

## Enhanced respiratory illness surveillance in Hajj pilgrims

Hajj is the annual pilgrimage to Mecca in the Kingdom of Saudi Arabia (KSA). Each year, 2 to 3 million Muslims attend the Hajj, coming from over 180 countries worldwide. In 2013, the Hajj took place during 13 to 18 October, and 2 000 South Africans undertook the pilgrimage. Extended stays at Hajj sites, physical exhaustion, extreme heat and crowded accommodation encourage disease transmission. Various infectious disease outbreaks have been reported during previous Hajj events, including polio, meningococcal disease, cholera, viral hepatitis (A, B and C), diarrhoeal and foodborne diseases, and a range of respiratory diseases (including influenza, *Haemophilus influenzae*, *Streptococcus pneumoniae*, and TB).

In recent years, respiratory disease has been identified as the most common cause for hospital admission whilst attending the Hajj. Worldwide, the majority of Middle East respiratory syndrome coronavirus (MERS-CoV) cases to date (127/157, 81%) has been reported from KSA. The 2013 Hajj is the first mass gathering to take place in KSA since September 2012, so enhanced respiratory illness surveillance was extended to returning Hajj pilgrims.

Surveillance took place during 20-28 October 2013 at OR Tambo International Airport (ORTIA), where 74% (1 471/2 000) of returning South African pilgrims arrived. All returning pilgrims who met the case definition of cough plus another symptom (fever, myalgia, chest pain, sore throat, shortness of breath/pneumonia, rhinorrhoea, or headache) or hospitalisation in KSA were encouraged to have samples collected for PCR testing for the following: MERS-CoV, influenza, *Bordetella* spp and *Neisseria meningitidis*.

Over the nine-day period, of the pilgrims returning to ORTIA screened at the port health clinic, 273

met the case definition, and 63% of these (171/273) agreed to sample collection. A total of 171 oropharyngeal swabs was collected, along with 66 sputum samples from those able to produce sputum. Neither *Bordetella* spp (0/171 oropharyngeal swabs) or MERS-CoV (0/171 oropharyngeal swabs and 0/66 sputum samples) were detected. Six oropharyngeal swabs tested positive for *Neisseria meningitidis* on Cu-Zn superoxide dismutase gene (*sodC*) PCR, but only one tested positive on capsule transport gene (*ctrA*) PCR and was serogroup B. The remainder were negative on *ctrA* PCR and classified as non-groupable.

Sixteen samples tested positive for influenza: seven influenza A(H3N2) (four on oropharyngeal swabs, two on sputum and one on both swab & sputum samples); two influenza A(H1N1)pdm09 (one oropharyngeal swab and one sputum) and one mixed infection with influenza A(H3N2) and (H1N1) pdm09 (oropharyngeal swab); and six influenza B Yamagata (four on oropharyngeal swabs, one on sputum and one on both swab and sputum samples).

These results are in keeping with the global experience of respiratory illness surveillance in 2013 Hajj pilgrims, with no reports of MERS-CoV being directly linked to the Hajj and Geosentinel Surveillance sites also reporting similar influenza results. However, healthcare professionals should continue to be vigilant regarding respiratory illness in patients with a recent travel history to the Middle East as cases of MERS-CoV continue to be reported.

**Source:** Division of Public Health Surveillance and Response and Centre for Respiratory Diseases and Meningitis, NICD-NHLS