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Dear colleagues –

With the annual Hajj approaching (September 21-26) and as we enter the regular autumn respiratory virus surveillance period, below is an update on recent trends in emerging respiratory viruses globally, including MERS-CoV and novel avian influenza A viruses.

For our most recent seasonal influenza bulletin for BC (report no. 22, also posted on-line today), see: [www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm](http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm)

## **1. SUMMARY HIGHLIGHTS**

### **MERS-CoV**

- While the number of MERS-CoV cases associated with the May-June nosocomial outbreak in South Korea has subsided (no new cases since July 4), more recent hospital outbreaks have been reported in Saudi Arabia, including a large outbreak at King Abdulaziz Medical Centre in Riyadh (115 cases and at least 38 deaths since early July), and in Jordan.
- From September 21-26, the annual Hajj pilgrimage to Mecca will take place in Saudi Arabia. With increased travel through the region, importation of MERS-CoV cases to countries outside of the Arabian Peninsula may be anticipated. Enhanced awareness and monitoring are warranted. WHO travel advice for pilgrimages: [www.who.int/ith/updates/20150714/en/](http://www.who.int/ith/updates/20150714/en/)
- Latest (August 27) ECDC Rapid Risk Assessment, including list of affected countries to date: <http://ecdc.europa.eu/en/publications/Publications/MERS-CoV-rapid-risk-assessment-August-2015.pdf>

### **Avian Influenza A(H7N9)**

- Avian influenza A(H7N9) remains at inter-seasonal levels in eastern China. Five human cases with symptom onset in May-June were reported since our last update.

### **Other Novel Influenza**

- Three human cases of swine-origin variant influenza A were reported over the summer months (July-August) in the United States: two cases of H3N2v and one case of H1N1v.

Although the risk to Canadians from these emerging respiratory pathogens remains low, clinicians should remain vigilant and consult their local Medical Health Officer for advice related to diagnostic testing, infection control and follow up where a novel emerging pathogen may be suspected.

More detailed epidemiologic information, risk assessment, action and advice are provided below.

## 2. EPIDEMIOLOGICAL UPDATE

### A. Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

As of September 17, a total of 1,569 MERS-CoV cases globally, including at least 554 related deaths, have been reported to the WHO. Cases have primarily accrued in Saudi Arabia but there have also been travel-related importations to other countries sometimes culminating in nosocomial outbreaks as described for recent events below.

#### **a. South Korea**

Following the importation of a single MERS-CoV case to South Korea from the Middle East in May, 2015, 186 confirmed cases, including one travel-related case in China, and 36 deaths have been reported in association with the South Korean outbreak – highlighting the extent to which a MERS-CoV importation can amplify in the nosocomial setting if not identified and intervened upon early (reminiscent of SARS-CoV).

Fortunately, over the summer months, the outbreak in South Korea subsided considerably, with no new MERS-CoV cases reported since July 4. However, the outbreak will not be officially declared over until two incubation periods (28 days) have passed after the last patient has cleared virus or died according to the World Health Organization (WHO). As of September 16, eight confirmed cases remain under treatment, of whom seven have tested negative for MERS-CoV and are being treated in general wards.

#### **b. Saudi Arabia**

Since the first week of July, 190 cases and 57 MERS-CoV deaths have been reported to the WHO from Saudi Arabia, mostly from the Riyadh region (n=161, 85%) where 115/161 (71%) cases and at least 38 deaths have been linked to the ongoing hospital outbreak at King Abdulaziz Medical Centre. A further five cases have been linked to a smaller outbreak at another unnamed hospital in Riyadh.

Among the 161 recent Riyadh cases, at least 91 are epidemiologically linked, while 26 reported no recognized contact with cases in the community or hospital and 44 had exposure history under review at the time of report. Epidemiological characteristics remain similar to previous outbreaks, affecting mainly older adult men with underlying comorbidity (median age=57 years; 63% male). Twenty-seven cases are healthcare workers. An additional five cases from Riyadh were reported this past week by the Saudi Ministry of Health that have not yet been officially confirmed by the WHO.

A recent WHO mission to Saudi Arabia in response to the Riyadh outbreak at the King Abdulaziz Medical Centre on August 23 concluded that most nosocomial cases involved patient-to-patient infection, facilitated by overcrowding in the emergency room and breaches in compliance with infection control measures among patients, visitors and healthcare workers. For more information:

[www.emro.who.int/surveillance-forecasting-response/surveillance-news/who-mission-on-middle-east-respiratory-syndrome-coronavirus-merscov-in-saudi-arabia.html](http://www.emro.who.int/surveillance-forecasting-response/surveillance-news/who-mission-on-middle-east-respiratory-syndrome-coronavirus-merscov-in-saudi-arabia.html).

This past week, the WHO confirmed a third nosocomial outbreak in Saudi Arabia, this time in the holy city of Medina. To date, six epidemiologically linked cases (median age=45; 67% male) have been reported to the WHO associated with this outbreak, including three healthcare workers. Earlier this week, the Saudi Ministry of Health reported an additional two cases from Medina; however, these cases have not yet been officially confirmed by the WHO.

These ongoing nosocomial outbreaks are occurring at a time when millions of international travellers will visit Saudi Arabia for the annual Hajj pilgrimage, taking place from September 21-26 this year.

Although no cases of MERS-CoV were detected in association with the 2013 or 2014 Hajj, several travel-associated cases have been reported previously in pilgrims returning from Umrah, a religious pilgrimage that occurs throughout the year. Due to the increased travel to the affected region in the coming weeks, clinicians are reminded to elicit a travel history or other possible epidemiological links to affected areas in the Middle East from patients presenting with severe acute respiratory illness (SARI). The median incubation period for MERS-CoV is estimated at 5-6 days, but could be up to 14 days.

### **c. Jordan**

Jordan is also experiencing a nosocomial outbreak at a private hospital in Amman city, following the importation of a single case with recent travel to Jeddah, Saudi Arabia.

Eleven cases and five deaths (including the index case) have been reported to the WHO from Jordan since late August. Ages range from <1-78 years (median age=56 years) and 55% are male. Of the ten locally acquired cases, five had healthcare-related exposures at the hospital where the MERS-CoV outbreak is currently occurring, four are household contacts of confirmed cases (two asymptomatic), and one had exposure history under review at the time of report; none are healthcare workers.

A total of 32 cases have been reported in Jordan since the emergence of MERS-CoV in March/April 2012.

### **d. Other countries**

Over the summer period (June-August), travel-related cases were also reported by the Philippines (ex. Saudi Arabia) and Thailand (ex. Oman). No further indigenous human-to-human transmission was reported by either country.

On September 2, the International Health Regulations (IHR) Emergency Committee regarding MERS-CoV met for the tenth time and concluded that the MERS-CoV situation still does not constitute a Public Health Emergency of International Concern (PHEIC). The Committee did, however, emphasize ongoing concerns related to insufficient awareness about the urgent dangers posed by this virus, insufficient engagement by all relevant sectors and insufficient implementation of scalable infection control measures, especially in healthcare settings such as emergency departments. More information is available from: [www.who.int/mediacentre/news/statements/2015/ihr-emergency-committee-mers/en/](http://www.who.int/mediacentre/news/statements/2015/ihr-emergency-committee-mers/en/).

## **B. Avian Influenza A(H7N9), China**

Human case reports of avian-origin influenza A(H7N9) in eastern China remained at inter-seasonal levels over the summer months. Five additional laboratory-confirmed cases and three deaths, with symptom onset between May 26 and June 18, were reported in mid-July in China. Ages range from 58-77 years (median age=65 years) and all are male. All five cases reported exposure to live poultry-related environments. No new cases have been reported with onset in July-September; however, further cases are anticipated during the winter seasonal period.

As of July 17, a total of 677 laboratory-confirmed human cases of avian influenza A(H7N9) have been reported to the WHO, including four cases reported from Taiwan, 13 from Hong Kong, one from Malaysia and two from British Columbia, Canada.

### **C. Other Novel Influenza, United States**

Over the summer months (July-August), three additional human cases of swine-origin variant influenza A were reported in the United States, including two cases of influenza A(H3N2) variant (H3N2v) (one in July in a child with a history of cancer in Minnesota and one in August in Michigan) and one case of influenza A(H1N1) variant (H1N1v) in August in Iowa. All three cases were hospitalized as a result of their illness and all reported direct contact with swine in the week prior to illness onset.

These are the first two cases of H3N2v and the third case of H1N1v to be reported in the United States in 2015. Previously in 2015, two H1N1v cases (one fatal) were reported in Minnesota and Ohio. Since December 2005, a total of 353 cases of H3N2v and 19 cases of H1N1v have been reported in the United States.

### **3. ACTION AND ADVICE**

Clinicians should obtain relevant travel, animal (direct or indirect), or other contact exposure history from patients presenting with acute illness that could be due to infectious disease, notably severe acute respiratory illness (SARI). In the event of links to affected areas in the two weeks prior to symptom onset (i.e. residence, travel history or contact with someone with such history), clinicians should notify their local health authority/Medical Health Officer and consult a virologist or microbiologist at the BC Public Health Microbiology & Reference Laboratory (PHMRL) to arrange advance notification and direct shipping of diagnostic specimens, indicating relevant travel or other exposure history. Given a spectrum of illness inclusive of milder or atypical presentations, clinicians are encouraged to use their judgement and/or consult local public health and infection control for guidance where the index of suspicion (e.g. based on contact, comorbidity or clustering history) and exposure risk may be higher.

For diagnostic testing for suspected MERS-CoV or avian influenza, lower respiratory specimens (e.g. sputum, endotracheal aspirate, or bronchoalveolar lavage) are recommended where possible and clinically indicated. Follow strict infection prevention and control guidelines when collecting respiratory specimens.

Health care workers should implement respiratory precautions immediately, and cases should be managed in respiratory isolation with contact and droplet precautions. Airborne precautions are warranted in the event of aerosol-generating procedures or conditions. Facilities should be mindful of the protection of other patients and visitors, in addition to healthcare workers, to minimize nosocomial transmission and risk.

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