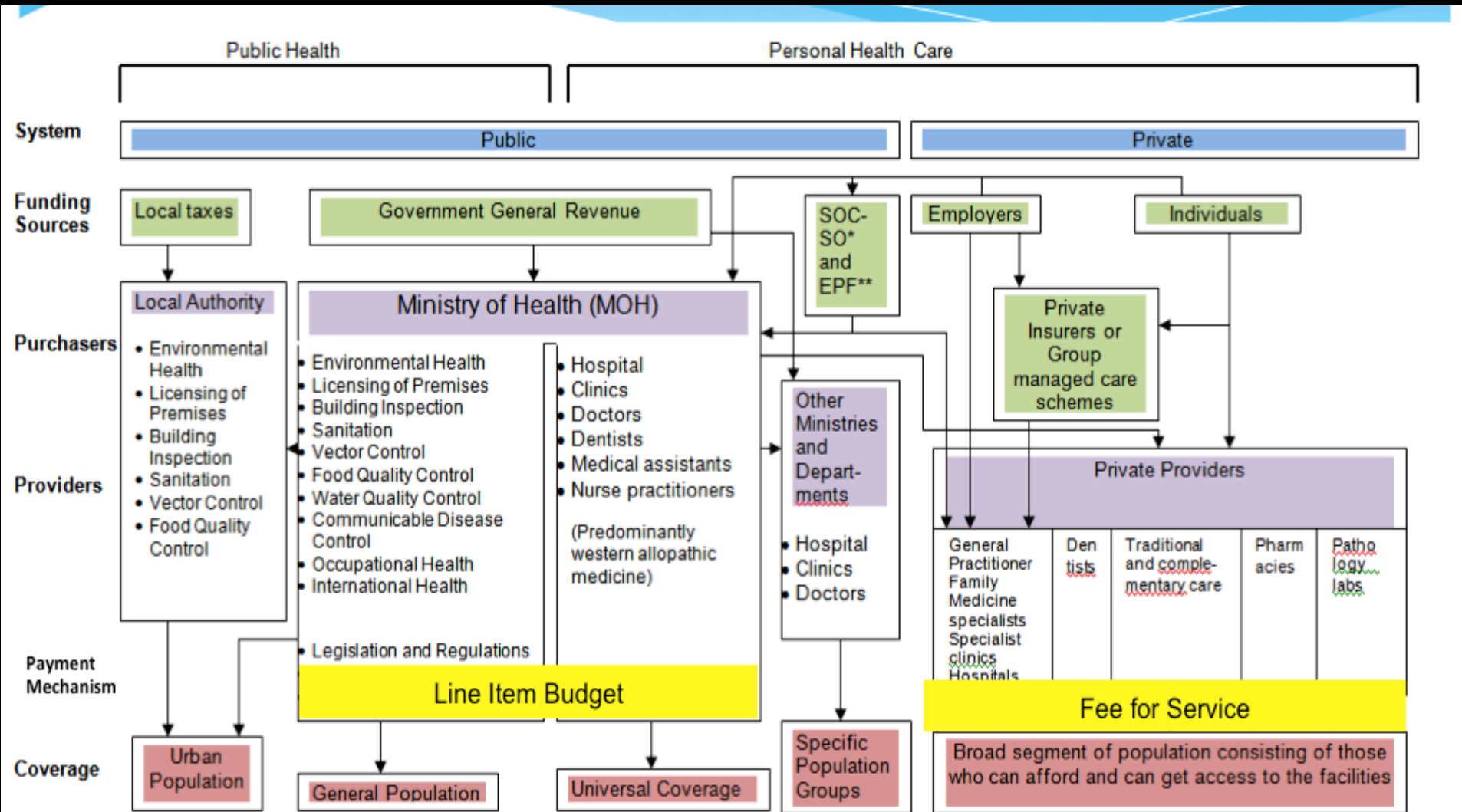


High proportion of immigrants and expatriates
 Multi-ethnicity, multi cultural & beliefs
 Literacy rate 94.6% (male 96.2% /female 93.2%)
 Life expectancy 75 Y (male 72.7 Y / female 77.3Y)

Dual health system

- public 80% inpatient care
- 35% ambulatory care
- private > in urban setting
- traditional practitioners ****

Malaysia Healthcare System



NHMS2011 –
(only medical visit)

Hospital Admissions - 74% : 26%
Outpatient contacts - 49% : 51%

HCUA study

Influenza Surveillance System

- Started as project-based by the Institute for Medical Research (IMR) since 1954 with voluntary participating clinics around Klang Valley
- The Malaysian Influenza Surveillance System (MISS) started in 2003 following major outbreaks at residential schools with two component
 - Disease-based surveillance
 - Laboratory-based surveillance

Malaysia Influenza Surveillance System

- Disease-based surveillance
 - 221 sentinel sites inclusive of Gov HC and private clinics
 - Case definition of ILI
 - Abrupt onset of high grade fever (axilla > 38% or oral >38.5%) with dry cough within 48H and with any of the following symptoms; nasal congestion, sore throat, myalgia, vomiting & convulsion (infants)
- Laboratory-based surveillance
 - NIC – 1 (*WHO-2), 1 NIL
 - At least 2 sentinel sites/state for clinical specimens
 - At least 5-10 specimens from ILI cases/clinic/week

Malaysia Influenza Surveillance System –Enhanced Surveillance -1st amendment 2009

In response to influenza A (H1N1) pandemic, MISS was reviewed:

1. Case definition of ILI changed to; *a person presenting with sudden onset of fever $\geq 38^{\circ}\text{C}$ and cough or sore throat, in absence of other diagnosis*
2. SaRI added; *ILI plus shortness of breath or difficulty breathing AND requiring hospital admission*
3. All Gov health clinic involved and send their return daily

Malaysia Influenza Surveillance System –Enhanced Surveillance -1st amendment 2009

4. Revisions to the number and identification of Sentinel sites;

For ILI

per district – 2 Gov HC and 1 private clinic

For SaRI

per state – 1 Gov Hospital and 1 private hospital

Analysis of Influenza after 2009 Pandemic

Study done in 2010 showed that 99.8% (876) of ILI cases not diagnosed as ILI by the health care provider

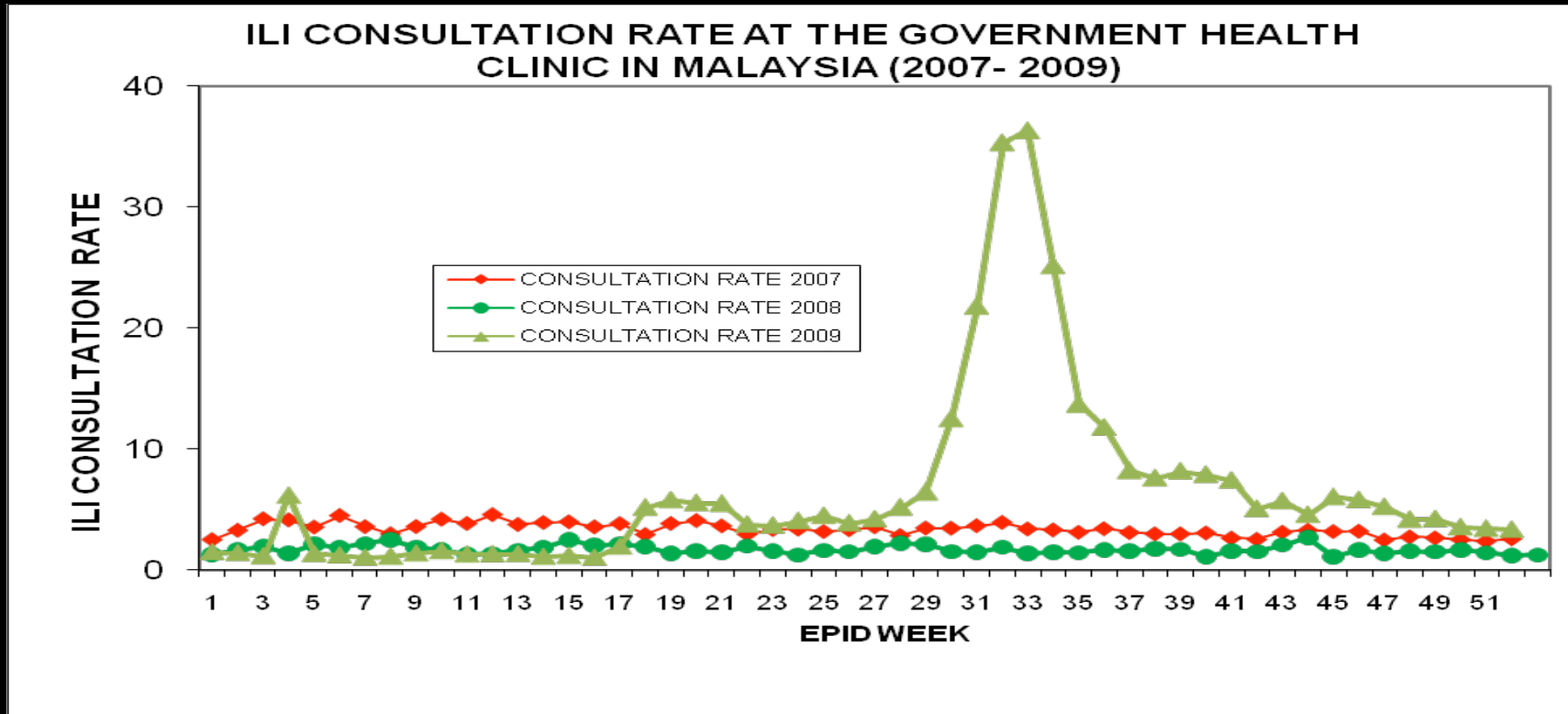
Study showed that less than half 47.4% (9) of the health care provider able to give correct definition of ILI and only 0.2% (2) of ILI cases being diagnosed as ILI by health care provider (doctors or medical assistant) in the health centre.

Analysis of Influenza after 2009 Pandemic

During the study period, this was the finding:

The highest ILI consultation rates were recorded among children and youths aged ≤ 19 years. Children aged 1--4 years had the highest ILI consultation rate (154 per 100,000 age group population), followed by infants aged < 1 year (110 per 100,000), and persons aged 5--19 years (97), 20--34 years (96), 35--49 years (66), 50--64 years (57) and ≥ 65 years (23).

Is this a true increase or pseudo?



First case of Influenza A(H1N1) in Malaysia detected on 15 May 2009. Local transmission of Influenza A(H1N1) identified on 21 June 2009. Since then, Influenza A(H1N1) cases showed increasing trend with the peak occurred at epidemiological week 33 in 2009 with 3133 cases reported in the country

Conclusion from the study

- Healthcare workers do not perceived influenza as a priority disease
 - Data quality poor, returns not sent, data not analyzed timely at district level, data analyzed at state and national level did not reflect the actual situation at local level
- People in general do not take influenza seriously
 - Majority self healing, low fatality rate

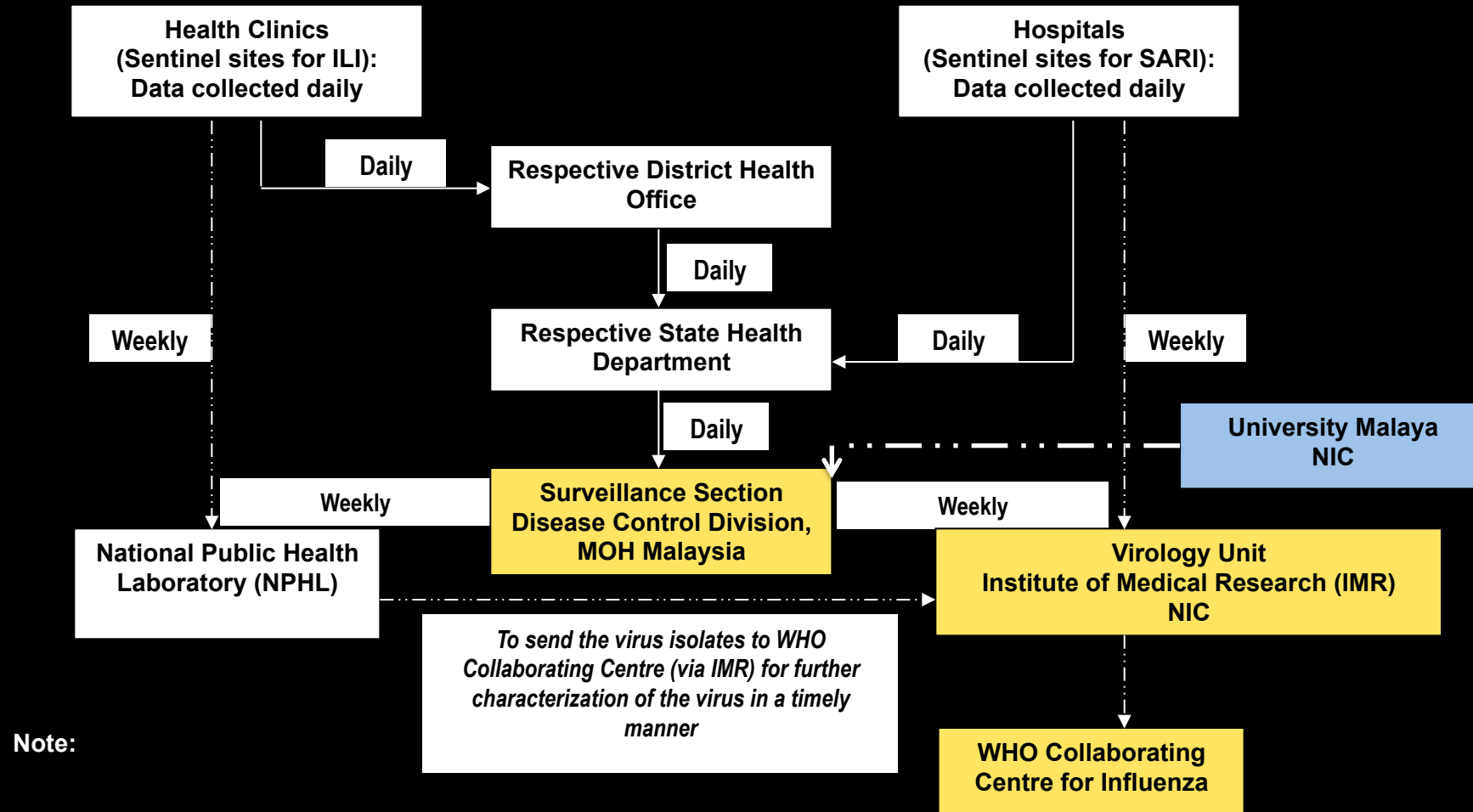
MISS needs to be reviewed -WHY

- Influenza is present all year round, no seasonality
- Outbreaks do occur and reported time to time
- It is not mandatory to report under the CDC Act i.e. not a notifiable disease
- Presence of diversity of respiratory illness which are life threatening
- Perception towards Influenza differs
 - Varying with cultures/ethnic and economic context

Malaysia Influenza Surveillance Protocol (MISP) 2016

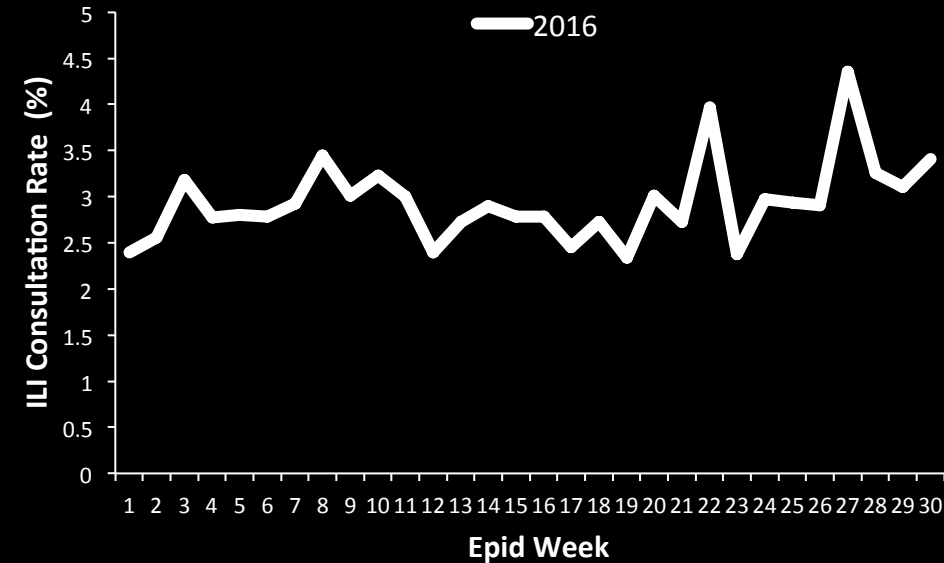
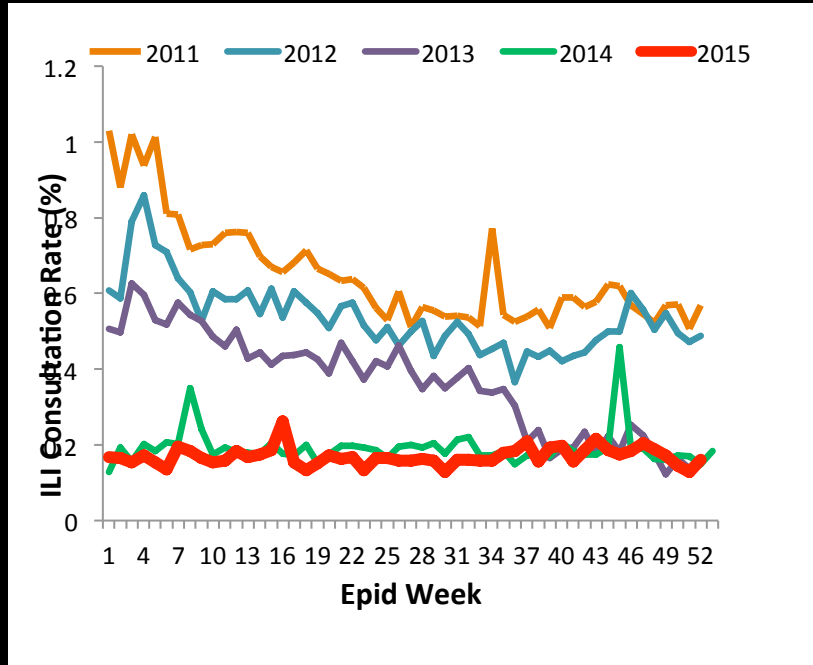
- Will replace the Enhanced MISS 2009
- 2 main components
 - ILI (15 sentinel sites) and SaRI (9 sentinel sites) send daily returns to Surveillance Section, MOH
 - Clinical ILI samples – to NPHL
 - Clinical SaRI samples – to IMR
- Direct monitoring from Surveillance Section, MOH

Flow of Data Related To Influenza Surveillance Activity



→ Flow for epid data
 -.-> Flow for clinical specimens

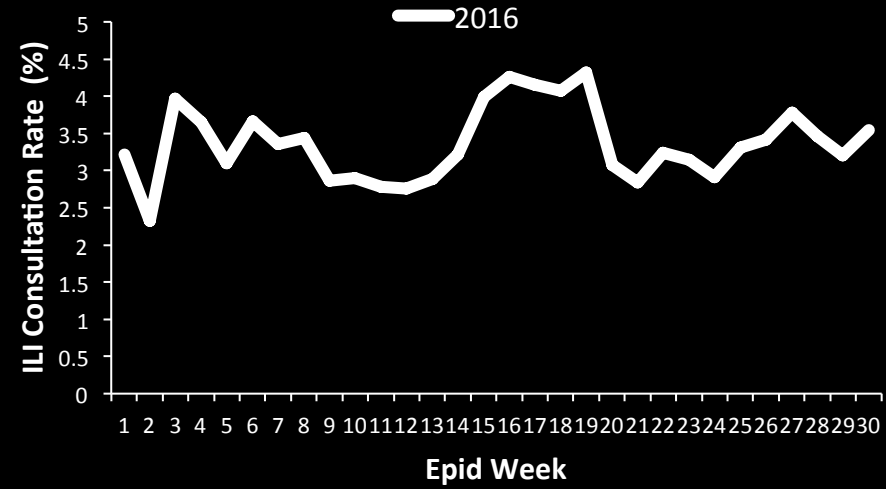
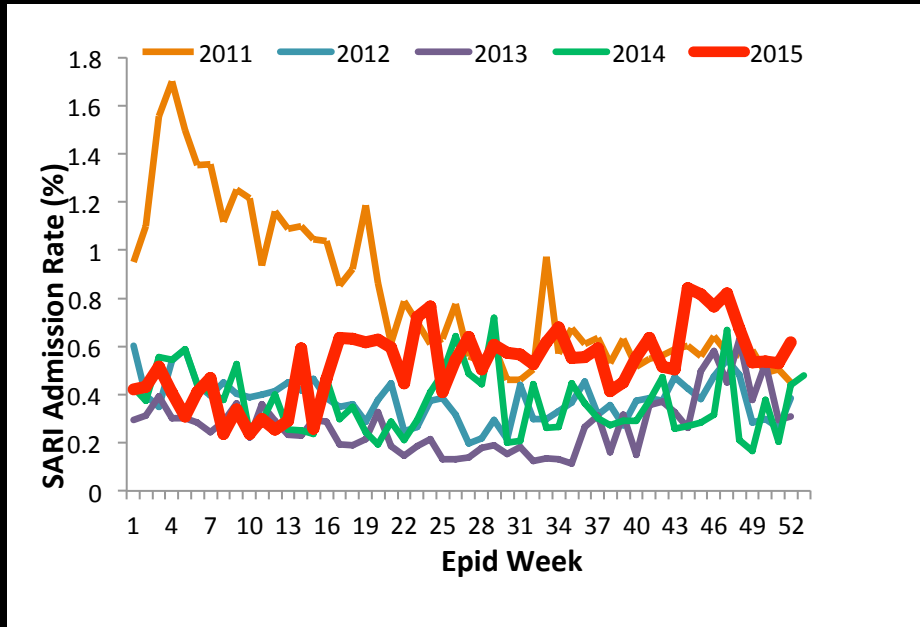
ILI Consultation Rate 2011-2016



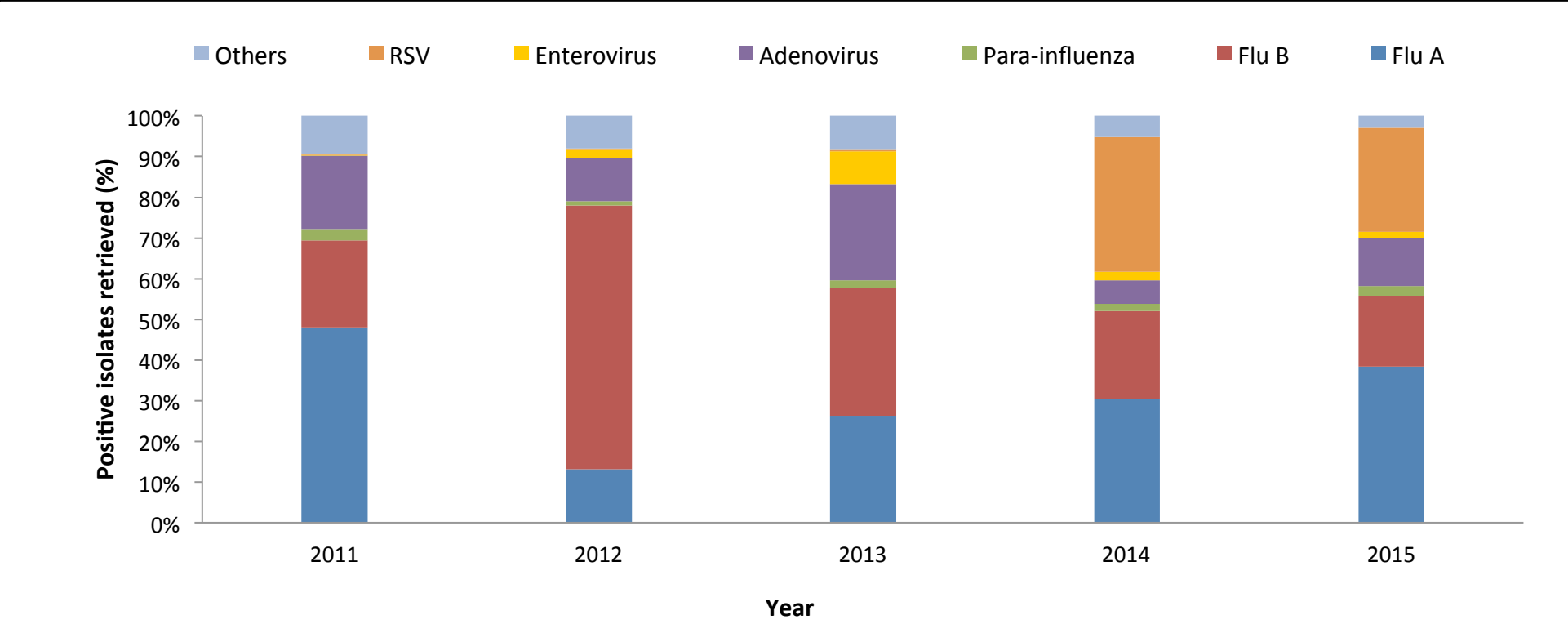
Why the change in trend in 2016?

- change in case definition
- close monitoring / supervision

SaRI Consultation 2011-2016

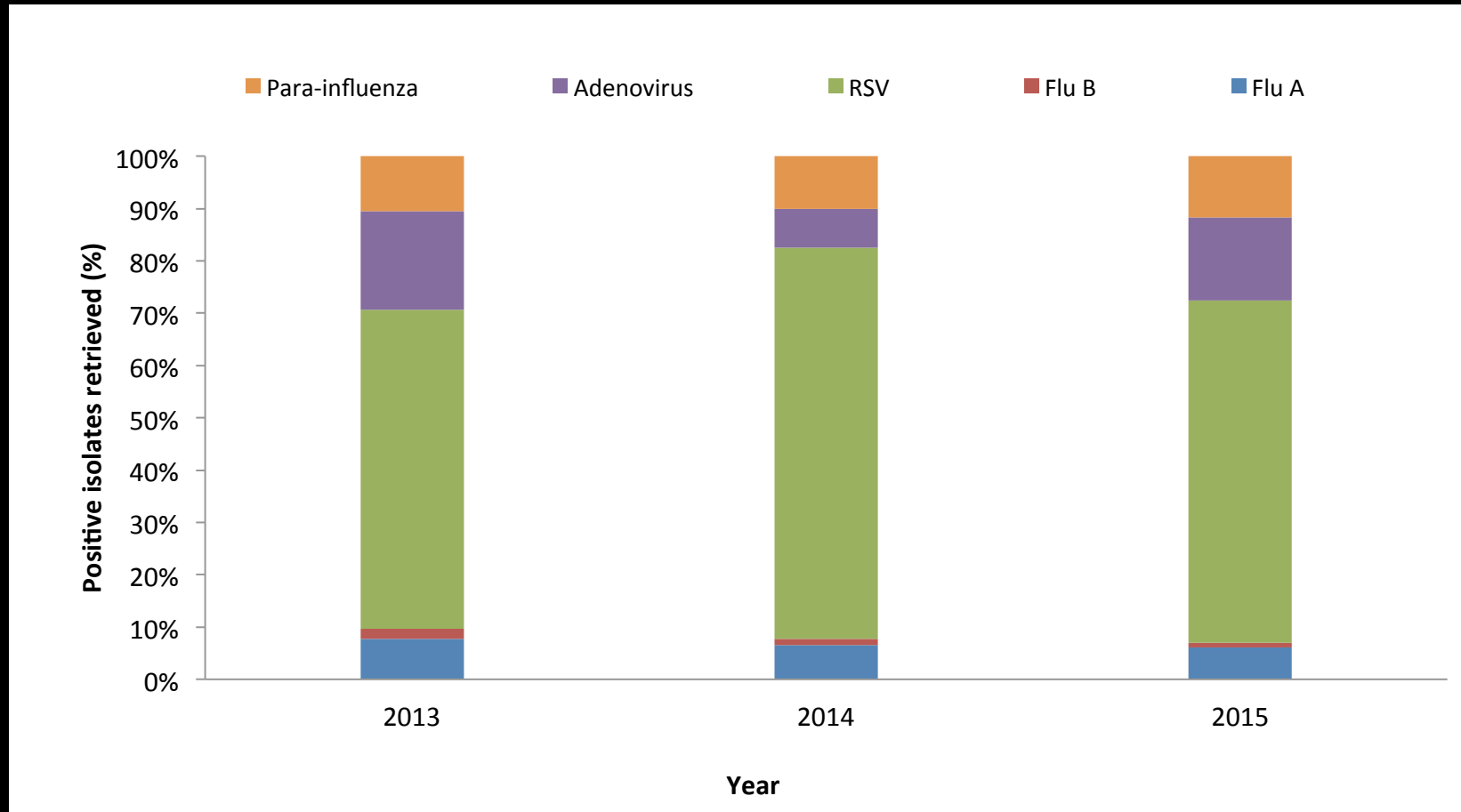


Positive Isolates for ILI 2011-2015



Source: NPHL

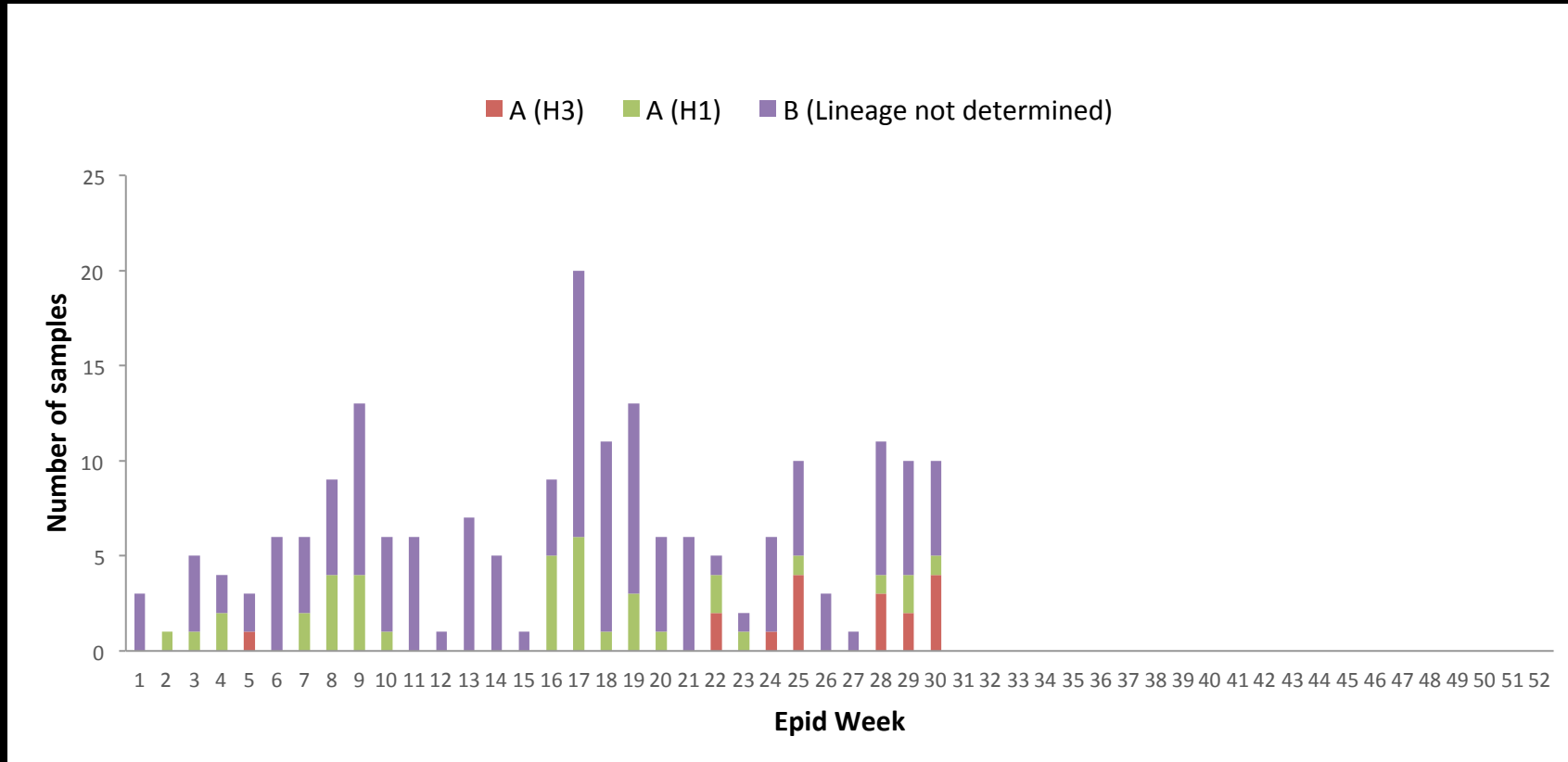
Positive Isolates for SaRI 2013-2015



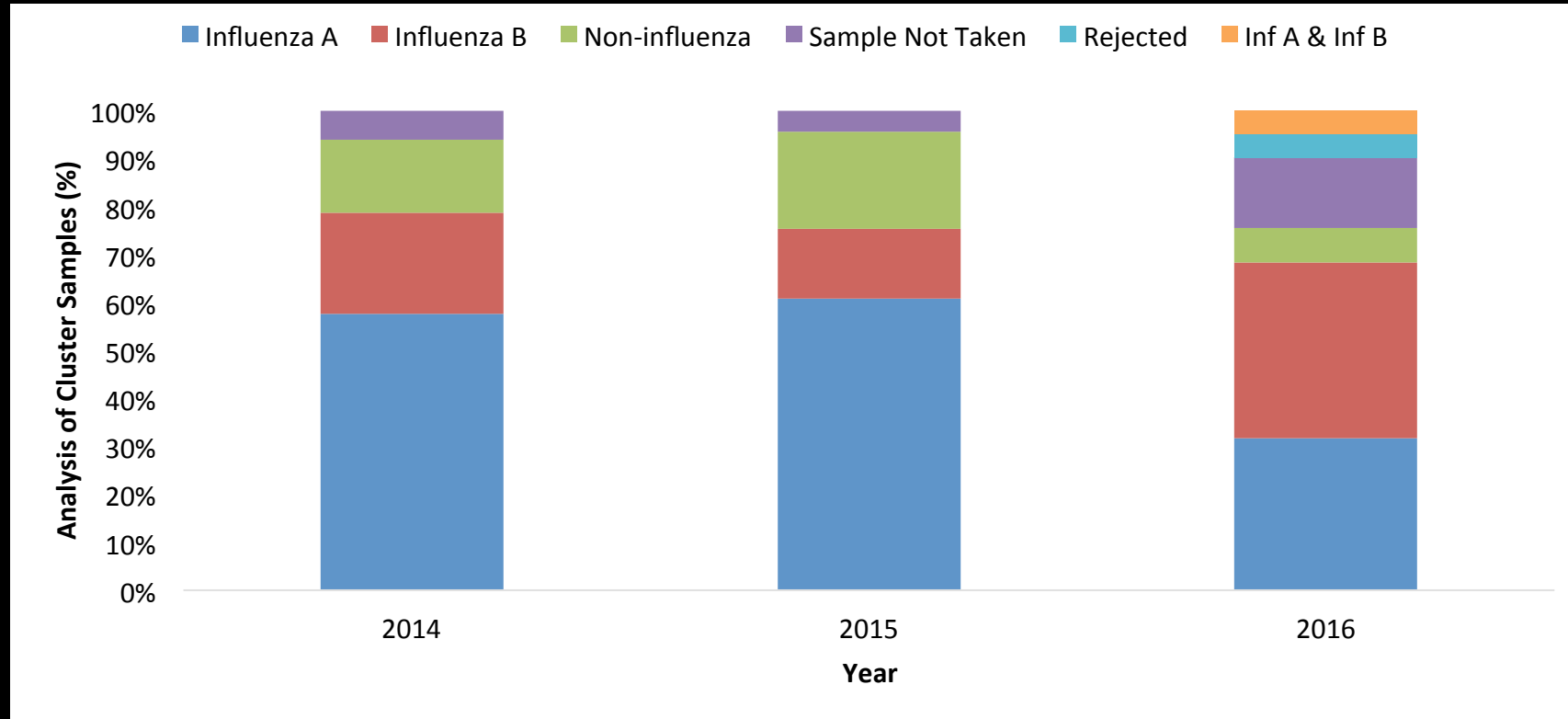
Source: Institute for Medical Research (IMR), Kuala Lumpur

Note: SARI samples surveillance started Epid Week 14/2013

Number of Positives for Influenza by Subtypes 2016



Cluster Trend 2014-2016



Note: Surveillance started Epid Week 14/2013

Source: Surveillance Sector, MOH

New Influenza Surveillance System in Malaysia

- **Surveillance Section**, Disease Control Division, Ministry of Health Malaysia – Program
- **National Public Health Lab** - Reference lab for national surveillance
- **National Influenza Centers** identified by WHO
 - **IMR** samples taken from NPHL i.e. national
 - **UMMC** samples from its hospital i.e. specific focus area

Thank you

Mission to understand global airline transportation network
as a conduit for international spread of infectious diseases

