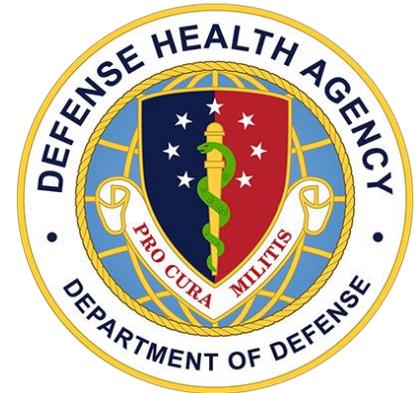


Department of Defense
Armed Forces Health Surveillance Branch
Global MERS-CoV Surveillance Summary
(2 NOV 2016)



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DEPARTMENT OF DEFENSE (AFHSB)

Global MERS-CoV Surveillance Summary #95

2 NOV 2016 (next Summary 16 NOV)



CASE REPORT: As of 2 NOV 2016, 1,903 (+9) cases of Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported, including at least 587 (+3) deaths (CDC reports at least 671 (+3) deaths as of 31 OCT) in the Kingdom of Saudi Arabia (KSA) (+9), Jordan, Qatar, 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 - 37%) may present a more complete picture, it's unclear when and where those additional deaths occurred during the outbreak.

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 camel-to-human transmission of MERS-CoV has been proven to occur. The most recent known date of symptom onset is 5 OCT 2016. The KSA Ministry of Health (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 591 (+1) cases in females to date. CDC reports 307 (+1) of the total cases have been identified as healthcare workers (HCWs).

Limited human-to-human transmission has been identified in at least 53 (+2) spatial clusters as of 2 NOV, predominately involving close contacts. Of the two recently identified clusters, one is nosocomial in nature, reported out of a hospital in Hufoof, and involves at least five cases. This outbreak has been reported by local media sources, but has not been acknowledged by the KSA MOH as of 2 NOV. The other recent cluster involves two male expatriates from Arar, KSA, living in the same household. AFHSB believes the index case of this cluster is a primary case first reported on 23 OCT (exposure currently under investigation) and then reported as a fatality on 27 OCT. The second case in this cluster was reported on 26 OCT as a secondary household contact of a previously confirmed case.

INTERAGENCY/GLOBAL ACTIONS: In its 26 OCT [situation update](#) on MERS-CoV, FAO reported it is continuing to conduct cross-sectional surveillance of dromedary camels and other livestock species in Kenya with support from USAID. In Ethiopia, a second round of camel sample collection has begun in the Somali region through a new partnership between FAO and the National Animal Health Diagnostic and Investigation Centre (NAHIDC). Sampling from camel holding grounds (i.e., for export) and other areas of the country is set to begin in early NOV.

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.

DIAGNOSTICS/MEDICAL COUNTERMEASURES: On 9 OCT, the Qatar Ministry of Public Health (MoPH) announced that a MERS-CoV vaccine "may be available by the end of 2017" and that other "scientific treatment options" could be available "sometime in 2017."

(+xx) represents the change in number from the previous AFHSB Summary of 19 OCT 2016.

All information has been verified unless noted otherwise.

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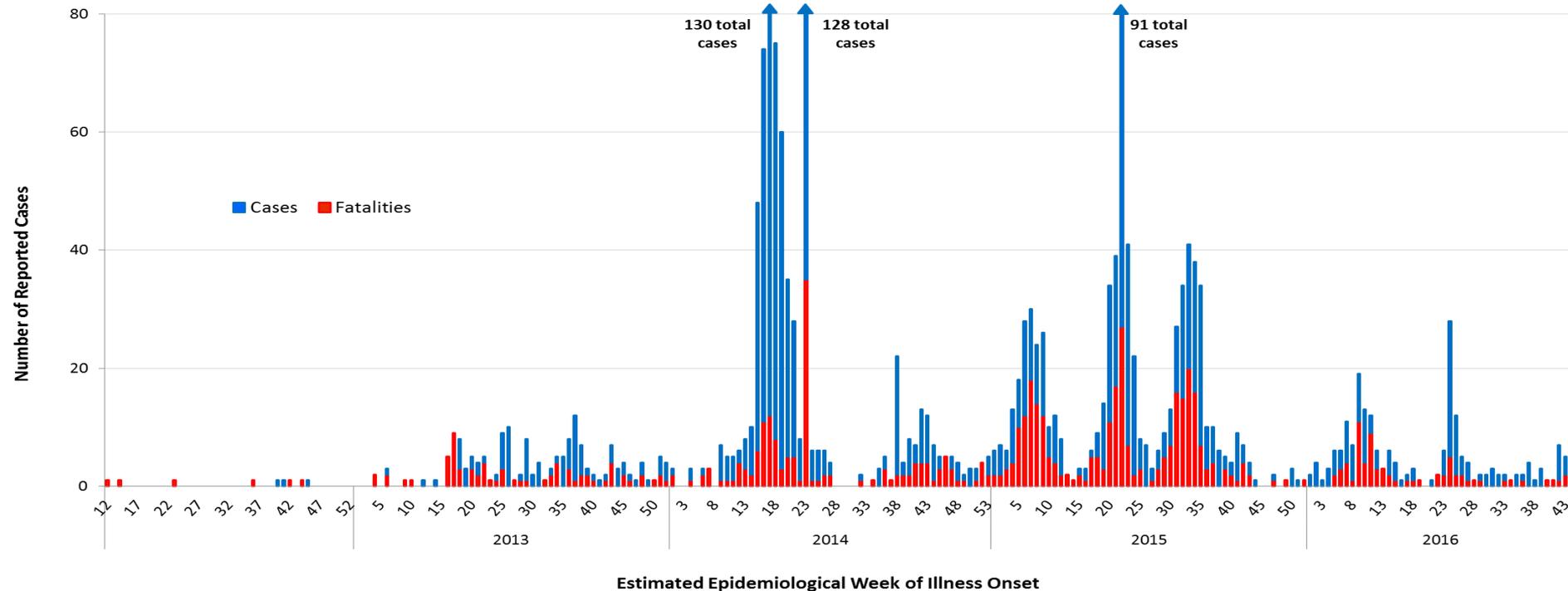
Global MERS-CoV Surveillance Summary #95

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RELEVANT STUDIES: In a recent study gathering input from subject-matter experts on MERS-CoV at the animal-human interface and its exposure pathways, experts indicated that infected dromedary camels and asymptomatic humans play “the most important role” in the transmission of MERS-CoV to humans. On 24 AUG, [CDC](#) released updated estimates on the number of MERS-CoV cases. Using data from travelers to the region, the authors estimated 3,250 (95% CI 1,300-6,600) severe MERS cases occurred in the Middle East during SEP 2012-JAN 2016, which is 2.3-fold higher than the number of laboratory-confirmed cases recorded in these countries. The authors last estimated the incidence of MERS-CoV two years ago; since then the number of recorded cases has increased by more than 15 times. While significantly larger than the case count mentioned above, these results complement the results from a previous [serologic study by KSA](#) that reported antibodies to MERS-CoV were found in 0.15% of the population. 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.

Global MERS-CoV Epidemiological Curve by Illness Onset



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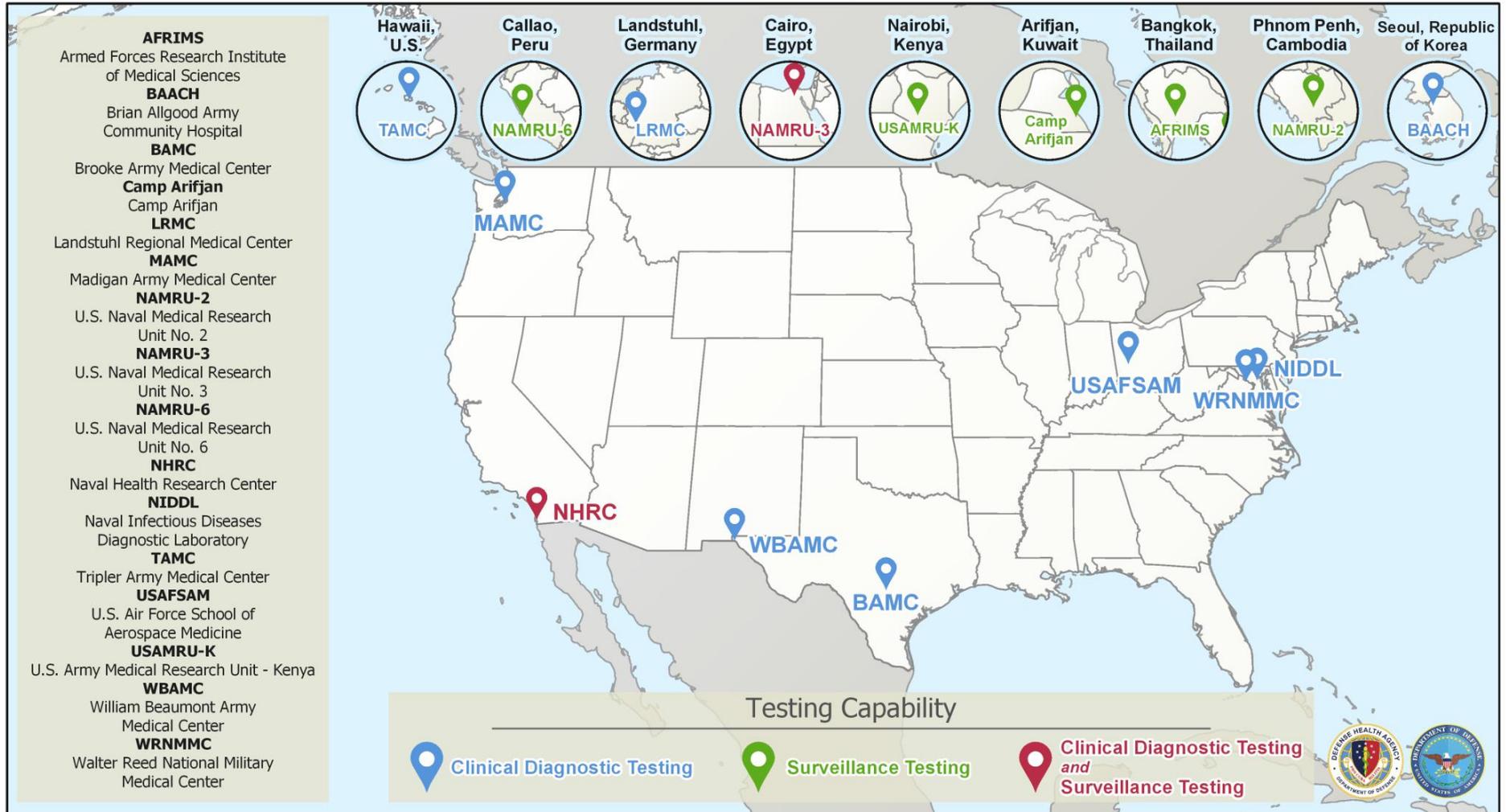
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MERS-CoV Diagnostics and Medical Countermeasures at DoD Laboratories



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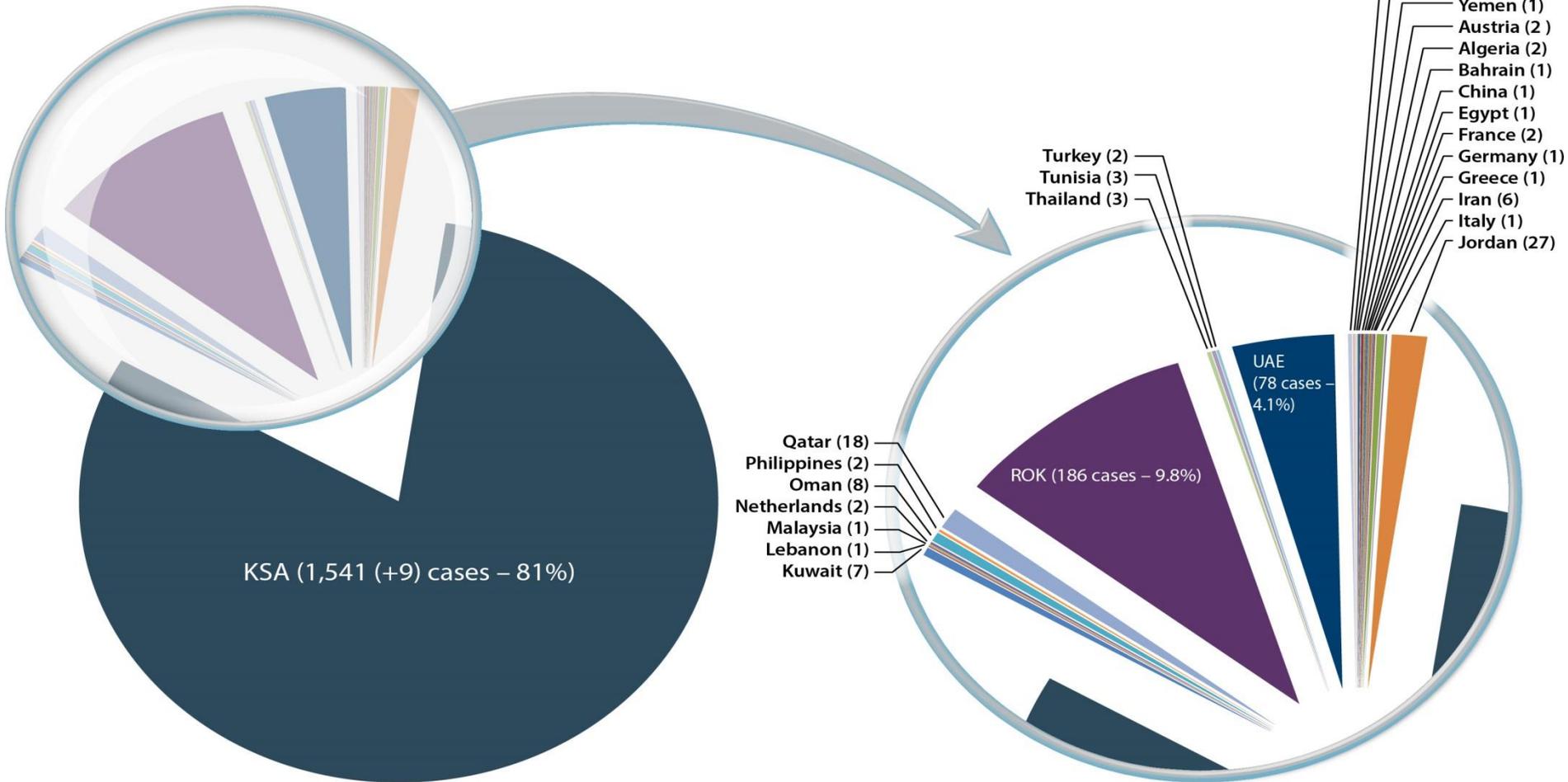
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Global MERS-CoV Surveillance Summary #95

2 NOV 2016



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

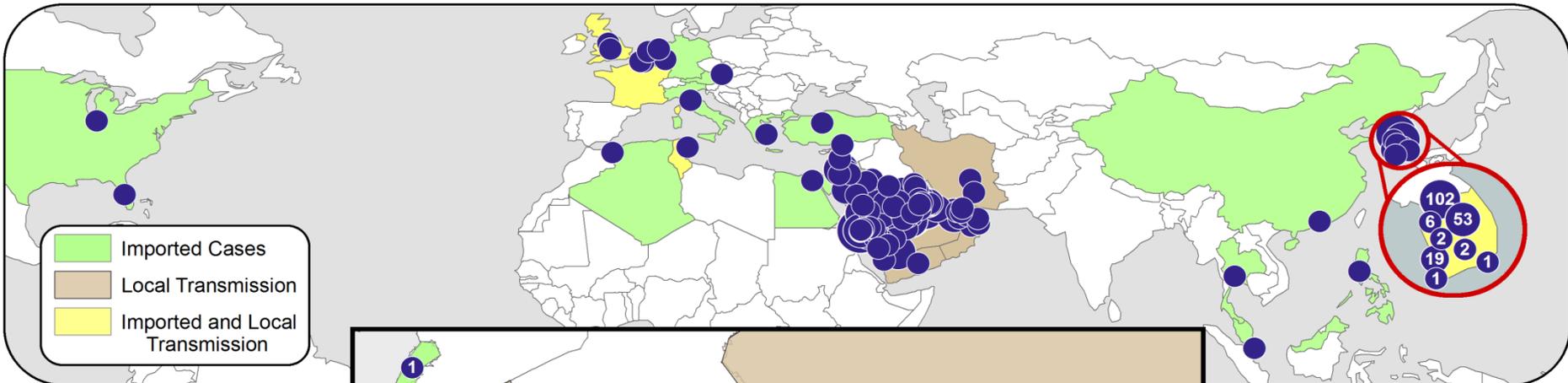


*Data includes confirmed, suspect and probable cases reported by WHO, CDC, and various country MOHs

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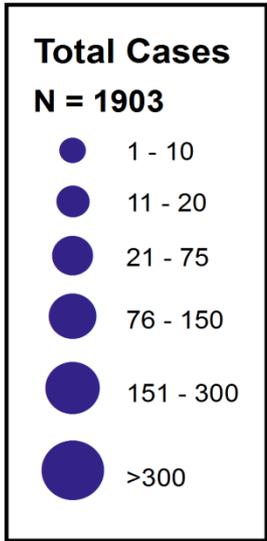
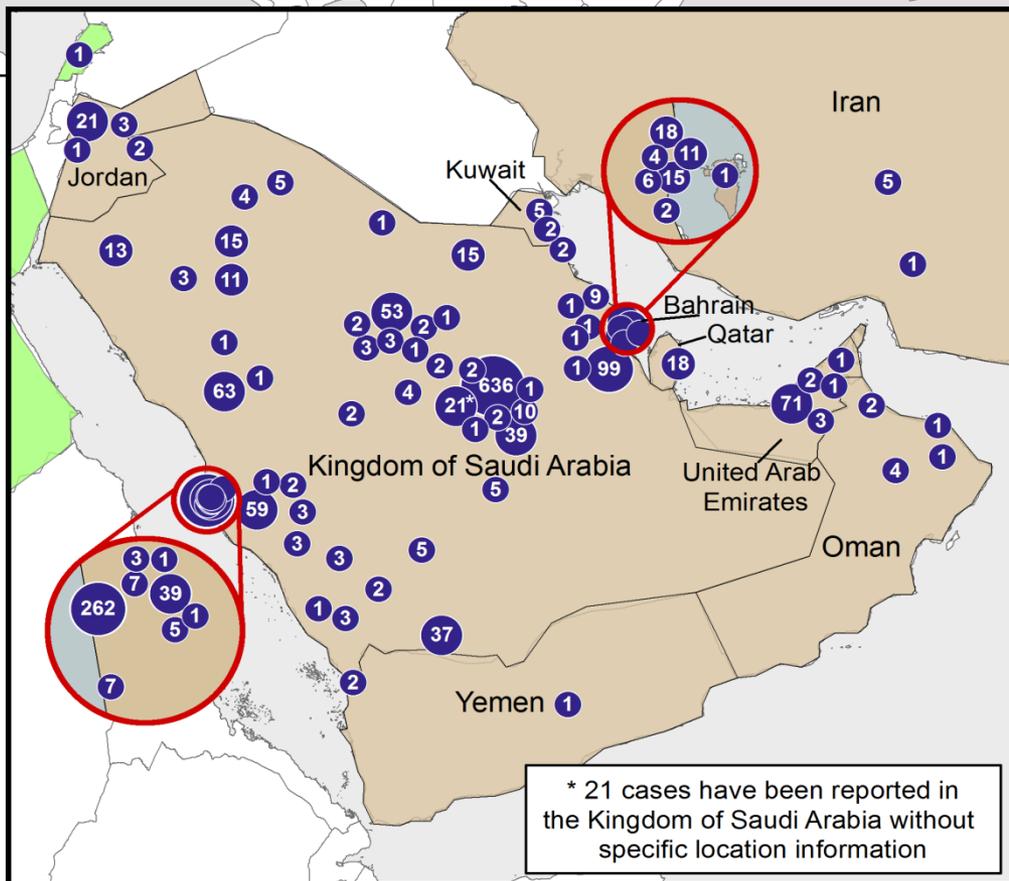
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Geographic Distribution of MERS-CoV Cases
1 APR 2012 - 2 NOV 2016



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* 21 cases have been reported in the Kingdom of Saudi Arabia without specific location information

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