



second trimester of pregnancy. The findings led to a revision of the treatment protocol and vaccination priority given to pregnant women in Thailand.

Keywords: Influenza A (H1N1), pregnancy, fatal, pandemic, Thailand

Code 577 Speaker 64

Title: Influenza-Like Illness Seasonality and its Association with Meteorological Variations in Dak Lak Province, Vietnam, 2004-2009

Presenter: Hau Pham

Background: Influenza is a global public health and economic burden. Its patterns of seasonality differ considerably between geographic regions, but the factors underlying these differences are not well understood. Clarifying the potential role of climate factors on incidence of influenza could provide an insight into the mechanisms of the seasonality of the disease. This study documents the activity of influenza-like illness (ILI) in Dak Lak province of Vietnam and examines its temporal association with climate factors.

Methods: From 2004 through 2009, monthly ILI episodes were reported from all commune health stations and hospitals in 13 districts of Dak Lak province (total population: ~1.7 million) by national communicable disease surveillance. Temperature, sunshine duration, rainfall and humidity were recorded as monthly averages by local meteorological stations across the province. The association between these climatic factors and ILI was assessed by using a Poisson regression model.

Results: During the study period, 260,556 episodes of ILI were reported. The mean monthly number of ILI cases recorded during the Dak Lak rainy season (July through December) was significantly higher ($p < 0.01$) than that recorded in the dry season (Risk Ratio: 1.17; 95% confidence interval: 1.04-1.31). In a multivariable Poisson regression analysis, an increased risk of ILI was independently associated with higher temperature (Risk Ratio: 1.05; 95% confidence interval: 1.01-1.09 per 1.50C increase in monthly mean temperature).

Conclusions: These data suggest that monthly rainfall and temperature could be used as ecological indicators of ILI risk in the Vietnam's Central Highlands region. Intensified surveillance and control of influenza during rainy season periods are recommended. The data also suggest that the occurrence of influenza in the region likely results from multiple causes which remain to be delineated.

Keywords: influenza, influenza-like illness, temperature, seasonality, regression analysis

Code 469 Speaker 65

Title: Evaluation of the National Virological Surveillance of Influenza in Taiwan, 2009

Presenter: Chia-ping Su

Background: Taiwan Centers for Disease Control began laboratory-based respiratory illnesses virologic surveillance in 1999, to monitor the causes of respiratory illnesses in the community and establish a domestic virus database. Nasopharyngeal swabs from patients with respiratory illnesses collected by sentinel physicians were tested for viruses using real-time polymerase chain reaction and virus culture in

ten contract laboratories. During the 2009 H1N1 influenza pandemic, the virus diversity, consistency with other influenza surveillance systems, and timeliness were of particular interest.

Methods: All nasopharyngeal specimens collected in 2009 were included. We analyzed the weekly number of influenza-positive specimen, positive rate, and compared the trend with the Taiwan Real-time Outbreak and Disease Surveillance System (RODS), which used automatically extracted hospital emergency department ICD-9-coded diagnosis data. Specimen origin and timeliness of reporting were also analyzed.

Results: There were 17,909 specimens obtained; 514 (2.8%) yielded seasonal influenza A/H1N1, 405 (2.3%) seasonal A/H3N2, 3203 (17.9%) pandemic 2009 A/H1N1, 39 (0.2%) seasonal A/untyped, 56 (0.3%) influenza B, 431 (2.4%) parainfluenza, and 1,888 (10.5%) other respiratory viruses. The trend of weekly number of influenza-positive specimens was similar to that of influenza-like illness activity in RODS, showing a bimodal pattern. The trend of influenza-positive rate in submitted specimens, however, was unimodal. The laboratory results were reported 2 weeks after specimen submission for 50% of the specimens. The influenza-positive rate for specimens submitted by emergency rooms (29%) is higher than those by outpatient clinics (15%) ($p = 0.01$).

Conclusions: A domestic virus database is established using this system, but timeliness could be improved. Number of influenza-positive specimens and positive rate are both important in estimating influenza activity. Standardizing sentinel site sampling criteria may improve the consistency between surveillance systems.

Code 53 Speaker 66

Title: Delayed oseltamivir treatment is associated with longer viral shedding of pandemic (H1N1) 2009 virus – Hong Kong, 2009

Presenter: Yiu-hong Leung

Background: The viral shedding pattern of pandemic (H1N1) 2009 virus [pH1N1v] is not well characterized. In Hong Kong, patients with laboratory-confirmed pH1N1v infection were isolated at hospital until three consecutive respiratory specimens negative for pH1N1v from 1 May to 15 June 2009. Serial respiratory specimens were taken from these patients for pH1N1v testing by reverse-transcription polymerase chain reaction (RT-PCR) and viral culture. We conducted a retrospective cohort study to determine the viral shedding pattern of pH1N1v and to identify factors associated with prolonged viral shedding.

Methods: We retrieved clinical and demographic data; and laboratory results of serial respiratory specimens of patients with laboratory-confirmed pH1N1v infection in the period. We defined duration of viral shedding as the interval from illness onset date (Day 0) to collection date of the last positive specimen of the patients. We computed and compared the median duration of viral shedding of pH1N1v according to different clinical and demographic parameters.

Results: Fifty-six patients (25 males and 31 females) with laboratory-confirmed pH1N1v infection were included. Viral shedding in terms of RT-PCR ranged from 0 to 10 days (median=4 days) and it ranged from 0 to 8 days (median=3 days) for viral culture. We found a significant correlation that viral shedding duration by viral culture decreased with increasing age ($r^2 = 0.132$, $p = 0.007$). Median viral