MERS - A Zoonotic Disease Disguised as a Pandemic Threat

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Background/Objective
The Middle East respiratory syndrome coronavirus (MERS-CoV) was first isolated in 2012 from a man who died of viral pneumonia in Saudi Arabia. Public health authorities around the globe urged on assessments of the pandemic risk associated with the new agent.

Method
After the standards for MERS detection and diagnostics had been defined, work was initiated to understand the etiology, transmission and spread of MERS-CoV in the region of emergence. Based on the exposure history of a patient treated in Munich/Germany, samples from several livestock species were tested, identifying dromedary camels as carrier of specific MERS-CoV antibodies. Direct infection of humans from camels has since been documented in several cases.

Result
MERS-CoV was found in a series of studies to exist at high prevalence in camels across the Arabian Peninsula and Eastern/Subsaharan Africa. Earliest samples investigated in these studies dated back to 1983. During an investigation of 26 human household contact clusters across KSA, secondary infections including subclinical transmissions from index cases to any household contact were seen in less than half of all cluster, suggesting human-to-human transmission chains cannot be maintained. A national serosurvey in the Kingdom of Saudi Arabia based on >10,000 persons matching the age structure and geographic distribution of the Saudi population yielded antibodies in 0.15% of people, suggesting seroprevalence far below what is expected for a virus that is continuously transmitted in the population. Cohorts of subjects with occupational exposure to camels had up to 23-fold higher seroprevalence against MERS-CoV.

Conclusion
These data in summary suggest humans across the region have been exposed to MERS-CoV for decades without evidence for further spread of the virus. In spite of a high case fatality proportion associated with infection, MERS must be considered a classical zoonosis that is directly acquired by contact with livestock.