

**Infectious Diseases Dashboard**  
-real time prediction for prevalence of infections



WH Seto, Hong  
Kong, China



**Surveillance dashboards**

- Public health surveillance:
 

“... the ongoing, systematic collection, analysis and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination to those who need to know.”

*Thacker, 2000*

**Dashboards**

Definition  
 A panel under the windshield of a vehicle

**Monitoring of vital data with immediate interpretation from the driver.**

- Real-time data
- Driver

Possible data for dashboard

- Hospital discharge data with diagnosis
- Hospital admissions data
- Notification data
- HA laboratory data
- DH laboratory data
- A/E data/AEIS data
- GOPC data
- Sentinel Clinics data
- Mortality data
- CHP collected data
- Modeling of these data

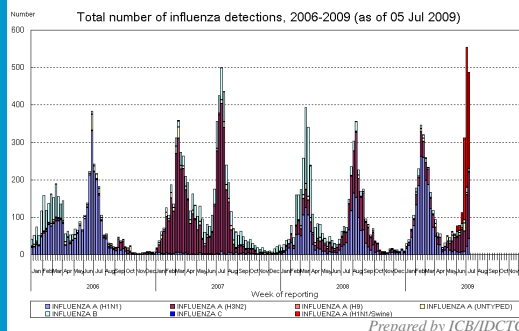
Key data for present dashboard

- Results of rapid laboratory testing (1500 specimens a week) in 5 hospitals.
- Hospital admissions by age group especially pediatrics (0-4 yrs) and >65
- Laboratory specimens from Public Health Laboratories
- GP sentinel clinics
- CHP website data
- Views from the experts

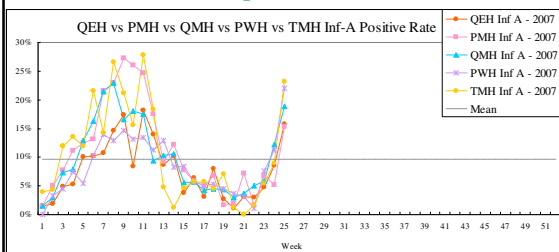
### Surveillance for influenza by sentinel clinics in Hong Kong

- WHO National Influenza Centre since 1963 to monitor clinical levels of Influenza
- Before 1997 – only 9 clinics
- After SARS - 60 government clinics, 50 private clinics in network.
- Laboratory monitoring of random samples

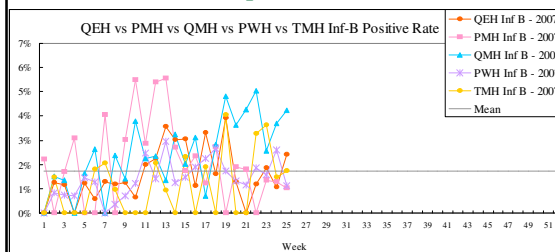
### Total Number of Influenza Detections



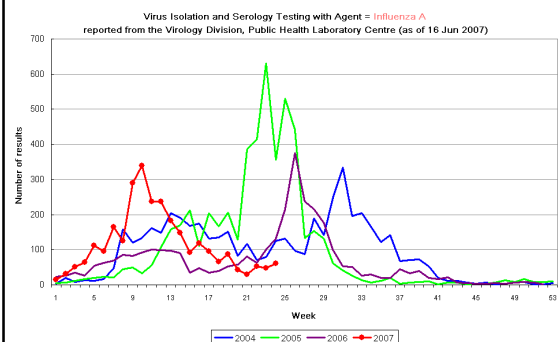
Q1: Do other data show similar rising trend in the same period? **Influenza A**



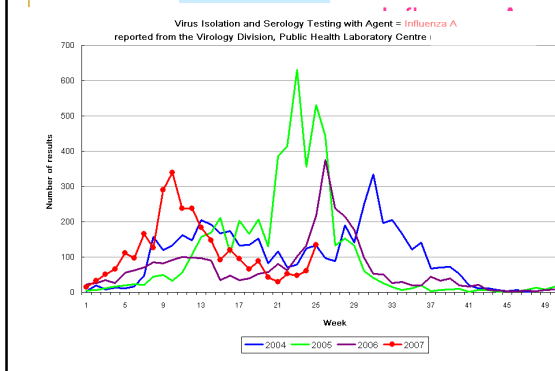
Q1: Do other data show similar rising trend in the same period? **Influenza B**

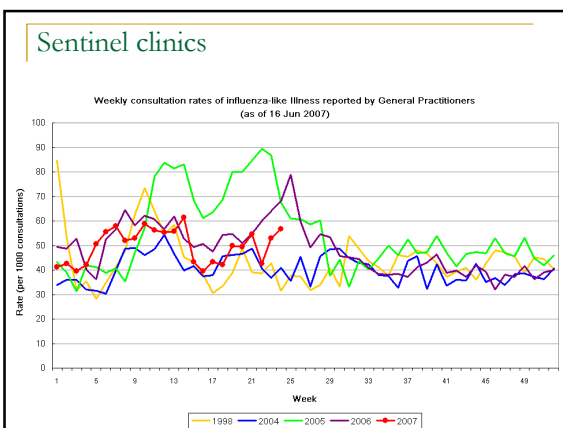
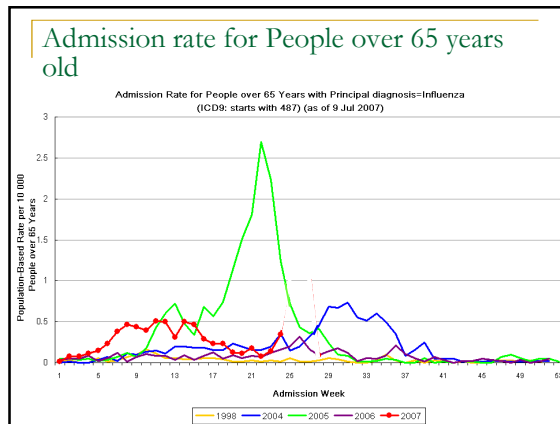
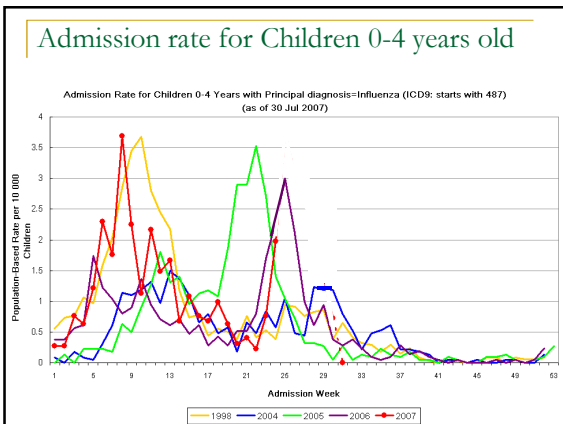


PHLC data - virus cultures **Influenza A**



PHLC data - virus cultures **Influenza B**





### Virus Isolation and Serology Testing (respiratory pathogens) reported by PHLC

Results reported from the Virology Division during the period 11.06.2007 to 16.06.2007.

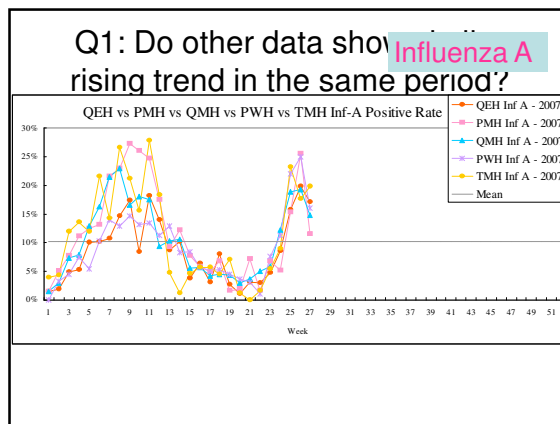
Agent	Number	Type subtype information
Adenovirus	28	Untyped: 12 Type I: 1 Type 3: 4 Type 5: 9 Type 5: 1 Type 21: 1
Influenza A	61	Untyped: 4 Subtype H1N1: 2 Subtype H3N2: 56
Influenza B	44	-
Parainfluenza	33	Type 1: 13 Type 2: 8 Type 3: 12
Respiratory syncytial virus	32	-
Rhinovirus	2	-
Mycoplasma pneumoniae	1	-

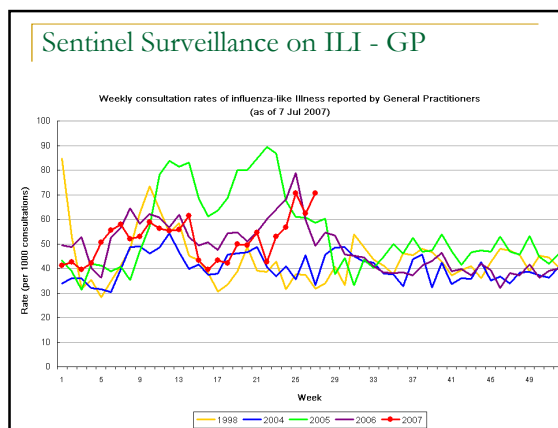
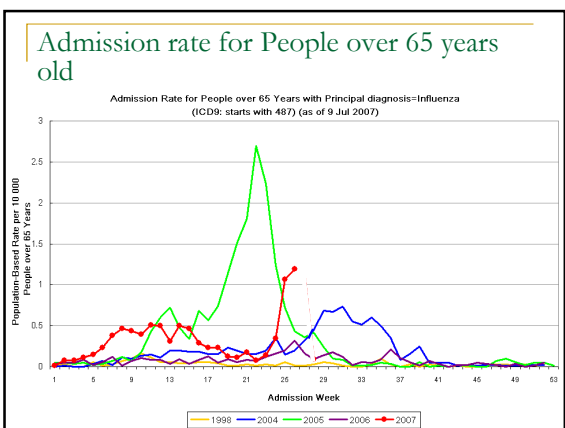
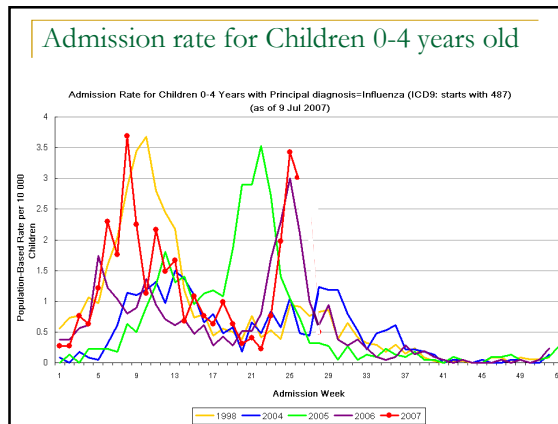
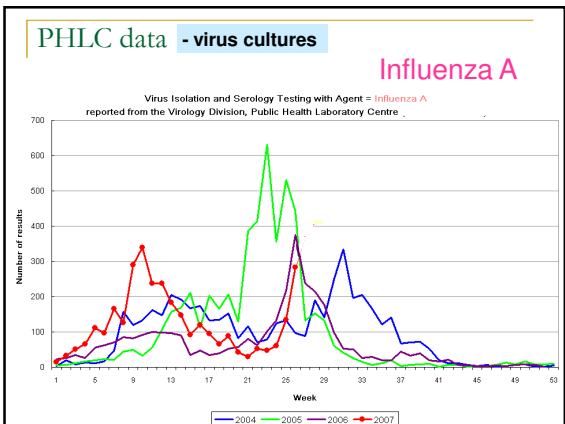
**Special information on Influenza A outbreaks.** 29 June 2007

This note however is a special memo that I am writing because in our initial scan, we found that there is an increase of about 60% of Influenza A positive in our rapid laboratory testing. ...

1. Rise of Influenza A positive in our HA laboratories of >60%
2. The strain however is mainly H3 (Wisconsin) that is covered by our vaccine
3. Significant increase of children admission with influenza.
4. Increase in influenza consultations reported by the GPS, but only about 10% more than the mean of the last 20 weeks.

**Conclusions:** we are having a summer influenza peak. It is however H3 and covered by our present vaccine. Be prepared to have more cases admitted to the wards especially for Paediatrics but most likely (hopefully) the outbreak in the community should not be too severe.

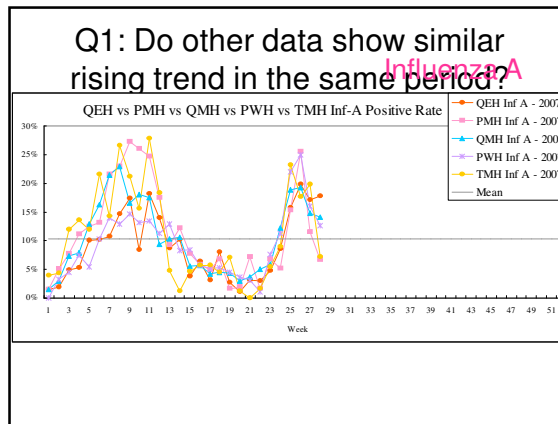


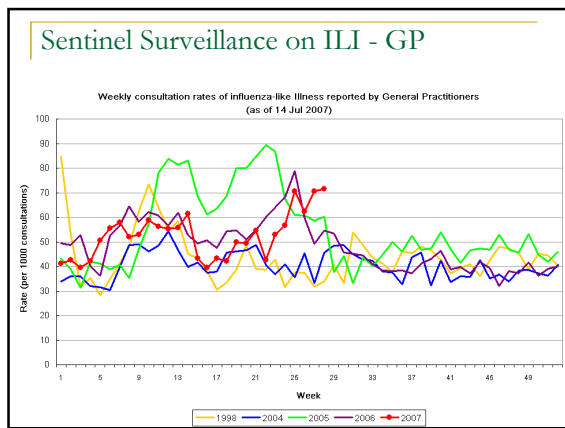
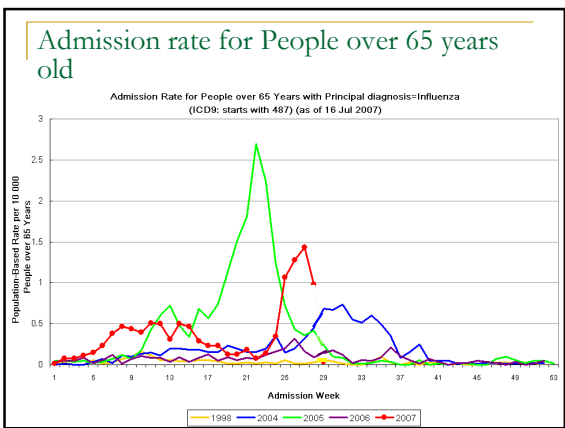
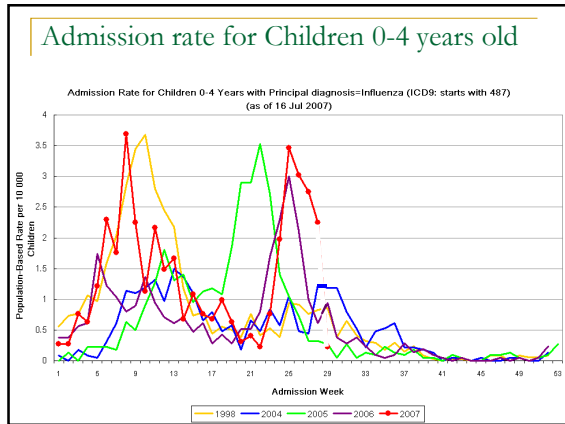
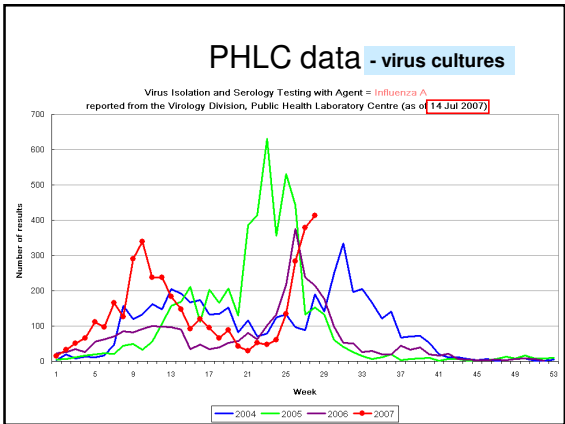


**2nd brief: Follow-up information on Influenza A outbreak.** 13 July 2007

1. Influenza A rapid testing is oscillating on a high level of 50% as compared to >60% in my last brief. Nevertheless it is a downward trend.
2. Dominant strain remains to be H3 (Wisconsin) covered by our vaccines
3. The number of children admissions shows a definite decrease, and thus the admissions for children influenza should be leveling off.
4. However the influenza consultations for our GPs remain to be > 10 % above the average. Furthermore hospitals are seeing increase of influenza admissions from our Old Aged Homes (OAHs).

**Conclusions:** , the level of Influenza A remains high. Hospitals should be ready for more admissions of ILIs from the older age group and from OAHs in your hospital.

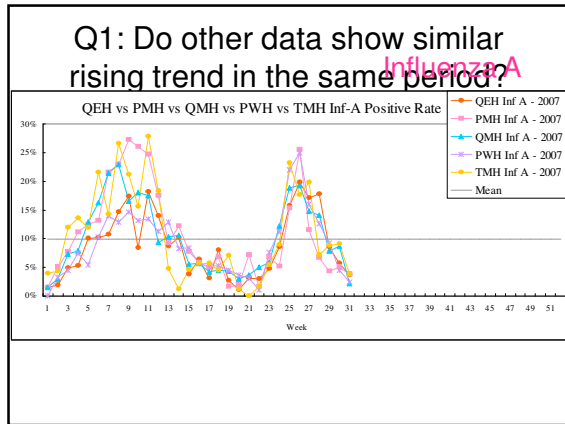


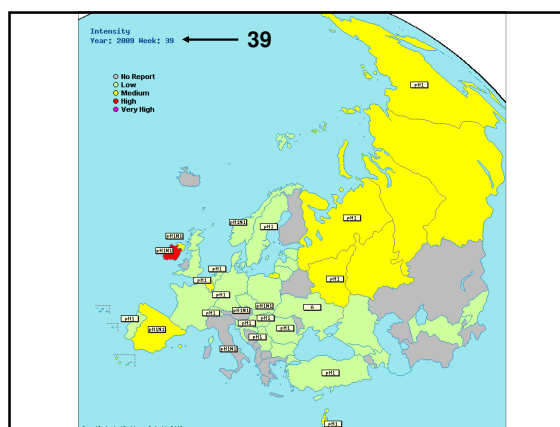
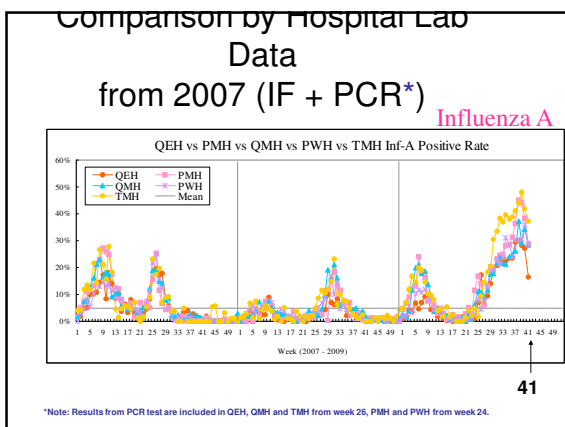
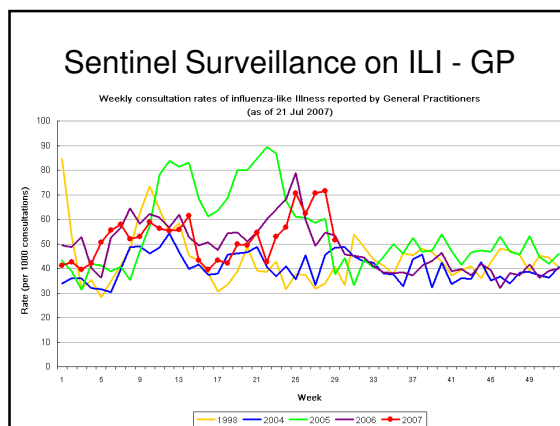
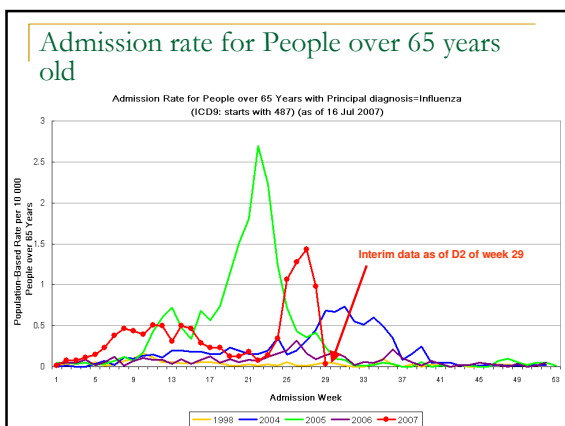
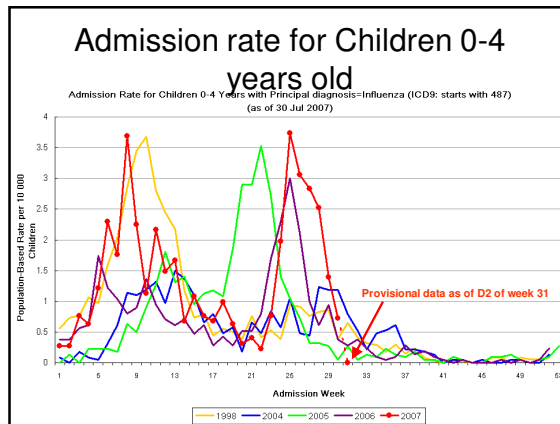
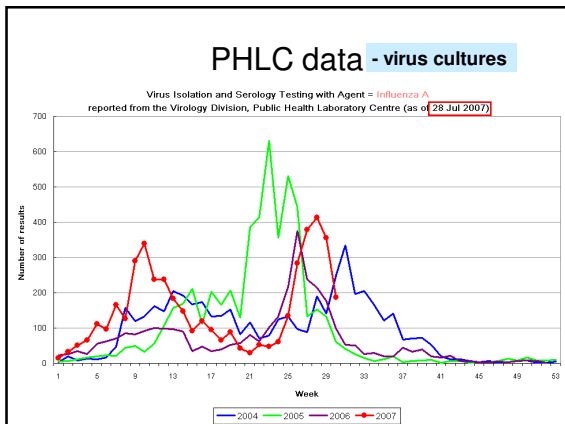


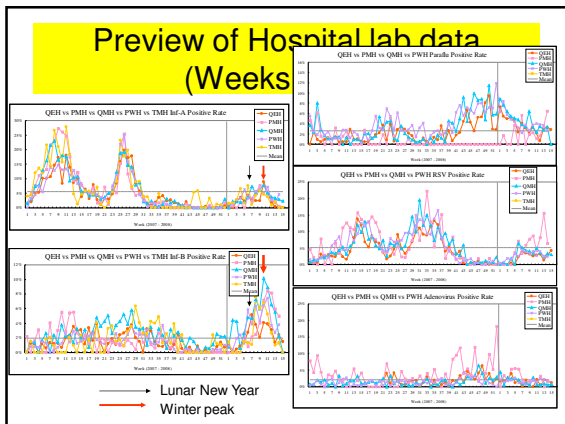
**3<sup>rd</sup> brief: Latest information on Influenza A situation 20 July 2007**

1. With the definite decline in rapid testing to below the mean, the influenza summer peak is on the decline and the season should be coming to an end.
2. Dominant strain remains to be H3 (Wisconsin).
3. The admission for children for influenza has now declined to about 10% below the usual average.
4. The admission for the elderly of over 65 has similarly declined to below the average.
5. However the attendances in our GPs sentinel clinics for ILI's remain high at about 10% above average.

**Conclusion:** we should see a decline in our hospital admissions for influenza as the season is coming to an end. However the virus is still circulating in our community as the attendance in our GP clinics remain high. Nevertheless this is not a new strain and cases should not be too severe.



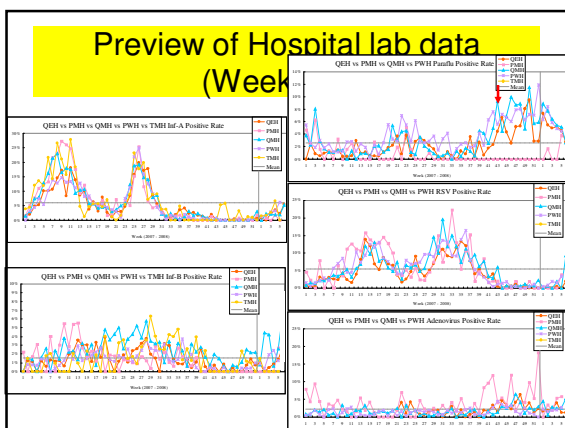




**CICO brief: 6<sup>th</sup> Feb 2006**

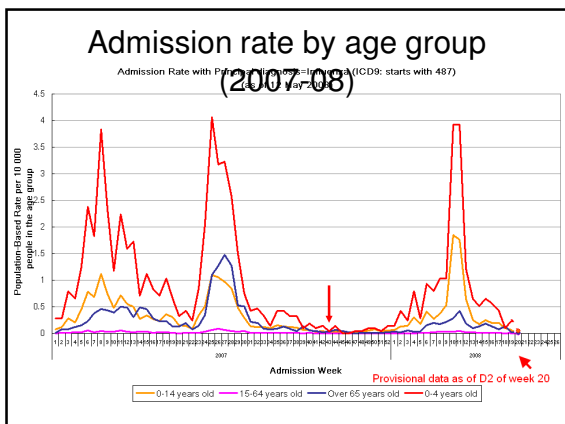
Influenza A is just at the mean while Influenza B is slightly above. If we compare this to the graphs of previous years, this could be the beginning of a rising curve leading to the winter influenza peak. Usually in about 2-3 weeks, the winter peak will begin. .... **Therefore based on the scanning of these results, there is a rising trend and perhaps we may face the winter influenza peak in about 2-3 weeks.** ...individual hospitals may face some increase in admissions in the coming week.

**14<sup>th</sup> February 2008 CHP announcement**  
Our local surveillance systems have recently detected a rising trend in influenza activity. This indicates that Hong Kong is entering the influenza season.



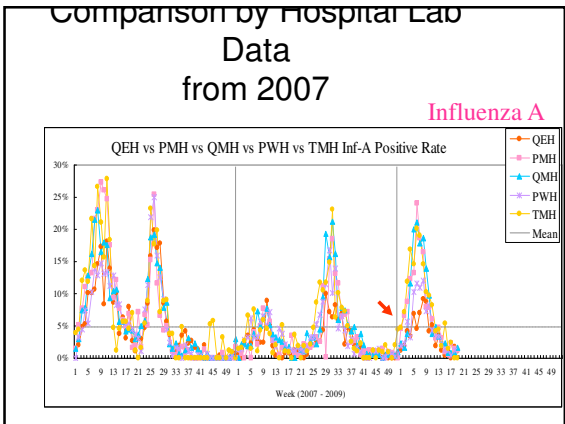
**Dashboard on Infection (8<sup>th</sup> Issue 9<sup>th</sup> November 2007)**

Scanning the rapid viral tests shows that there is a clear rise of >20% for Parainfluenza and oscillating above the mean. This is also now the most common virus isolated in the PHLC. The virus would be responsible for most of the "Influenza like illnesses" going around the community. Note that Parainfluenza can cause severe illnesses in children and may cause some increase in children admissions in our hospitals, but this is presently not evident. There is nothing dramatic to report for the rest of the data scan.



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11<sup>th</sup> -17<sup>th</sup> February 2009 – the peak of the surge daily average

	A&E attendance	A&E admission	Occ. rate	Excess beds	Vacant beds
15 group1	5924	725 (12.2%)	100%	204	434
Hosp A	608	76.6 (12.6%)	111%	77	17.6
Hosp B	421	45.1 (10.8%)	114%	13.1	17.7
Hosp C	380	56.9 (15%)	101%	18.1	23
Hosp D	546	80.7 (14.8%)	103%	26	29.6
Hosp E	423	52.9 (12.5%)	103%	30.1	27
QMH	332	47.6 (14.2%)	81%	0	77.9
UCH	543	80.9 (14.9%)	84%	0.57	69.1

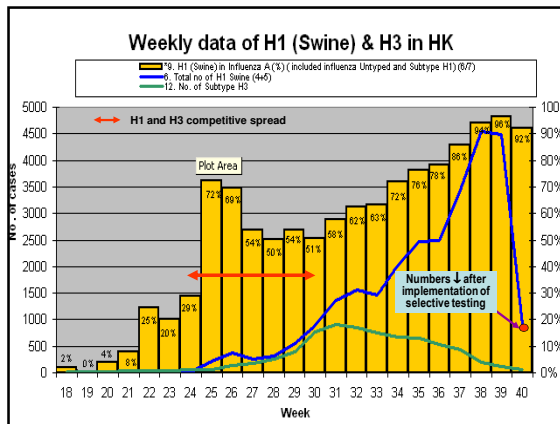
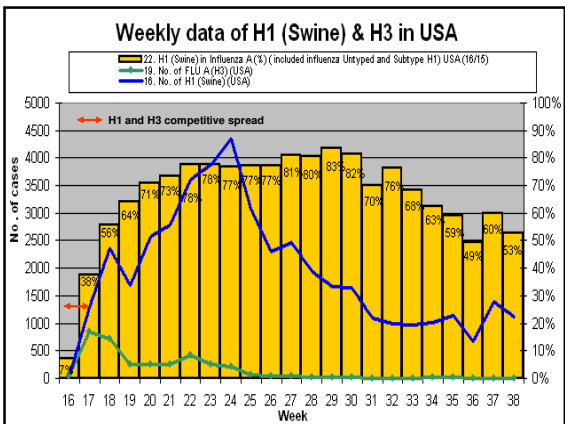
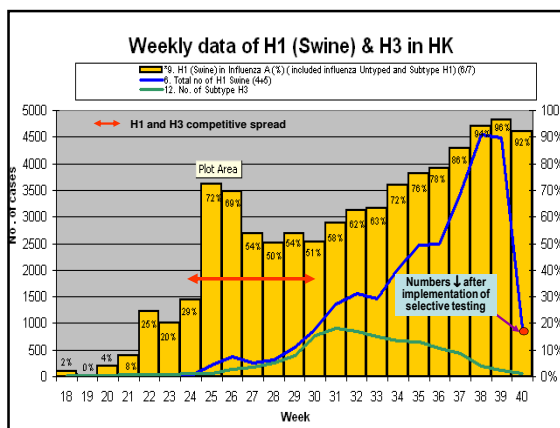
### Strategy – using the dash board to guide actions

#### QMH

1. Mandatory discharge to LTC cluster hospitals of up to 20 cases daily
2. Open overflow wards if needed
3. VMOs for OAH for one month
4. Direct admissions from A&E to Grantham Hospital for Chest cases

#### UCH – Reduce leave for nurses

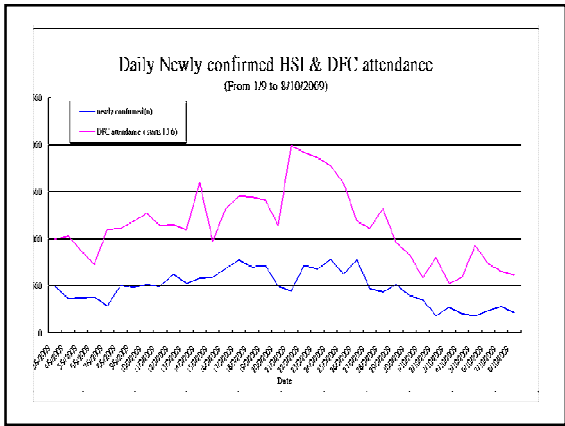
- Overflow management by A&E consultant



**Dashboard – 2nd October**

**Data scanning**

- The rapid viral scan for Influenza A has fallen to 37% this week and the number of positive result from PHLC also has a drop of 3.4%. Furthermore the daily number positive cases in the last four days also decrease to 425 as compared to 642 the previous week. All this in a way is expected because from the 28th September, a new policy to limit HSI testing is implemented.
- However there are two data sets indicating that indeed **the pandemic may be at the peak**. In the 28th -30th September **the daily attendance at the DFC is 1035 as compared to 1634 the previous week, while the number of school outbreaks (>3 ILIs) is 28/day as compared to 51/day the previous week**. These two data sets should not be affected by the new policy to limit testing and thus they indicate that the drop in cases might be a true reflection.
- Hospital admissions for Influenza are oscillating at the same level and the ILIs visits to the GP has risen 5% as compared to 20% last week.



**Number of flu trips to doctors at 10-year high**

Ng Yuk-hang

An average of two or three schools have been closed every day due to flu outbreaks in the past two weeks, as the number of flu patients seeking help from private doctors hit a 10-year high.

But medical professionals said the number was not surprising given the weather conditions.

Although Mid-Autumn Festival is near, the weather is like summer, University of Hong Kong microbiologist Dr Ho Pak-leung said. "The flu virus has remained very active."

Since September 19, 17 primary, 14 secondary and three special schools have been closed for a week, with more than 1,600 pupils having the flu, at least 5% of them worse flu.

Aided Primary School Heads Association's honorary chairman Leung Shiu-chuen said class suspensions would definitely affect the teaching pace, but principals had to accept it.

He said the Centre for Health Protection could have co-operated better with schools. In one case, officials told a headmaster after pupils had gone for the day that classes were to be suspended. Teachers had to telephone each pupil.

"Because schools are on high alert and classes are suspended promptly, Hong Kong has not seen any children dying of the flu. This is better than other developed countries," he said.

Another swine flu patient, a 30-year-old woman in United Christian Hospital, fell into critical condition yesterday. The woman, who has no underlying condition, developed flu symptoms on September 28 and went to the hospital's emergency room on Wednesday. She is receiving Tamiflu and antibiotics, and needs assistance breathing.

**2nd Oct 2009**  
南華早報,  
South China Morning Post

**Summer spike**

The number of visits to private doctors involving influenza-like illnesses (per 1,000 consultations)

— 2007 — 2008 — 2009

Source: GPHIS. SOURCE: CENTRE FOR HEALTH PROTECTION

**Welcome...**

HONG KONG **Disneyland**  
香港迪士尼樂園

**AN ASSET FOR THE FUTURE**

