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Disease Surveillance and Response system in the Ministry of Public Health, Afghanistan.

Findings: Before 2016, the system focused only on influenza laboratory testing and there were no dedicated surveillance sites. In 2016, nine representative and dedicated influenza sentinel sites were established in major provinces to collect regular epidemiological data and specimens for testing. In addition, the National Influenza Centre regained its capacity to isolate influenza viruses after a gap of five years. In 2016, the National Influenza Centre submitted 26 isolates (AH1, H3, B Yamgata and Victoria) with the World Health Organization (WHO) to the United States Centers for Disease Control and Prevention for genetic characterization and influenza vaccine studies. In addition, Afghanistan has been able to share its epidemiological and virology information on global databases such as FluID, FluNet, Emflu and GISAID. Furthermore, 34 provincial rapid response teams have been established and trained. Timely procurement of laboratory reagents for the National Influenza Centre and lack of a facility for direct shipment between Kabul and WHO are the main challenges in the current system.

Conclusions: The influenza surveillance system has regained its capacity in epidemiological and laboratory areas. Nonetheless, the National Influenza Centre requires more technical support to maintain its performance and meet the surveillance objectives.

Keywords: Surveillance; Influenza; Afghanistan

<https://doi.org/10.1016/j.jiph.2020.02.022>

Multiple viral etiologies in patients with influenza-like illness and severe acute respiratory infection in Qatar, 2013–2016



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Background: Respiratory illnesses are a significant cause of morbidity and mortality. Qatar has a comprehensive surveillance system which includes influenza-like illness (ILI) and severe acute respiratory infection (SARI) and identification of the influenza and non-influenza viruses causing the infections.

Purpose: The aim of this study was to determine the viruses causing acute respiratory illness in Qatar during 2013–2016.

Methodology: Respiratory samples were collected from selected patients using WHO standard case definitions with ILI at the sentinel primary health care centre sites of the National Influenza Centre and patients with SARI admitted to sentinel hospitals. Nasopharyngeal and/or oropharyngeal swabs were collected from eligible patients (standardized case definitions) for the period 2013–2016. Samples were analysed by real-time polymerase chain reaction at the National Influenza Centre, which tests for 22 types and subtypes of virus.

Findings: In the study period, 43 106 patients were included and tested, 29 626 (68.7%) of whom tested positive for infection. Out of these, 8 829 (29.8%) were influenza positive, 6 655 (75.4%) of whom were influenza A and 2 174 (24.6%) were influenza B. Sub-typing of influenza A showed 3 721 (55.9%) were influenza A(H1N1)pdm09. Other respiratory viruses isolated included rhinovirus 4 626 (15.6%), respiratory syncytial virus 3 259 (11.0%), coronaviruses 1 824 (6.2%), adenovirus 1 689 (5.7%), parainfluenza virus 1 645 (5.6%), human metapneumovirus 1 357 (4.6%)

Mycoplasma pneumoniae 1 053 (3.6%), bocavirus 874 (3.0%) and parechovirus 178 (0.6%). Seasonal variation was observed for influenza with the peak season being from October to March with an unexpected surge of cases seen in October to December 2016.

Conclusions: Influenza viruses A and B are responsible for the majority of the ILI and SARI cases reported in Qatar; however many other viruses also contribute to the burden of respiratory illness in the country. The findings indicate other viral etiologies besides influenza which may influence the clinical management and outcome of the patient.

Keywords: Influenza; Influenza-like illness; Severe acute respiratory infection; Respiratory pathogens; Qatar

<https://doi.org/10.1016/j.jiph.2020.02.023>

Preventing and controlling avian influenza in the Eastern Mediterranean: a review



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Background: Avian influenza poses a significant public health risk worldwide, with outbreaks of the H5N1 strand affecting more than 50 countries between 2003 and 2006. Between 2003 and 2016, transmission from infected birds to humans was confirmed in four countries of the World Health Organization's (WHO) Eastern Mediterranean Region, the most affected country being Egypt with 356 human cases, including 121 deaths, as of October 2016. Countries in the Region must implement stringent measures against the threat of an avian influenza pandemic.

Purpose: This review aimed to assess the ongoing strategies to prevent and control avian influenza in human and animal populations in the Region and identify potential ways to improve prevention and control.

Methodology: Relevant literature was identified through searches of literature databases, grey literature, and the snowballing technique, and extracted and synthesized in a narrative format. Data from the WHO comparative analysis of national pandemic preparedness plans were also analysed.

Findings: Strategies implemented by other countries affected by avian influenza were identified. Ten countries of the Region had pandemic preparedness plans which were available for analysis, the majority of which addressed routine (70%) and animal (90%) surveillance, overall prevention and containment (90%), and health system response (90%). The areas of weakness that were identified included many planning and coordination indicators, and no country had carried out simulation or desktop pandemic exercises. Little improvement was evident upon re-examination five years later.

Conclusions: Many evidence-based measures can be implemented to prevent and control avian influenza, from those specific to the handling of poultry to health system preparedness and response. However, their implementation in the Region is not widespread and adequate improvements were not made between 2011 and 2016. The capacity of epidemic-prone countries in the Region must be strengthened to control the source of infection. Rig-