

Current major event

Public health research agenda for influenza

WHO has recently launched an initiative to learn how its research agenda on influenza have been utilized and also to know how useful it has been in directing further research priorities for influenza.

Concurrently, the WHO Eastern Mediterranean Regional Office has identified a number of policy and research gaps relevant to the countries of Eastern Mediterranean Region (EMR).

Editorial note

Influenza continues to be a global public health challenge and the WHO's Eastern Mediterranean Region is no exception. With an estimated population of 583 million spread across 21 Member States and the Occupied Palestinian Territories, the Region has had its share of influenza pandemic as well as epidemics. During the pandemic of 2009, all 22 countries reported cases- respiratory mortality being reported about 10-fold higher than laboratory-confirmed mortality. Moreover, over 1000 cases of novel virus of Middle East Respiratory Syndrome (MERS-CoV) documented between 2012 and 2015, point to an additional vulnerability of the Region.

The central location of the Eastern Mediterranean Region (EMR) of the World Health Organization (WHO) makes it an important region for influenza virus circulation. The EMR countries lie under 4 of the 8 global migratory bird flyways: Central Asia-India, West Asia-Africa, Mediterranean-Black Sea, and East Atlantic. This opens the door to the transmission of avian influenza viruses from migratory birds to the resident wild birds, domestic poultry, mammalian species, and humans of the region. This is supported by the fact that avian influenza A viruses of subtypes H3 and H5-H11 have been detected and sequenced from EMR countries. In addition, human influenza viruses in circulation in the Northern Hemisphere circulate in the region. This is also evident by the presence of human influenza A H1N1 (pandemic and seasonal) and H3N2, as well as influenza B viruses. However,

Five global research streams of influenza

- **Stream 1: Reducing the risk of emergence of pandemic influenza:** through understanding the role of mutations and re-assortment of viruses;
- **Stream 2: Limiting the spread of pandemic, zoonotic and seasonal epidemic influenza:** through knowledge on virus survival and transmission pattern.
- **Stream 3: Minimizing the impact of pandemic, zoonotic and seasonal epidemic influenza:** through understanding the burden and epidemiology of influenza;
- **Stream 4: Optimizing the treatment of patients:** through knowledge on safety, routes of administration and dose regimens of current antivirals .
- **Stream 5: Promoting the development and application of modern public health tools:** through research in the area of social and behavioural science to learn about people's risk perception and behavior.

Research gaps in the EMR

- Epidemiology, seasonality and risk factors for influenza;
- Circulating patterns of both seasonal and zoonotic influenza virus;
- Outbreak prediction and mitigation
- Effectiveness and coverage of the use of seasonal influenza vaccines;
- Role of wild and migratory birds in transporting and harbouring influenza viruses

certain influenza viruses are of significance to the region due to their effects on public and veterinary health. Those include human H1N1 and H3N2, as well as avian H5N1 and H9N2 viruses. Of particular importance to this region is the endemicity of H9N2 and H5N1 viruses that not only affect veterinary health, but are among the few avian influenza viruses capable of causing infection in humans.

In 2009, WHO developed a global research agenda for influenza which had five streams (*please see above*). These five streams were developed through a global consultative process. In the EMR, a number of research and policy gaps have been identified through a consultative process (*please see the box*). Carrying out these research and translating these evidence into policy interventions is urgently needed to optimally benefit from these initiatives to increase preparedness for the future pandemic influenza. At the same time, the research agenda needs to be updated and continue to be analyzed and modified as new evidences emerge.

Update on outbreaks

in the Eastern Mediterranean Region

MERS-CoV in Saudi Arabia;; Cholera in Somalia.

Current public health events of international concern

[cumulative N° of cases (deaths), CFR %]

Avian Influenza : 2006-2016

Egypt (A/H5N1)	[350 (117), 33.4%]
Egypt (A/H9N2)	[3 (0)]

MERS-CoV: 2012-2016

Saudi Arabia	[1414 (601), 42.5%]
Bahrain	[1 (1), 100%]

Cholera : 2016

Somalia	[8838 (433), 4.9%]
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Yellow fever: 2015-2016

Angola	[3137 (345), 10.9%]
DRC	[1644 (71), 4.3%]

Lassa fever : 2015-2016

Nigeria	[273(149), 54.5%]
Benin	[54(28),51.8%

Avian Influenza A (H7N9) : 2013-2016

China	[775 (307),39.6%]
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Avian Influenza A (H5N6) : 2016

China	[4 (0)]
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Wild poliovirus: 2014-2016

Pakistan	[371(0)]
Afghanistan	[54(0)]

Zika Virus Infection: 2007-2016

60 countries and territories have reported transmission so far