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FEATURE IN FOCUS

RSV disease and Interim Consensus on the use of RSV vaccines in Hong Kong

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Respiratory syncytial virus (RSV) is a common respiratory virus that causes infection of the airway, lungs and middle ear. It is the most common cause of bronchiolitis and pneumonia in infants under one year of age. It is also a major cause of severe lower respiratory tract diseases (LRTD) in older adults, particularly those with chronic medical conditions.

Local epidemiology of RSV infection

The Centre for Health Protection (CHP) of the Department of Health monitors local RSV activity through laboratory, hospital discharge and outbreak surveillance. The available data show that RSV infection occurs throughout the year in Hong Kong. While a seasonal pattern with higher activity between June and October was observed in some years, no distinct seasonality was evident in other years (Figure 1).

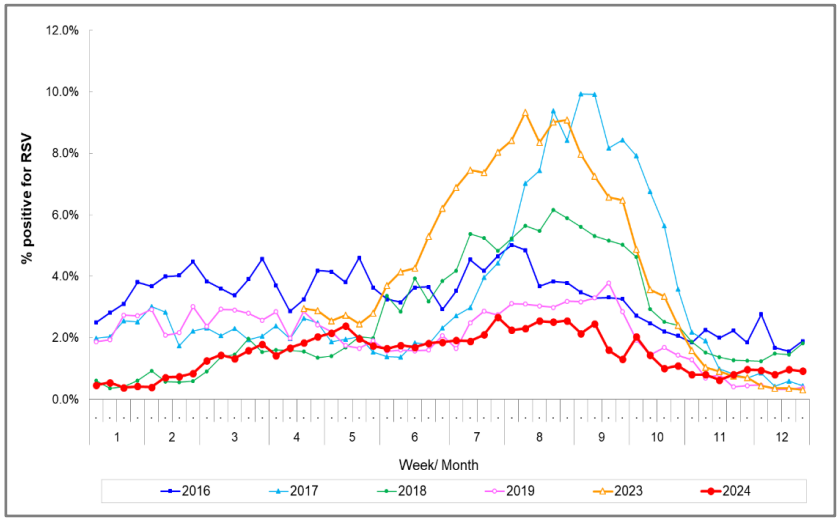

Figure 1 – Weekly positive percentage of RSV among respiratory specimens tested by CHP and the Hospital Authority during 2016-2024 (excluding COVID-19 period from 2020 to 2022).

In terms of hospitalisation, the annual cumulative hospitalisation rate of RSV infection between 2016 and 2024 (excluding COVID-19 period from 2020 to 2022) for all ages ranged from 45 to 97 per 100,000 population. Overall, young children aged under five years accounted for the majority of RSV-associated hospitalisations (69%), followed by elderly persons especially those aged 75 years and above (Figure 2). Excluding the spike of cases in 2023 (which was likely due to the immunity gap resulting from strict infection control and social distancing measures implemented during the COVID-19 epidemic), the annual cumulative RSV-associated hospitalisation rates for children and elderly persons remained relatively stable. The annual cumulative RSV-associated hospitalisation rates among children aged under five years ranged from about 900 to 1,300 per 100,000 population, comparable to reported rates overseas[1]. The corresponding rates for elderly persons aged 75 years and above ranged from about 60 to 160 per 100,000 population, lower than

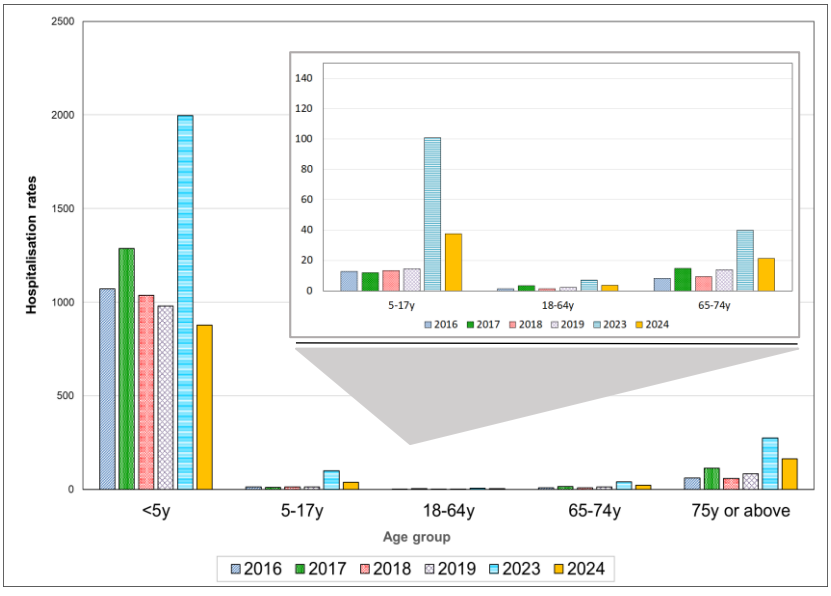

Figure 2 – Annual cumulative RSV-associated hospitalisation rate per 100,000 population by age group.

reported rates of about 250 per 100,000 population in some overseas countries[2,3].

For RSV-associated mortality, over 90% of public hospital cases with fatal outcomes from any cause during the same hospitalisation episode occurred among elderly persons aged 65 and above. Their annual cumulative mortality rates between 2016 and 2024 (excluding 2020-2022) ranged from 1.2 to 6.8 per 100,000 population. For children aged under five years, only one fatal case was recorded in the above period.

The disease burden of RSV is relatively lower as compared with seasonal influenza. For instance, except for children under five, the rates of RSV-associated hospital admission for other age groups are lower than that for seasonal influenza, and the overall rate is about 40% of that for seasonal influenza. Based on public hospital data, the estimated annual cumulative mortality rate of RSV infection is about 5 per 100,000 population among elderly persons aged 65 years and above, whereas that for seasonal influenza is about 40 per 100,000 population.

Interim consensus on the use of RSV vaccines in Hong Kong

Two RSV vaccines are currently available in Hong Kong, including an adjuvanted protein-based RSV vaccine and a non-adjuvanted bivalent protein-based RSV vaccine. While both vaccines are administered as a single dose and are indicated for adults aged 60 years and above, the bivalent protein-based RSV vaccine is also indicated for use in pregnant women between 32 and 36 weeks of gestation to prevent severe LRTD caused by RSV in infants from birth through six months of age.

For elderly persons, overseas studies demonstrated that both protein-based RSV vaccines are efficacious against RSV-associated LRTD, with sustained effects of a single dose lasting for at least two years. In addition, early real-world data from post-marketing studies indicated that both vaccines effectively prevent serious illness and hospitalisation among the elderly, showing over 70% effectiveness against RSV-associated hospitalisations in their first RSV season[4,5]. Regarding safety, both vaccines are generally well tolerated with acceptable safety profiles. However, a few serious adverse events warrant attention. Among elderly recipients, rare cases of inflammatory neurological conditions like Guillain-Barré Syndrome (GBS) and acute disseminated encephalomyelitis were recorded. A post-marketing observational study on the two protein-based RSV vaccines in the United States suggested an increased risk of GBS during the 42 days following RSV vaccination, with an estimated rate of less than 10 cases per one million vaccinations[6].

For pregnant women, the bivalent protein-based RSV vaccine was found to have over 80% effectiveness against severe RSV-associated LRTD in infants within the first 90 days after birth, and approximately 70% effectiveness within 180 days after birth[7]. Regarding maternal RSV vaccination, clinical trial data showed a higher percentage of preterm births in the vaccine group receiving the bivalent protein-based RSV vaccine compared to the placebo group (5.7% versus 4.7%), although this difference was not statistically significant[8]. In addition, there was an observed increased risk of hypertensive disorders of pregnancy from data of a post-marketing retrospective cohort study in the United States[9]. Post-marketing analysis is actively ongoing to further address safety concerns regarding the use of RSV vaccine in pregnant women.

The Scientific Committee on Vaccine Preventable Diseases (SCVPD) has recently reviewed local epidemiological data, scientific data on efficacy and safety (including potential adverse effects like serious neurological disease, preterm birth and hypertensive disorders of pregnancy) of RSV vaccines, and recommendations of the World Health Organization (WHO) and overseas health authorities. Based on this review, the SCVPD has reached an interim consensus on the use of RSV vaccines in Hong Kong, as outlined in Table 1[10]. The SCVPD will continue to monitor related development and will review in a timely manner whether there is significant scientific information to recommend RSV vaccinations for all elderly persons and pregnant women from a public health perspective.

Table 1 – Interim consensus of SCVPD on use of RSV vaccine in Hong Kong

Group	Interim consensus
Elderly persons	• The protein-based RSV vaccines are effective in preventing RSV-associated lower respiratory tract disease (LRTD) among elderly persons. • Pending specific recommendations from the WHO and local data from the cost-benefit perspective, the SCVPD does not currently recommend universal RSV vaccination for elderly persons. • Elderly persons (especially those aged 75 years and above or living in residential care homes) may receive RSV vaccination for personal protection, as an individual decision under informed consent in consultation with their doctor.
Pregnant women	• The bivalent protein-based RSV vaccine is effective in preventing severe RSV-associated LRTD among infants born to vaccinated mothers for up to six months after birth. • Pending additional safety data for using the bivalent protein-based RSV vaccine, the SCVPD does not currently recommend universal RSV vaccination for pregnant women. • Pregnant women may receive RSV vaccination to protect their newborn infants against RSV disease, as an individual decision under informed consent in consultation with their family doctor or doctor providing antenatal care.

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Review of melioidosis cases in Hong Kong in 2024

Reported by Dr LAI Guan-xing, Senior Medical and Health Officer and Dr LI Yu ting, Stephen, Medical and Health Officer, Epidemiology Division, Communicable Disease Branch, CHP

Introduction

Melioidosis, caused by the Gram-negative bacillus *Burkholderia pseudomallei (B. pseudomallei)*[1], is endemic in tropical and subtropical regions, particularly in Southeast Asia and northern Australia[2]. It is also an endemic infection in Hong Kong[3]. While many individuals may be exposed to the bacterium, the majority do not develop disease. However, persons with comorbidities such as diabetes mellitus are more prone to disease development[4, 5].

The primary mode of transmission is environmental exposure via percutaneous inoculation, ingestion or inhalation of contaminated soil or water[6]. Melioidosis can spread through contaminated soil and water during and following typhoons and storms. Studies have established the relationship between rainfall and the incidence of melioidosis cases[5]. Increased numbers of melioidosis cases have also been observed during periods of land disturbance such as agricultural activities[7] and construction work[5].

In October 2022, a cluster of melioidosis cases in Sham Shui Po was reported to the Centre for Health Protection (CHP) of the Department of Health. Despite extensive epidemiological and environmental investigations, the exact modes of transmission could not be determined. Although some soil samples collected from fresh water service reservoirs (FWSRs) in Sham Shui Po tested positive for *B. pseudomallei*, all water samples were negative, indicating the absence of contamination in the water supply. The Water Supplies Department has implemented a series of precautionary measures to effectively prevent *B. pseudomallei* contamination of drinking water supplied by the FWSRs. To enhance surveillance of the disease, the Government has included melioidosis as one of the statutorily notifiable infectious diseases since November 11, 2022.

Melioidosis cases in 2024

In 2024, the CHP recorded a total of 23 melioidosis cases in Hong Kong, compared with 46 cases in 2022 and 17 cases in 2023. The number of reported cases has remained relatively stable since the outbreak in 2022.

Among the 23 cases recorded in 2024, there were 12 males and 11 females, with ages ranging from 42 to 93 years (median: 69 years). A significant proportion, 15 cases (65%), were aged 65 years or above. Majority of the cases (19, 83%) were retired or unemployed. The remaining included two drivers, one teacher and one farmer. The majority of cases (19, 83%) in 2024 occurred between July and October (Figure 1), a period coinciding with the rainy season and the occurrence of tropical cyclones in Hong Kong.

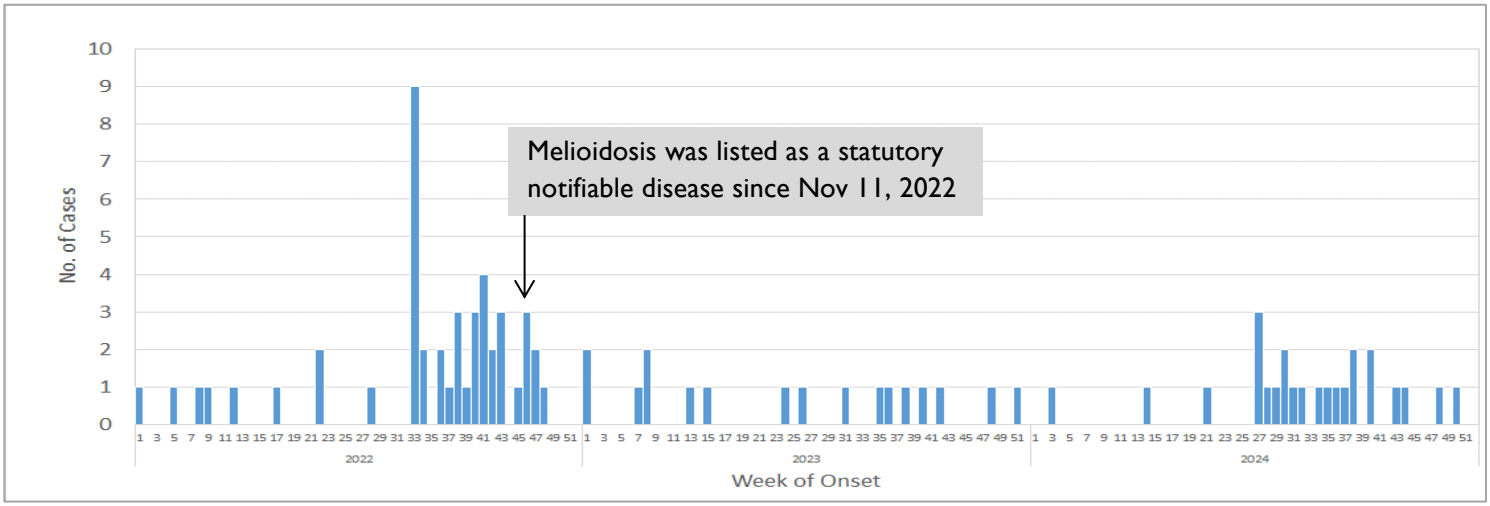

Figure 1 – Epidemic curve of melioidosis cases in Hong Kong, 2022 - 2024

The reported symptoms mainly included fever (21, 91%), cough (15, 65%), shortness of breath (4, 17%), decreased general condition (5, 22%), and localised pain and swelling (2, 9%). All 23 cases tested positive for *B. pseudomallei* by culture. The positive results were obtained from various clinical specimens, including blood (12, 52%), sputum (7, 30%), peritoneal fluid (2, 9%), lymph node aspirate (2, 9%), pleural aspirate (1, 4%), catheterised urine (1, 4%), joint fluid (1, 4%), and wound aspirate (1, 4%). The clinical manifestations included pneumonia (13, 57%), sepsis (8, 35%), skin and soft tissue infection (4, 17%), peritoneal dialysis-associated peritonitis (2, 9%), and diabetic ketoacidosis (1, 4%). All cases required hospitalisation, with seven patients (30%) requiring admission to an intensive care unit. Three patients (13%) died of melioidosis.

Of the 23 cases, 22 had at least one underlying chronic medical condition, including hypertension (14, 61%), diabetes mellitus (12, 52%), chronic renal failure (6, 26%), heart disease (5, 22%), cancer (4, 17%), and pulmonary disease (3, 13%). Seven cases (30%) were either current or ex-smokers.

Twenty-two cases were classified as local cases, while one was imported from the Philippines. The imported case involved a 42-year-old female farmer with good past health who sustained a wound on her foot that came into contact with soil and muddy water in the Philippines. The 22 local cases were distributed in seven districts across Hong Kong. Fifteen cases (65%) occurred in Sham Shui Po, which aligns with the finding from 2022 and 2023 (63%). The remaining cases resided in Kwun Tong (2), Wong Tai Sin (1), Islands (1), Tuen Mun (1), Southern (1), and Sai Kung (1).

Among the 15 cases recorded in Sham Shui Po, 11 belonged to the ST-1996 subtype, while the remaining 4 were of the ST-70 subtype. Despite the geographic clustering in Sham Shui Po, epidemiological investigations did not identify any common high-risk exposures.

To investigate potential sources of infection, the CHP collected a total of 99 environmental samples from the households of the cases in Sham Shui Po and surrounding areas. These samples included 37 water samples, 40 swabs from faucets, 13 soil samples, and 9 environmental swabs. All samples tested negative for *B. pseudomallei*.

Conclusion

In summary, the overall number of melioidosis cases in Hong Kong has remained relatively stable in 2024 following the cluster reported in 2022. The disease predominantly affected older individuals with underlying comorbidities, especially diabetes mellitus. Most cases occurred during the rainy season, suggesting possible association between environmental exposure and disease transmission. Despite extensive environmental investigations, no *B. pseudomallei* contamination was identified in household or nearby settings. Ongoing surveillance, prompt case detection, and continued public education on preventive measures are essential to prevent the spread of melioidosis.

Prevention of melioidosis

To prevent melioidosis, the public is advised to observe the following measures:

- Avoid contact with contaminated soil;
- Wear appropriate protective clothing or footwear when participating in activities with possible contact with soil or water,
  e.g. use gloves and wear boots. High risk individuals may consider to wear a surgical mask in addition;
- Wash or shower after exposure to contaminated water or soil;
- Always clean any wounds as soon as possible and cover any cuts or grazes with waterproof dressings;

- Wash hands with liquid soap and water after handling with soils or gardening;
- Observe food hygiene and avoid drinking unboiled or untreated water;
- Whether practicable, stay indoor during typhoons and storms, avoid travelling to areas with potential flooding, and not to wade or contact with muddy water and soil. In addition, high risk individuals should avoid path near stormwater drains where aerosols may be generated from contaminated water. If possible exposure is inevitable, high-risk individuals should wear a surgical mask, gloves and boots; and
- Travellers can contract the disease through outdoor water sports. Risk of infection can be minimised by avoiding exposure to water sources (such as rivers, ponds or lakes) that might be contaminated.

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NEWS IN BRIEF

A probable case of sporadic Creutzfeldt-Jakob disease

On December 24, 2024, the Centre for Health Protection (CHP) of the Department of Health recorded a probable case of sporadic Creutzfeldt-Jakob disease (CJD) affecting an 88-year-old female with underlying illnesses residing in North district. She presented with progressive dementia, myoclonus and akinetic mutism in early October 2024, and was admitted to a public hospital on October 29. Findings of electroencephalogram were compatible with CJD. Her condition was stable. She had no known family history of CJD. No risk factors for iatrogenic or variant CJD were identified. She was classified as a probable case of sporadic CJD.

Two local sporadic cases of psittacosis

The CHP recorded two sporadic cases of psittacosis on December 24, 2024 and January 21, 2025 respectively.

The first case involved a 75-year-old man with underlying illnesses residing in Kwai Tsing. He presented with fever and cough on December 13, and was admitted to a public hospital on December 17. Chest X-ray showed bilateral lower zone consolidation. His sputum collected on December 18 was tested positive for *Chlamydia psittaci* DNA. His condition improved with antibiotics treatment and he was discharged on December 19. He did not keep any birds at home, but reported the presence of pigeons in a park near his home. The case was referred to Agriculture, Fisheries and Conservation Department (AFCD), Food and Environmental Hygiene Department (FEHD), and Leisure and Cultural Services Department for follow-up.

The second case involved a 56-year-old man with good past health residing in Tuen Mun. He presented with fever and cough on January 12, and was admitted to a public hospital on January 17. Chest X-ray showed left middle zone consolidation. His sputum collected on January 17 was tested positive for *Chlamydia psittaci* DNA. His condition improved with antibiotics treatment and he was discharged on January 21. He could not recall history of contact with bird's dropping or carcasses and he kept no birds at home. The case was referred to AFCD and FEHD for follow-up. No epidemiological linkage with previous cases was identified.

Both cases had no travel history during incubation period. All home contacts of both cases were asymptomatic.

A local sporadic case of listeriosis

On December 24, 2024, the CHP recorded a sporadic case of listeriosis affecting a 63-year-old male with underlying illness. He presented with fever, abdominal pain, diarrhea and shortness of breath on December 21, and was admitted to a public hospital on the same day. Blood collected on December 22 grew *Listeria monocytogenes*. His condition remained critical despite treatment and he passed away on December 27. Before symptom onset, he had a one-day trip to Shenzhen on December 19. There was no known high-risk exposure during the incubation period. His household contacts remained asymptomatic.