Department of Defense
Armed Forces Health Surveillance Branch
Global MERS-CoV Surveillance Summary
(15 JUN 2016)

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DEPARTMENT OF DEFENSE (AFHSB)

Global MERS-CoV Surveillance Summary #85

15 JUN 2016 (next Summary 29 JUN)

CASE REPORT: As of 15 JUN 2016, 1,812 (+6) cases of Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported, including at least 565 (+1) deaths (CDC reports at least 646 deaths as of 13 JUN) in the Kingdom of Saudi Arabia (KSA) (+5), Jordan, Qatar (+1), United Arab Emirates (UAE), United Kingdom (UK), France, Germany, Tunisia, Italy, Oman, Kuwait, Yemen, Malaysia, Greece, Philippines, Egypt, Lebanon, Netherlands, Iran, Algeria, Austria, Turkey, Republic of Korea (ROK), China, Thailand, Bahrain, and the U.S. AFHSB's death count (Case Fatality Proportion (CFP) - 31%) includes only those deaths which have been publicly reported and verified; while CDC's death count (CFP - 36%) may present a more complete picture, it's unclear when and where those additional deaths occurred during the outbreak. The most recently reported case in Qatar was the third case reported in the country in 2016.

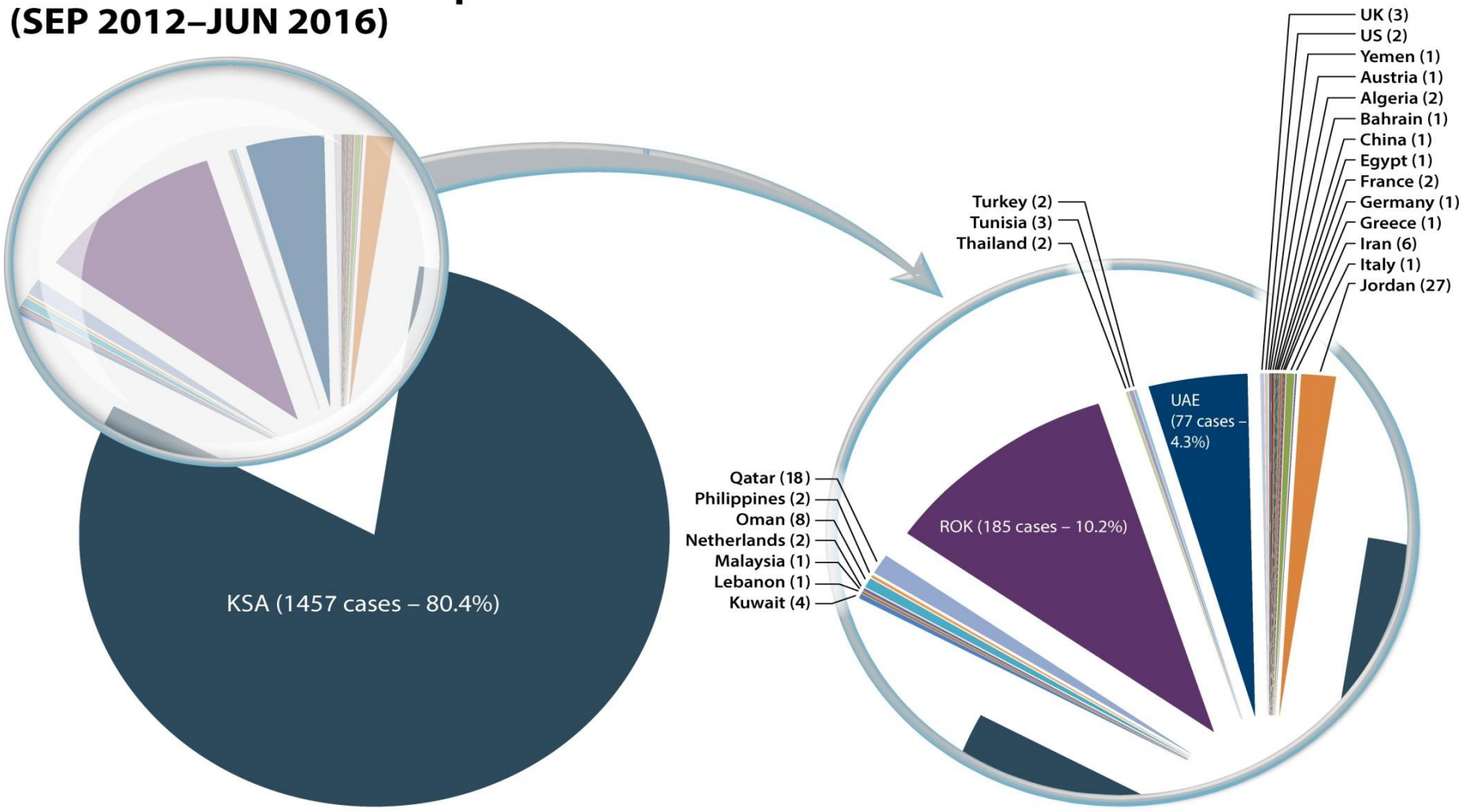
DIAGNOSTICS/MEDICAL COUNTERMEASURES: Clinical diagnostic testing is available at BAACH, NAMRU-3, LRMC, MAMC, NHRC, USAFSAM, SAMMC, TAMC, WBAMC, WRNMMC, and NIDDL (NMRC). Surveillance testing capability is available at NHRC, AFRIMS, NAMRU-2, NAMRU-3, NAMRU-6, USAMRU-K, and Camp Arifjan. All 50 state health laboratories and the NYC Department of Health and Mental Hygiene (DOHMH) were offered clinical testing kits. On 23 FEB 2016, AFHSB updated MERS-CoV testing guidelines for DoD which are aimed at capturing mild cases that may present in healthier populations such as DoD personnel. A new study in the Journal of Human Vaccines & Immunotherapeutics found that exposure to the MERS-CoV virus following immunization with an inactivated MERS-CoV vaccine that is under development caused damage to lung tissue. The KSA MOH's Weekly Monitor publications from 7 JUN and 14 JUN included a reminder for clinicians on the appropriate laboratory procedures for diagnosing MERS-CoV and a reminder to consider asymptomatic cases of MERS-CoV in differential diagnoses.

INTERAGENCY/GLOBAL ACTIONS: WHO convened the Tenth International Health Regulations (IHR) Emergency Committee on 2 SEP 2015 and concluded the conditions for a Public Health Emergency of International Concern (PHEIC) had not yet been met. However, the Committee also emphasized that they still have concerns as transmission from camels to humans continues in some countries, instances of human-to-human transmission continue to occur in health care settings, and asymptomatic cases are not always being reported as required. On 7 APR, Egypt announced it has completed phase 1 (cross-sectional studies in domestic animals with camel contact) and will begin phase 2 (longitudinal studies in high-risk camel populations) of a MERS-CoV surveillance project with USAID and FAO. On 11 MAY, CDC updated their Level 2 Travel Notice for MERS-CoV in the Arabian Peninsula to include more information on possible sources of exposure and to remove information pertaining specifically to the Hajj and Umrah pilgrimages.

BACKGROUND: In SEP 2012, WHO reported two cases of a novel coronavirus (now known as MERS-CoV) from separate individuals – one with travel history to the KSA and Qatar and one in a KSA citizen. This was the sixth strain of human coronavirus identified (including SARS). Limited human-to-human transmission has been identified in at least 50 spatial clusters predominately involving close contacts. Limited camel-to-human transmission of MERS-CoV has been proven to occur. The most recent known date of symptom onset is 2 MAY 2016. The KSA MOH has previously admitted to inconsistent reporting of asymptomatic cases. Due to these inconsistencies, it is also difficult to determine a cumulative breakdown by gender; however, AFHSB is aware of at least 509 cases in females to date. CDC reports 244 of the total cases have been identified as healthcare workers (HCWs). A joint study by the Health Authority of Abu Dhabi, UAE, and the U.S. CDC retrospectively analyzed medical data on MERS-CoV patients in UAE from JAN 2013 to MAY 2014, and found that mild and asymptomatic MERS-CoV cases made up the majority (35% and 35% respectively) of UAE's cases in this time period (65 cases), and that many of these mild/asymptomatic individuals were shown to shed the virus for longer than two weeks.

A study by the KSA MOH published in Virology Journal found that phylogenetic studies of the MERS-CoV genome suggest a bat origin. The authors also report that retrospective studies of sera from dromedary camels in the region suggest the MERS-CoV virus has been present in dromedary camels for several decades. While bats and alpacas could be potential reservoirs for the virus, dromedary camels seem to be the only animal host responsible for human infection, according to the authors. A study published in Clinical Infectious Diseases found extensive evidence for MERS-CoV contamination of environmental surfaces and in the air of patients' rooms and a common corridor, despite adherence to standard disinfection protocols. On 4 MAR, CDC published a study that tested archived serum (from 2013-2014) from livestock handlers in Kenya for MERS-CoV antibodies to search for autochthonous MERS-CoV infections in humans outside of the Arabian Peninsula. The study found two (out of 1,122 samples) tested positive, providing evidence of previously unrecorded human MERS-CoV infections in Kenya. A CDC study examined MERS-CoV infection in alpacas in a region of Qatar where MERS-CoV is endemic; the authors found MERS-CoV antibodies in all 15 animals, demonstrating their susceptibility to MERS-CoV and suggesting a broader geographic range of MERS-CoV circulation than previously determined.

Global Distribution of Reported MERS-CoV Cases* (SEP 2012–JUN 2016)



*Data includes confirmed, suspect and probable cases reported by WHO, CDC, and various country MOHs

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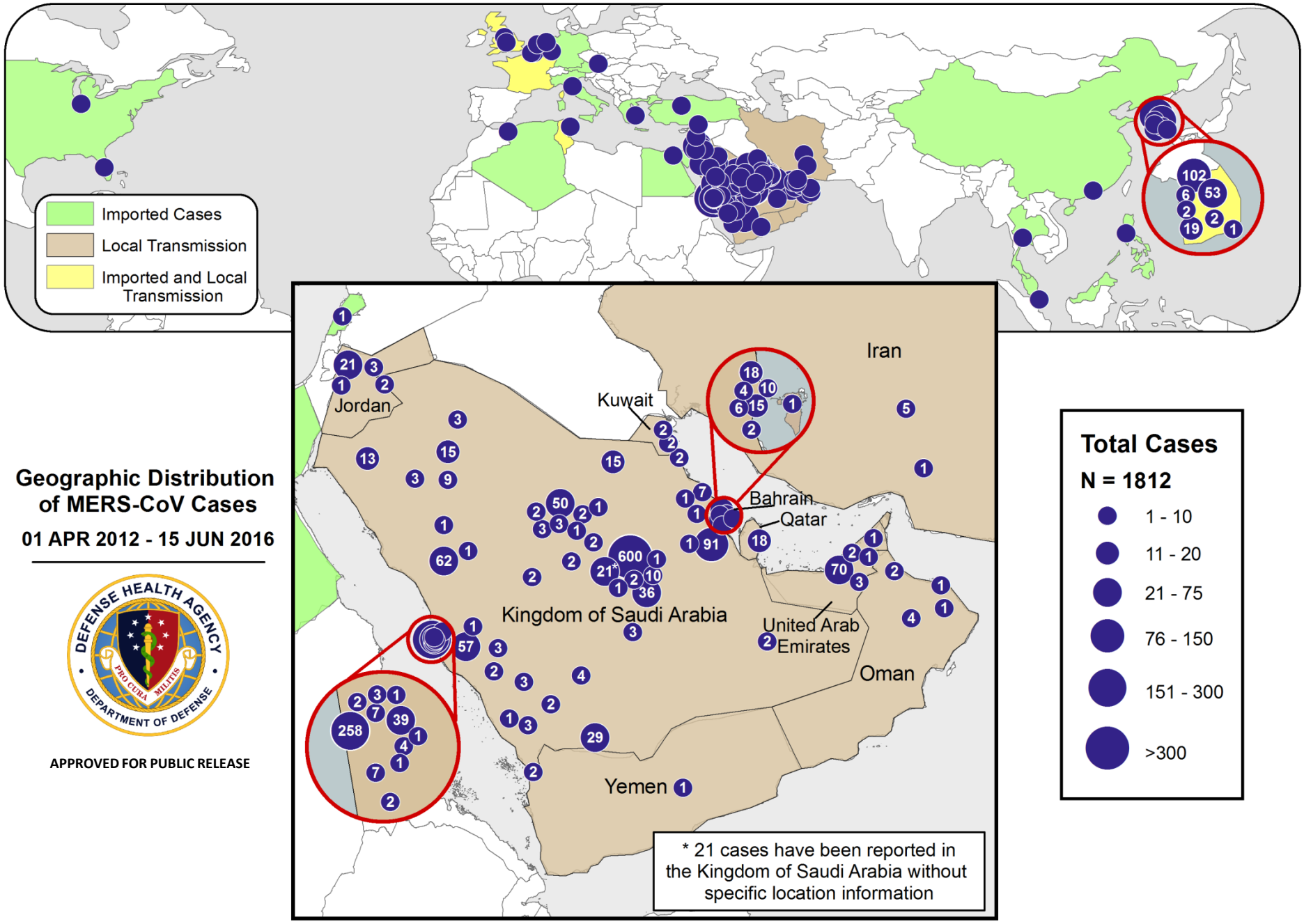

Geographic Distribution of MERS-CoV Cases

01 APR 2012 - 15 JUN 2016

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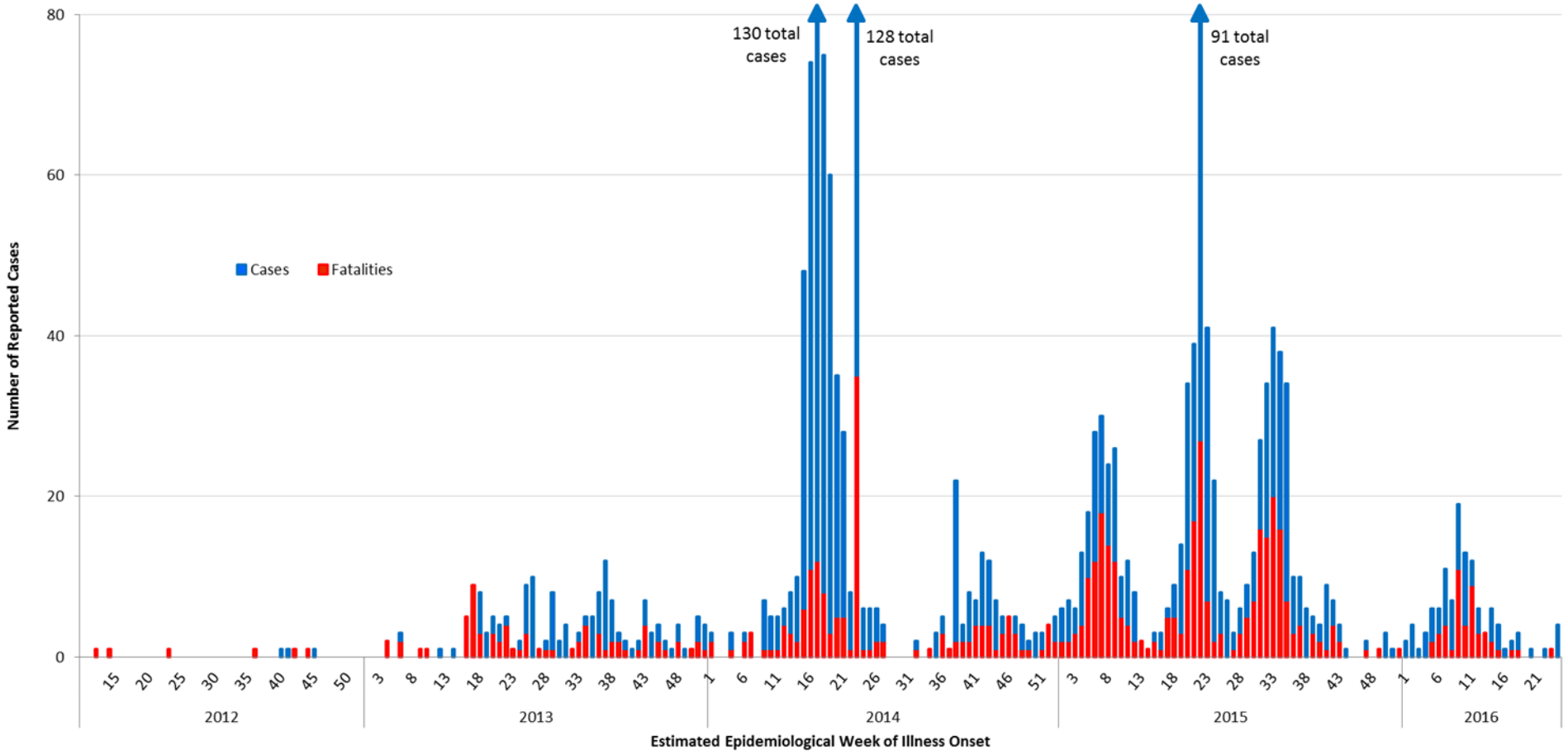
Global MERS-CoV Epidemiological Curve by Illness Onset



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