THE PATHCARE NEWS

UPDATE ON HUMAN METAPNEUMOVIRUS (hMPV)

Background
Recent media reports raised concerns regarding an increase in human metapneumovirus (hMPV) cases in China. This document aims to provide a summary of the current respiratory infection season in China and provide a brief overview of hMPV.

Introduction
In the northern hemisphere, trends in acute respiratory infections (ARI) increase at this time of the year due to the winter season. These ARI are typically caused by seasonal influenza, respiratory syncytial virus (RSV), other common respiratory viruses including hMPV, and bacteria such as *Mycoplasmoides pneumoniae* (formerly Mycoplasma pneumoniae).

Many countries conduct routine surveillance for ARI and common respiratory pathogens. In China, routine virological surveillance is conducted for common respiratory pathogens, including hMPV.

Current situation in China
According to China CDC data available up to 29 December 2024, an increase in common ARIs has been detected. Influenza is the most frequently reported cause of respiratory disease in all age categories except the 5-14 years age category, where *Mycoplasmoides pneumoniae* has the highest positivity rate. SARS-CoV-2 activity remains low. The levels of ARIs, including hMPV, are reportedly within the expected range for the winter season.

Additionally, the China CDC reports that current influenza-like illness (ILI) activity remains similar to, or below, that of the previous two years, with hospital utilization currently lower than the same time last year. To date, there have been no emergency declarations or responses triggered.

Human metapneumovirus
HMPV was discovered in the Netherlands in 2001 as a new virus associated with respiratory disease in children. Data suggests that hMPV has been responsible for worldwide respiratory infections for at least 60 years.

HMPV is an enveloped, RNA virus in the *Pneumoviridae* family. Two subgroups, A and B have been identified with 2 clades within each subgroup; A1, A2, B1 and B2. To date, there is no evidence that the subgroups vary significantly in virulence.

Transmission
HMPV is spread by direct or close contact with contaminated secretions via large particle aerosols, droplets and fomites, similar to other respiratory viruses e.g. influenza, SARS-CoV-2.

Epidemiology
HMPV is ubiquitous, worldwide. Seasonal variation is noted, with a late winter - early spring or late spring - summer pattern. Data suggests most children are infected by age 5. Symptomatic disease occurs more commonly in young children and the elderly. HMPV has been detected from asymptomatic individuals.

Clinical picture
HMPV is usually associated with mild, self-limited respiratory infections in children & adults. In severe disease, upper respiratory tract symptoms progress to wheezing and/or other signs of lower respiratory tract involvement. Wheezing may continue for days to weeks in individuals with reactive airway disease.

Hospitalisation is required for severely ill patients presenting with bronchiolitis, asthma exacerbations, pneumonia and acute respiratory distress syndrome (ARDS). HMPV pneumonia is clinically indistinguishable from pneumonia caused by other pathogens. Recurrent infections are common. Infections in immunocompromised individuals may be more severe with a more prolonged course.

Laboratory diagnosis
Reverse transcriptase PCR (RT PCR) is the most sensitive and timeous assay for detection of hMPV. HMPV is included in the following multiplex respiratory panels available at PathCare:

Assay	Specimen
BioFire® FilmArray® respiratory panel	swab in transport media, or nasopharyngeal aspirate, tracheal aspirate
BioFire® FilmArray® pneumonia panel	broncho-alveolar lavage, expectorated sputum, tracheal aspirate
Respiratory viral PCR panel	swab in transport media, or dry swab, sputum, nasopharyngeal aspirate, tracheal aspirate

Treatment
No specific antivirals - treatment is supportive and depends on clinical picture.

Prevention
General measures as for all respiratory viruses; hand hygiene, masks, staying home when unwell. Hospitalised patients should ideally be nursed in a single room or cohorted, with contact and droplet precautions implemented.

Live & subunit experimental vaccine candidates are in preclinical development. A mRNA vaccine for both RSV and hMPV is being researched.

Human metapneumovirus in South Africa (SA)
HMPV is detected all year round as one of the regular seasonal respiratory viruses (Figure 1).

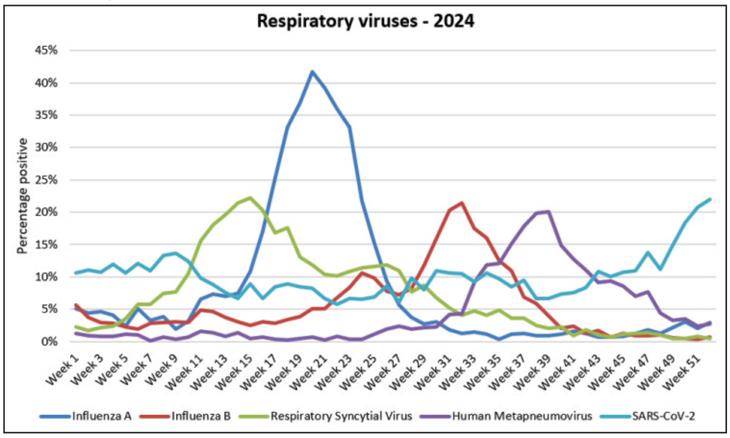

Figure 1: Percentage of samples testing positive for selected respiratory viruses by epi-week for 2024, at PathCare

Based on a risk assessment tool for SA, the risk of importing respiratory illnesses from China is low. The National Institute for Communicable Diseases (NICD) is continuously monitoring local data for any changes in disease patterns.

Conclusion
HMPV is a seasonal virus found worldwide. To date, there is no official report of any unusual increase in respiratory infections including hMPV, in China. The situation is evolving and is closely monitored by the World Health Organization and China CDC, and the NICD locally.

References
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