


Influenza Asian Focus

Welcome to the second issue of *Influenza – Asian Focus*, the official newsletter of the Asia-Pacific Advisory Committee on Influenza (APACI). The APACI was established a year ago to address the management of influenza in Asia-Pacific and to highlight the impact of the disease in the region. *Influenza – Asian Focus* continues to offer wide-ranging and in-depth coverage of important issues in influenza management, as well as providing articles detailing recent presentations by APACI members on the status of influenza in the Asia-Pacific region. In each issue of *Influenza – Asian Focus* we aim to keep you up to date with ongoing work on improving influenza surveillance and prevention.

In this issue, we go back to basics and present a complete overview of influenza, from virus structure to symptoms associated with the disease. This feature aims to address some of the common myths surrounding influenza, and will be continued in the next issue. *Influenza – Asian Focus* also speaks to Professor Li-Min Huang of the National Taiwan University Hospital about childhood influenza. We also provide details on the current World Health Organization recommendations for influenza vaccine composition and take a closer look at the process behind vaccine selection for the Northern and Southern hemispheres. Our *World focus* section draws attention to the latest influenza outbreak in Madagascar, and in another feature we address the current confusion surrounding the similarities between influenza and anthrax infection.

The outbreak of the highly virulent severe acute respiratory syndrome (SARS) has not been covered in this issue due to the intense current media coverage of the topic. We will, however, provide a full review of the disease in our next issue.

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Advisory Committee Members

The role of the Asia-Pacific Advisory Committee on Influenza

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Mission statement

To promote influenza awareness in the Asia-Pacific region, with the intent to improve the prevention and control of influenza.

The Asia-Pacific Advisory Committee on Influenza (APACI) was established in early 2002 to address epidemiological issues relating to influenza and the impact of the disease in Asia. The APACI is a joint initiative of four pharmaceutical companies: Aventis Pasteur, Chiron, GlaxoSmithKline and Wyeth. Its members are highly regarded influenza and infectious disease experts from across the Asia-Pacific region.

The activities of the APACI are aligned with, and supplemental to, those of the World Health Organization (WHO). The APACI intends to work in cooperation with the WHO to complement its work on influenza surveillance and promote influenza awareness throughout Asia.

Objectives

- To identify and develop activities that complement the WHO global agenda.
- To assist the development of country-specific public awareness programmes.
- To promote influenza awareness among healthcare professionals in the region.
- To provide educational resources to support influenza awareness activities.
- To assist the process of establishing or reviewing country-specific recommendations for influenza prevention and control.
- To facilitate the timely access to, and supply of, influenza vaccines.

Activities

Activities will include:

- promoting influenza awareness to healthcare professionals in the region:
  - identifying country-specific Key Opinion Leaders (KOLs)
  - a regular newsletter (*Influenza – Asian Focus*)
  - peer-reviewed publications (develop publication plan)
- providing educational resources to support influenza awareness activities:
  - healthcare professional's resource package
  - case management guidelines
  - speaker's kit
  - Continuing Medical Education programme
- assisting the process of establishing or reviewing country-specific recommendations for influenza prevention and control:
  - to establish a list of existing recommendations
  - to evaluate international recommendations in the Asia-Pacific context
  - to facilitate development of consensus statements and information exchange
- assisting the development of country-specific public awareness programmes:
  - identifying country-specific requirements
  - developing a strategy to increase country-specific public awareness
  - media kit
  - media training for KOLs
- identifying and developing activities that complement the WHO global agenda.

Meeting highlights

The 3rd APACI meeting was held in Kuala Lumpur in October 2002. The committee discussed future plans for the development of an APACI website that would provide health-care professionals with influenza information on the Asia-Pacific region. Data were also presented from the Korean National Influenza Committee, which is working to improve influenza surveillance and control, and to increase the usage of influenza vaccine among the elderly in Korea.

The 4th APACI meeting is due to be held in Taipei, Taiwan, 27–28 May 2003.

The 5th APACI meeting is scheduled to take place in Seoul, Korea, 2–3 December 2003.

What is influenza? Exploding the myths – Part 1

There are many misconceptions about influenza; even though the disease is well understood, there are many people who fail to appreciate its true nature. This article aims to dispel some of the myths surrounding influenza and provides a general overview of the disease.

Dr Prasong Pruksananonda

Prasong Pruksananonda is a Director at the Paediatric Centre, Bumrungrad Hospital, Bangkok, Thailand. He recently completed a fellowship in Paediatric Infectious Diseases and Immunology at the University of Rochester, New York, USA and has also served on the teaching board at the Chulalongkorn Medical School, Bangkok, Thailand.

Influenza, usually known as the 'flu', is believed to be one of the oldest diseases in the world. It was first recorded by the ancient Greek physician Hippocrates in 412 BC and is possibly the most common disease known to humans.[1] Because of the ability of the influenza virus to mutate, it is regarded as an emerging or re-emerging viral infection. Influenza is the cause of substantial mortality and morbidity worldwide. It is a universal infector and affects millions of people in all age groups, from all cultures and communities, each year. As a result, the burden imposed by the disease is an ongoing concern.

Overview of the influenza virus

Influenza viruses belong to the Orthomyxoviridae family[2] and are sub-grouped into types A, B or C, depending on the antigenic characteristics of their core proteins. At the centre of the virus is a nucleocapsid, containing eight segmented strands of RNA that encode various viral proteins. Reassortment of these segments can often occur during infection, leading to a high frequency of genetic recombination.[4] Also housed within the nucleocapsid are various nucleoproteins and polymerase that are involved in the viral replication process. It is the serological response to these internal proteins that allows the classification of the virus into types A, B or C. A matrix protein layer covers the core of the influenza virus and is responsible for the stability of the virus, playing an important role in the organisation of the virus during its construction. The matrix protein layer is covered by a double layer of lipids.[5] Protruding through these multiple layers are numerous glycoprotein spikes composed of either haemagglutinin (H) or neuraminidase (N). It is these glycoproteins that enable the influenza virus to infect an individual and are the antigenic determinants recognised by the host's antibodies.

Influenza A affects many different species of animals and birds. This type of influenza is highly infective and causes frequent, widespread, global epidemics and pandemics. Influenza A viruses can be further subtyped based on the reactivity of their surface H and N – 15 antigenically different H subtypes and nine N subtypes have so far been recognised.[2,3] A single influenza A virus presents one H and one N subtype in any possible combination. In humans, only a small number of influenza A virus subtypes have been identified. However, all potential subtypes have been documented in wild birds – the natural reservoir for influenza A viruses.

Haemagglutinin

Haemagglutinin (H) or HA protein is responsible for the pathogenesis of the influenza virus and allows the virus to adhere to a cell within the host. Once inside the host, H secures itself to the membrane of the host cell. Proteolytic cleaving of H by specific host enzymes facilitates the virus' fusion with the host cell and the entry of viral genetic material.[3] Antibody to H prevents the binding activity of the protein to the host cell membrane and is the main determinant of immunity.[4]

Neuraminidase

Neuraminidase (N) or NA protein allows the release of new influenza viruses that have formed inside the host cell. Studies have shown that N prevents viral aggregation or clumping, and promotes the dispersal of influenza virus through the mucus, coating the respiratory tract epithelium.[3] Antibody to N does not neutralise the action of the virus; however, it inhibits viral replication and determines the severity of the infection.[4]

Influenza B virus is found only in humans and is capable of producing severe disease. The virus is also a cause of regional influenza epidemics. Antigenic variability does occur in the influenza B virus, but not to the same extent as that seen in influenza A viruses. Influenza C virus causes only mild disease and is not thought to be responsible for epidemics. The natural host for influenza C is humans, although the virus has been isolated from pigs.[3] The clinical illness seen in influenza C is very similar to a common cold, and often it goes unrecognised. It is believed that restrictions in host–pathogen interaction hinder the pathogenicity of influenza B and C within humans; however, the mechanisms behind this are not fully understood.[3]

Signs and symptoms

The clinical manifestation of influenza can vary considerably, from asymptomatic disease to the

characteristic 'flu' symptoms. The disease is normally mild and self-limiting, and does not require hospitalisation. Influenza illness in healthy young adults can last for 1–2 weeks. However, in the elderly, children and those with pre-existing respiratory, cardiovascular or immune suppression diseases, it can cause respiratory and non-respiratory complications that may result in morbidity.[6] The elderly account for the majority of influenza-related deaths in developed countries.[7]

In birds, infection with the influenza virus causes gastrointestinal disease. However, in humans and other mammals, systemic symptoms are noted along with symptoms that affect the respiratory tract.[3] Influenza virus is transmitted from person to person via airborne droplets of respiratory secretions that are released when an infected individual sneezes or coughs. Once the virus enters the respiratory tract, unless it is intercepted by a specific antibody, it penetrates the cells of the endothelial lining and begins replication. This process takes approximately 6 hours, after which new virus is released and cell death initiated. The incubation time before the onset of symptoms is between 18 and 72 hours.[4] Antibodies to influenza – which consist largely of immunoglobulin A (IgA) antibodies – do not develop until 2 weeks after initial exposure to the virus.

It is believed that many patients can identify the hour in which systemic influenza A and B symptoms begin. Fever is the most noteworthy symptom[1,2] and temperature can peak at around 40°C.[2,4] Fever, which is often accompanied by shaking chills, usually lasts for 3–4 days, after which it subsides along with other systemic symptoms, such as muscle and joint aches and extreme fatigue. Very young infants may experience nausea and vomiting in addition to fever. In some individuals, a second episode of fever can appear on the third or fourth day of illness.[5] A person presenting with influenza will usually display a flushed face, with hot, moist skin and watery, red eyes. Clear nasal discharge is also apparent, as are small, tender cervical lymph nodes. Respiratory illness becomes more pronounced after the systemic symptoms diminish. Common respiratory complaints include persistent coughing, nasal obstruction, sneezing, burning sensations in the chest, and sore throat. These secondary symptoms can persist from 3 days to 2 weeks or more.[4]

Table 1: Influenza versus the common cold.[8]

Symptoms	Influenza	Cold
Fever	Characteristic, high (39–40°C), 3–4 days	Rare
Headache	Prominent	Rare
General aches and pains	Usual, often severe	Slight
Fatigue and weakness	Can last for 2–3 weeks	Mild
Extreme exhaustion	Early and prominent	Never
Blocked nose	Sometimes	Common
Sneezing	Sometimes	Usual
Sore throat	Sometimes	Common
Chest discomfort; cough	Common; can be severe	Mild to moderate; hacking cough

Is it influenza?

Some of the clinical symptoms of influenza are common to other respiratory viral infections, such as common cold (Table 1), pharyngitis, croup, tracheobronchitis, bronchiolitis and pneumonia. It is also possible that cases of infection by other respiratory viruses, including respiratory syncytial virus, rhinovirus, parainfluenza virus or adenovirus, may produce symptoms that are impossible to differentiate from those seen in influenza.[4]

Diagnosis

As it is not always possible to diagnose influenza based on signs and symptoms alone, laboratory tests are required to make an accurate evaluation.[1] Making the correct diagnosis is important for the global surveillance of influenza, and allows timely administration of antiviral therapy. The gold standard for laboratory diagnosis is usually viral isolation from cell culture,[9] from which the resulting isolates are analysed for antigenic characterisation. H-inhibition tests can be used to detect antibodies against influenza present in serum. Influenza antigens in nasal secretions, which help to determine the particular strain of virus, can be detected using immunofluorescence tests.[1] Other diagnostic tests include polymerase chain reaction and enzyme-linked immunosorbent assay. The recent development of rapid diagnostic tests provides an effective method for the quick and easy diagnosis of influenza.

Complications

Influenza is capable of causing severe complications, hospitalisation and death, particularly in high-risk groups. The damage caused by influenza virus to the respiratory tract lining can allow the entry of other viruses and bacteria that cause infection, such as *Streptococcus pneumoniae* and *Staphylococcus aureus*.[5] The most severe complication associated with influenza is pneumonia.[4] In children with influenza, otitis media, croup, myositis, myoglobinuria and Reye's syndrome (a hepatic and central nervous system complication) can also occur. There are also a number of rare complications that can be associated with influenza; these include myocarditis, pericarditis, myocardial infarction, myelitis and encephalitis.[4]

Part 2 will take a closer look at the importance of antigenic shift and drift, and methods of influenza prevention and treatment.

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Influenza and bioterrorism

Between October and November 2001, 10 cases of inhalation anthrax were reported in the USA as a result of postal workers inhaling spores concealed inside letters.[1] These attacks, along with other events, have led to increasing anxiety throughout the world over the threat of anthrax bioterrorism.

Inhalation anthrax produces influenza-like symptoms – a fact that is causing a great deal of public confusion and concern. Consequently, many people who display influenza-like illness (ILI) fear that they have been infected with anthrax.

Influenza-like illness

ILI is the term used to describe the presentation of symptoms that are normally associated with influenza infection. Most cases of ILI are not caused by influenza virus, but are symptoms of a number of other viruses such as rhinovirus, adenovirus and respiratory syncytial virus.

Anthrax infection

There are three types of anthrax disease: cutaneous, gastrointestinal and inhalation. Inhaling *Bacillus anthracis* spores results in the deadliest form of anthrax infection, which is usually contracted in large-scale hide, wool and bone processing factories,[2] as anthrax is predominant in grazing herbivores. Inhalation anthrax has a mortality rate of nearly 100%, and death, as a result of septicaemia, toxaemia or pulmonary complications, occurs within a few days of infection.[3] There is no clinical evidence to show that inhalation anthrax can be transmitted person-to-person, and spores cannot be released by the coughing or sneezing of an infected individual.

The initial symptoms of early-stage anthrax infection resemble those seen in other viral respiratory infections and include fever, non-productive cough, myalgia and general malaise.[3] In the later stages of infection, symptoms progress to severe breathing difficulties and shock.

Table 1: Signs and symptoms of inhalation anthrax and influenza.[1]

Signs and symptoms	Inhalation anthrax (%)	Influenza (%)
Fever	100	83–90
Fatigue	100	75–94
Cough	90	84–93
Shortness of breath	80	6
Chest pain	60	35
Headache	50	84–91
Myalgias	50	67–94
Sore throat	20	64–84
Rhinorrhea	10	79
Nausea/vomiting	80	12

Although it is difficult to distinguish early *B. anthracis*-related ILI from the other causes of ILI, based on the symptoms alone, there are certain signs that help to differentiate anthrax infection (Table 1). Nasal congestion and rhinorrhoea occur in virtually all ILI cases that are not caused by anthrax infection. Anthrax can also be ruled out if mediastinal adenopathy is not identified by chest radiography, or if the patient is non-toxic after 2 days of illness. Tests of blood antibody titres and cultures must be conducted in order to make a correct diagnosis.

Many people mistakenly believe that receiving the influenza vaccine will help to discount a suspected anthrax illness. The Centers for Disease Control (CDC) in the USA does not recommend the use of influenza vaccine for this purpose.[1] Influenza vaccination is not a feasible method of avoiding confusion, as many other infections cause ILI symptoms. In addition, the influenza vaccine that is produced each year is only effective on a specific strain of influenza virus, virulent in that particular influenza season. As a result, vaccinated individuals may still go on to develop influenza. Unnecessary influenza vaccination caused by an anthrax panic will also reduce the amount of vaccine available to those in high-risk influenza groups, such as children and the elderly. An anthrax vaccine has been developed, but is currently available only to military personnel and those who work with the anthrax bacteria.

It must be remembered that the chance of coming into contact with anthrax is extremely rare, and it is very unlikely that a patient presenting with a high fever or cough has inhalation anthrax. On the other hand, if it is known that the patient has been exposed to anthrax spores, the case should be treated with suspicion, and early treatment must be implemented to improve the prognosis.[1]

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Questions & Answers

***Influenza – Asian Focus* speaks to Dr Luningning Villa, National Program Manager for the Emerging Infections Control Program at the National Centre for Infectious Diseases in the Philippines, about the control measures that should be carried out in acute care facilities for influenza or influenza-like illness (ILI).**

Q. How can the spread of virus be prevented?

A.

1. Patients with suspected or confirmed influenza or ILI should be placed together in a ward designated for influenza cases. Adhering to cohorting practices will prevent the spread of the virus to other wards.
2. Ensure all carers are completely fit and healthy and pose no medical threat to patients.
3. Limit the movement of staff between wards.
4. Prevent visitors from entering the ward for influenza cases. Similarly, people with ILI intending to visit a patient should be prevented from entering the hospital.
5. Initiate droplet precautions to prevent person-to-person spread of the virus:
   - wear masks when within I metre of the patient
   - wear gowns if clothing is likely to be soiled by body fluids
   - practise hand hygiene before and after patient contact.
6. As much as possible, limit the movement of patients between rooms to essential purposes only. If transport or movement is necessary, provide the patient with a mask to minimise dispersal of droplets.

Q. What treatment procedures should be carried out for infected patients?

A. Influenza antiviral medications may be offered for treatment of ill patients. If administered within 48 hours of illness, the duration of illness is reduced.

Q. What can be done to prevent influenza illness?

A. Influenza vaccine should be offered to patients and healthcare personnel who have not been previously vaccinated.

Influenza antiviral medication may be offered as prophylaxis to exposed patients, unvaccinated personnel, and to people vaccinated less than 2 weeks prior to exposure.

Q. What follow-up measures should be undertaken?

A. Surveillance of patients and healthcare personnel should be continued. All personnel should be monitored for ILI. Continue to monitor for healthcare facility-acquired influenza, and patients who have been admitted to the facility with influenza infection.

Who is at increased risk for influenza?

- People ≥ 50 years of age.
- Residents of nursing homes.
- Adults and children with chronic disorders of the pulmonary or cardiovascular systems.
- Immunocompromised adults and children, including HIV-infected persons and users of immunosuppressive medication.
- Adults and children with chronic metabolic diseases, renal dysfunction or haemoglobinopathies.
- Children and teenagers (6 months to 18 years of age) receiving long-term aspirin therapy.
- Pregnant women belonging to high-risk groups.

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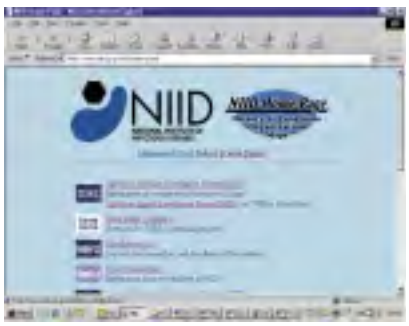
Info-net

National Institute of Infectious Diseases

The website of the National Institute of Infectious Diseases (NIID) (www.nih.go.jp/niid/) is dedicated to the surveillance of infectious diseases in Japan. The site provides information on numerous communicable diseases and includes data on aetiology, immunology, epidemiology, prophylaxis and therapy. Users also have access to the *Japanese Journal of Infectious Diseases*.



Childhood influenza – children as a high-risk group in Asia

Influenza – Asian Focus *speaks to Professor Li-Min Huang, Chief Paediatrician at the National Taiwan University Hospital, Taipei, Taiwan.*

Children are considered a high-risk group in Asia, especially children younger than 2 years of age. This age group is also at particularly high risk for hospitalisation as a result of influenza infection. There is also the additional concern that children less than 2 years of age do not always display typical influenza illness, and may manifest symptoms similar to those seen in sepsis. Community studies have shown that the incidence of influenza is highest in school-age children. Attendance at day-care centres or schools provides an environment where children may be in frequent contact with other infected individuals. Once they become infected with influenza, children shed virus for a significantly long period and become the main contaminators in the community.

Due to a lack of, or reduced immunological experience to, infection with influenza virus, children are more at risk than other age groups

Over the last decade, there has been an increase in the hospitalisation rates of children with influenza. In Hong Kong during 1998, there was a significant increase thought to be the result of the emergence of a new influenza A (H3N2) variant. Influenza A virus is responsible for most cases of influenza-related hospitalisation, and data show that each year in Taiwan, influenza A cases outnumber those caused by influenza B by a ratio of 2:1. In many parts of Asia, including Taiwan, large-scale studies – evaluating hospitalisation and mortality attributable to childhood influenza – are underway and will provide much needed data on the impact of influenza on children in Asia.

Children under 2 years of age are at high risk of hospitalisation due to influenza.

The most frequent complications that arise in childhood influenza in Asia are pneumonia and acute bronchiolitis. Acute otitis media and myositis are also frequently encountered, particularly during influenza outbreaks. Occasionally, cases of leukopenia and thrombocytopenia are reported following infection with influenza B virus.

Vaccinating children provides substantial protection against infection and mortality

There is a very strong case for the vaccination of children in Asia. A report from Japan demonstrated that vaccinating school children against influenza provided substantial protection against infection and reduced influenza-related mortality in the elderly. Throughout Asia, vaccination rates vary considerably from country to country. Currently in Taiwan, only 10–15% of healthy children receive influenza vaccine. Public education programmes have been introduced, which encourage all children, including those with underlying illness, to be immunised against influenza during clinic visits. In addition, the Taiwanese government is sponsoring the administration of free influenza vaccine to those over 65 years of age, a measure that helps to bring influenza vaccination into the public domain and makes parents more aware of the existence of the vaccine.

Due to an improvement in influenza awareness across Asia, there has been a slow increase in the childhood vaccination rate

There is still a great need to increase influenza awareness throughout Asia, and more of the population must be educated about the benefits of childhood influenza vaccination. In order to fully understand the health and economic burden of influenza in children in Asia, virological and epidemiological influenza surveillance systems need to be established, and data on the rates of excess death or hospitalisation due to respiratory disease in this age group should be collected. It is a well-recognised fact that children attending school, and other group institutions, play an important role in amplifying the incidence of influenza infection during an epidemic – making it logical to vaccinate these children against influenza. Further investigations into the efficacy and consequences of influenza vaccination, along with its cost-effectiveness, are also highly desirable in the Asia region.

Influenza in the Asia-Pacific region

At the second meeting of the Asia-Pacific Advisory Committee on Influenza (APACI) in June 2002, members from Singapore, Korea, China, Taiwan and Thailand discussed the status of influenza control in their respective countries.

Singapore

Dr Ling Ai Ee, National Influenza Centre, Singapore General Hospital, reported that while the influenza mortality rate is low in Singapore, the social and economic impact of the disease should not be underestimated.

Influenza virus isolations are observed year-round in Singapore; however, two peak seasons – April–June and November–February – are recognised. In Singapore, influenza vaccination is not part of the National Immunisation Scheme, and is not free; however, annual vaccine uptake is increasing.

Singapore's National Contingency Plan for dealing with an influenza pandemic was updated in March 2002. A central part of this plan is based on Singapore's existing influenza surveillance system, established in the early 1970s. Dr Ling told the meeting that further education in the latest viral diagnostic techniques, and more data on the burden of disease, are essential for effective vaccination policy development and pandemic planning.

Korea

Professor Park Seung-Chul, Korea University, Seoul, began his presentation by emphasising that Korea's large, highly urbanised and ageing population is at risk for influenza mortality and morbidity.

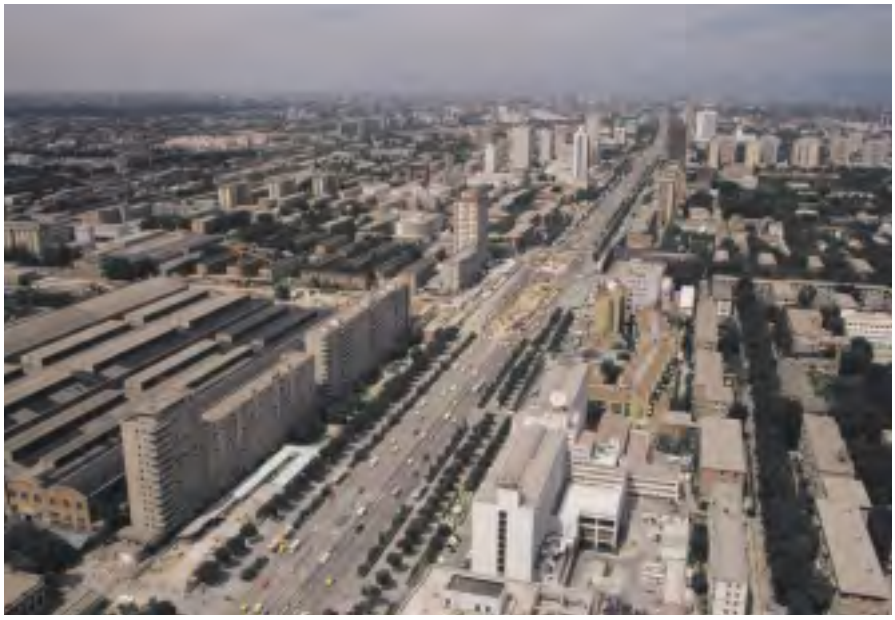
Korea's large, highly urbanised and ageing population is at risk for influenza mortality and morbidity

Peak influenza activity occurs in Korea from December to January and from March to April. In August 2000, influenza became a notifiable disease, and during the influenza season of 2000–2001 the Korean Influenza Surveillance Scheme (KISS) was implemented. This scheme involves nationwide clinical and laboratory surveillance of influenza. KISS also aims to increase public awareness of influenza and to communicate influenza surveillance data to the medical community.

In Korea, vaccination is not government funded, but is recommended for high-risk groups – children under 10 years of age and adults over 55 years of age. The influenza vaccine was administered to 18% of the general population in 2000. Priorities for the Korean government include the development of a National Vaccination Programme, a National Influenza Pandemic Plan, guidelines for the use of antiviral agents, and further studies of morbidity, mortality and the economic burden of influenza.

China

Dr Donglou Xiao, Director, Department of Disease Control, Beijing, reported that China's National Influenza Surveillance System, initiated in 2000, now covers 23 provinces. An epidemic of influenza was reported during January–February 2002, with cases occurring in certain northern regions of the Yellow River province. A total of 386 samples from 20 influenza surveillance sentinels were submitted to the National Influenza Centre laboratory for viral identification. Results showed that 87.8% were positive for the influenza virus.



Influenza vaccination is on the increase in built-up areas such as Beijing, China.

Influenza vaccination is increasing in China, particularly in developed areas such as Beijing

Initial steps were taken in early 2002 to develop an official influenza vaccination policy for China. A single policy for the whole country would be impractical due to regional economic variations; therefore, area-specific policies will need to be developed. Dr Donglou reported that influenza vaccination is increasing in China, particularly in developed areas such as Beijing.

Taiwan

Professor Jen-Ren Wang, National Cheng Kung University, Tainan, and Professor Li-Min Huang, National Taiwan University, Taipei, reviewed the data on influenza in Taiwan. In 1999, the Centers for Disease Control in Taiwan established a national influenza surveillance system, based on 186 sentinel sites throughout the country. In 2000, influenza with complications became a notifiable disease in Taiwan.

Most influenza cases in Taiwan occur among children under 4 years of age, and adults over 65 years of age. In the 10-year period up to 2002, approximately 3000 influenza-related deaths occurred among the elderly. In 1998, after conducting a cost-effectiveness study, the Taiwanese government initiated a free influenza vaccination programme for all individuals over 65 years of age and other high-risk groups.

A pandemic plan is currently under development. In Taiwan, influenza epidemics usually follow a set pattern – influenza A appears early in winter, peaks from December to January, and wanes in February. A second peak of influenza B infection usually occurs during March and ends before summer.

Thailand

Associate Professor Chantapong Wasi, Siriraj Hospital, Bangkok, reported that influenza is prevalent year-round in Thailand, with peaks usually occurring in June to July and October to November. Approximately 40,000 cases were reported in 2000.

Although vaccination against influenza appears to be increasing generally, its use is still mainly limited to high-risk groups.

There is no national recommendation for public sector influenza vaccination in Thailand. Vaccination of individuals who come into contact with influenza patients is currently under consideration, and Professor Wasi stated that universal vaccination of the Thai population may be considered in the future. For now, vaccination of chronically ill patients, especially those with chronic obstructive pulmonary disease, has been identified as a priority by the Thai government.

Vaccination of chronically ill patients has been identified as a priority by the Thai government

Summary

Clearly, influenza is an important cause of morbidity and mortality across the Asia-Pacific region, particularly among young children and the elderly. The economic burden due to lost work days, and the cost of hospitalisation, treatment and diagnosis of the disease, are significant. Uptake of influenza vaccine seems to be increasing generally, but its use is still mainly limited to high-risk groups.

Fortunately, it appears that governments in this region are beginning to pay closer attention to influenza surveillance, the development of influenza vaccination policies and the general promotion of immunisation. With increasing awareness, it is hoped that public demand for influenza vaccination will continue to escalate.

Update from the WHO

Northern and Southern hemisphere influenza vaccines

Each year, new influenza vaccine is formulated and its composition is determined by the strain of influenza viruses that are currently in circulation. The World Health Organization (WHO) offers information and recommendations on what the proposed vaccine strain should be and how the vaccine should be used in the Expanded Programme on Immunisation (EPI).

Influenza viruses frequently undergo permanent antigenic changes that involve small genetic mutations. These changes result in the emergence of a new strain of influenza virus. Each new virus is genetically different from the one that was previously in circulation and, therefore, it is not recognised by an individual's immune system, even if they have antibodies to previous influenza virus strains. Recommendations are made for both influenza A and influenza B virus vaccines – although influenza B virus is not as susceptible to antigenic change as the influenza A subtype, it is still the cause of epidemics resulting in substantial morbidity and mortality.

(Continued on page 10)

Dr Luningning Villa

Luningning Villa is National Program Manager for the Emerging Infections Control Program at the National Center for Infectious Diseases at the Department of Health in the Philippines. She is also a medical specialist for the Communicable Disease Control Service and a member of the Department of Health Technical Working Group for Preparedness and Response to Radiological, Biological and Chemical Incidents. She is involved in the Department of Health Program for Quality Assurance of Health Facilities.

Information on the influenza virus strain that is circulating in a particular region is gathered by the WHO Global Surveillance Network, which consists of 112 national influenza centres in 83 countries and four WHO Collaborating Centres for Reference and Research on Influenza located in the USA, UK, Australia and Japan. Influenza samples are collected and analysed so that the strain can be identified. Twice every year, the WHO reviews the laboratory findings and new vaccine compositions are recommended based on the results.

Influenza virus is predominant in the winter season, and different strains emerge each winter in the Northern and Southern hemispheres. Recommendations for new vaccine for the Northern hemisphere are made in February of each year, and the vaccine for the Southern hemisphere is usually recommended in September. More than 250 million influenza vaccines are produced each year based on these recommendations. Since 1972, the WHO has recommended 39 changes in vaccine composition. It is important that influenza vaccine composition matches the circulating influenza virus as closely as possible, to ensure adequate protection against infection.

New WHO vaccine recommendations for the 2003–2004 influenza season

- A/New Caledonia/20/99(H1N1)-like virus
- B/Hong Kong/330/2001-like virus
- The recommendation on the A (H3N2) component will be published in October 2003

This recommendation relates to the upcoming winter in the Northern hemisphere. A recommendation relating to winter in the Southern hemisphere will be made in October 2003.

World focus

Current influenza-related news from around the globe, including outbreaks, research and development, and new recommendations.

Lessons learnt from Madagascar

In mid-2002 an influenza A epidemic swept across the island of Madagascar, killing approximately 754 people and affecting a further 30,304. The virus responsible for the epidemic was identified as the influenza A/Panama/2007/99-like (H3N2) virus, first reported in June 2002 in the highland province of Fianarantsoa, one of the poorest regions of the country.

Madagascar, which has a population of 16 million people, lies in the Indian Ocean, off the south-eastern coast of Africa. Five out of the six provinces on the island were affected by the epidemic. Madagascar has been identified as the eighth poorest country in the world and the majority of deaths occurred in children and the elderly, in rural regions where healthcare provision is limited. The high mortality was linked to widespread malnutrition and poor living conditions, which had been exacerbated by a long period of political unrest. The resulting economic upheaval had caused the loss of many jobs, and those infected with the virus were unable to afford the cost of transportation to health facilities, or relied unsuccessfully on inexpensive traditional remedies.

Inadequate surveillance was thought to be behind the virulent spread of infection. An international team from the World Health Organization (WHO) Global Outbreak Alert and Response Network arrived in Madagascar during August to offer advice on case management and primary care. In conjunction with the Madagascan Ministry of Health, a surveillance system was established, which allowed the spread of the disease to be properly monitored. Samples of the virus were collected and analysed, as initially it was suspected that the epidemic had been caused by a new and highly virulent influenza strain. However, it was confirmed that the strain of influenza A that was isolated during tests did not have significantly different antigenic characteristics from the strain that had circulated in Madagascar during 2001. It was therefore concluded that a lack of prior exposure to similar viruses in some communities had left individuals vulnerable to infection. Crowded living conditions, and a wet and cold winter, compounded the person-to-person transmission of the virus.

An antibiotics shortage, lack of availability of influenza vaccine and low public awareness about influenza all contributed to the difficulties faced in controlling the Madagascan epidemic. The WHO team recommended that in order to prevent further outbreaks, the influenza surveillance system be expanded and that training programmes for all healthcare providers and public education activities be implemented to increase general influenza awareness.

Outbreak of influenza, Madagascar, July–August 2002. *Eurosurveillance* 2002; Vol 7 No 12.

Influenza in Madagascar. The World Health Organization, 2002.

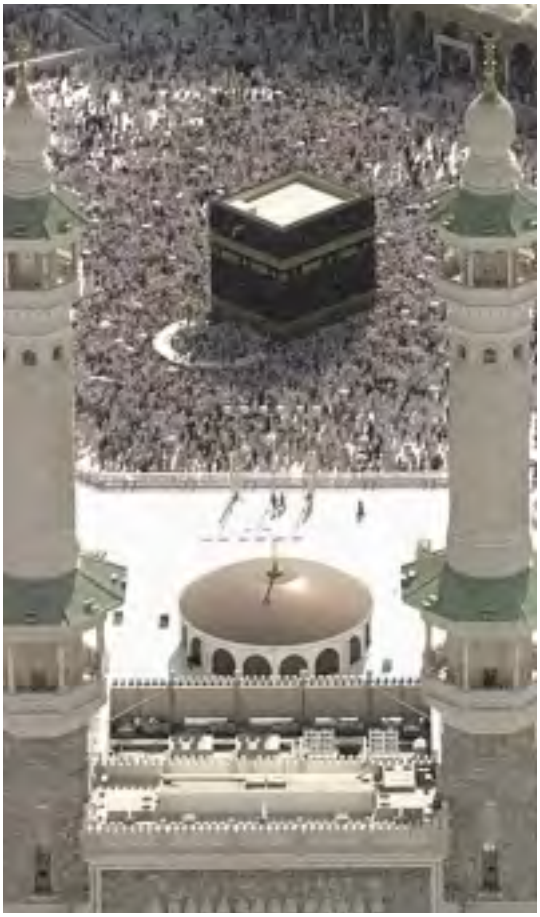
Member's diary

Influenza – Asian Focus *speaks to Dr Ingerani Sujana Prawira, Director of the Disease Research Centre at the National Institutes of Health Research and Development, Indonesia, about the Hajj pilgrim health education programme.*

For a Muslim, the Hajj pilgrimage to Mecca is an important compulsory journey that must be made at least once in their lifetime. Each year during the Hajj season, in the twelfth month of the Islamic calendar, an estimated 3 million people from around the world gather in the cities of Mecca and Medina in Saudi Arabia to take part in the Hajj ceremony known as the manasek. The congregation of such a large number of people is conducive to the transmission of numerous infectious diseases, particularly influenza.

Indonesia has a population of 220 million people, 90% of whom are Muslims. To control the number of pilgrims attending the Hajj, the Saudi Arabian government limits the annual quota of Indonesian pilgrims. In 2003, an estimated 220,000 Indonesian pilgrims travelled to Mecca. During the run-up to the annual event, the Indonesian Ministry of Health, in conjunction with the Ministry of Religious Affairs and other government departments, launched a variety of health activities for Indonesian Hajj pilgrims. The Hajj pilgrimage lasts for 40 days, which is a long period of time away from home for pilgrims, many of whom will not have previously travelled abroad. The aim of the government health activities is to ensure that pilgrims are in optimal health before leaving for Mecca. Advice and guidance is given on how to stay healthy, including a series of educational courses that encompass a wide range of topics. During these courses, particular emphasis is placed on the risk of infectious diseases. Pilgrims are taught how to recognise the signs of influenza and other infectious diseases, the importance of maintaining high levels of hygiene, good nutrition habits and exercises for maintaining health and stamina.

Government health activities ensure that Hajj pilgrims are in optimal health before leaving for Mecca.



Tens of thousands of Muslims descend upon Mecca each year during the Hajj pilgrimage.

Health screening prevents prospective pilgrims who are unwell from embarking on the journey to Mecca, and helps to prevent the transmission of imported communicable diseases on their return to Indonesia. Health examinations are conducted which allow for the observation of influenza in the Indonesian Muslim community and provide an opportunity for the administration of influenza vaccination.

Many pilgrims venturing to Mecca for the Hajj are elderly or at high risk for severe influenza illness and complications. Outbreaks of influenza during the ceremony can have devastating effects both in Saudi Arabia and in the home countries of the attending pilgrims. This is of particular concern if the Hajj pilgrimage coincides with the annual influenza season in Saudi Arabia. Influenza vaccination has been recommended for all people over 65 years of age and those in high-risk groups. Taking precautions against influenza infection helps to ensure that pilgrims stay in good health and are able to take part in all the rigorous activities associated with the Hajj.

Dr Donglou Xiao

Donglou Xiao is the Deputy Director-General of the Department of Disease Control at the Ministry of Health, Beijing, China. He is responsible for the management and surveillance of infectious diseases in the region. He has also been an advisor for the World Health Organization's Global Agenda on Influenza Surveillance and Control.

Associate Professor Ilina Isahak

Ilina Isahak is Head of the Department of Medical Microbiology and Immunology at University Kebangsaan in Kuala Lumpur, Malaysia. She is a member of several regional organisations and has been involved in the registration of new antiviral agents and vaccines in Malaysia.

Upcoming meetings

International

The American Society for Virology (ASV) 22nd Annual Meeting
Davis, California, USA — 12–16 July 2003
www.mcw.edu/asv/

6th Annual Meeting of the European Society for Clinical Virology
Lyon, France — 24–27 August 2003
www.escv-lyon2003.com

6th International Meeting on Microbial Epidemiological Markers
Les Diablerets, Switzerland — 27–30 August 2003
www.asmusa.org/mtgsrc/IMMEM6general.htm

International Conference on Options for the Control of Influenza V
Bankoku Shinryokan, Okinawa, Japan — 7–11 October 2003
http://options5.med.nihon-u.ac.jp/

Regional

4th International Symposium on Antimicrobial Agents and Resistance (ISAAR)
Seoul, Korea — 1–3 May 2003
www.ansorp.org/isaar/2003/Invitation.htm

6th Asia-Pacific Congress of Medical Virology
Kuala Lumpur, Malaysia — 7–10 December 2003
www.6apcmv.medic.ukm.my/IISSamples/Default/welcome.htm

In the next issue ...

Topics that will be covered in the next issue of *Influenza – Asian Focus* include:

- What is Influenza? Exploding the myths – Part 2
- Vaccine usage around the world: emphasis on Asia
- Vaccine storage techniques
- Korean national influenza activity
- Severe acute respiratory syndrome (SARS)

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