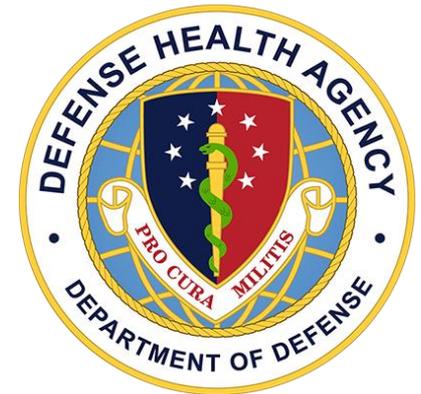


Department of Defense
Armed Forces Health Surveillance Branch
Global MERS-CoV Surveillance Summary
(9 MAR 2016)



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DEPARTMENT OF DEFENSE (AFHSB)

Global MERS-CoV Surveillance Summary #78

9 MAR 2016 (next Summary 24 MAR)



CASE REPORT: As of 9 MAR 2016, 1,758 (+30) cases of Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported, including 654 (+8) deaths, in the Kingdom of Saudi Arabia (KSA) (+30), 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, and the U.S. Of the most recently reported cases, 14 occurred in Buraidah, KSA. The KSA Ministry of Health (MOH) confirmed these cases are the result of a new nosocomial cluster at King Fahad Specialist Hospital. Media report that many of these cases are dialysis patients and suffering from renal failure. Dialysis units have previously been associated with clusters of MERS-CoV transmission in KSA, specifically in the cities of Taif, Mecca, Jeddah, and Riyadh. The KSA MOH set up a new Central Command and Control Center in Buraidah to better monitor disease transmission, coordinate the transfer of patients to other hospitals, and assist with the ongoing prevention and control efforts.

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 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. On 16 FEB 2016, [WRAIR began a phase 1 clinical trial](#) for the vaccine candidate (GLS-5300) developed by Inovio Pharmaceuticals and GeneOne Life Science. On 17 FEB, SAB Biotherapeutics announced a new human antibody therapeutic for MERS-CoV, which showed promising results in a [study](#) by NMRC and the University of Maryland School of Medicine. A recent [study](#) by the NIH showed promising results of a human monoclonal antibody, m336, as a prophylaxis for MERS-CoV in rabbits. Results also indicated antibody m336 prevented infection of the lower respiratory tract in previously infected rabbits.

INTERAGENCY/GLOBAL ACTIONS: On 8 MAR, WHO released details on previously reported cases and noted that MERS-CoV continues to meet criteria for an unusual or unexpected disease, have the potential for international spread, and have the potential for serious public health impact. On 11-14 JAN 2016, WHO led a third joint mission to KSA to review the MERS-CoV situation in the country. The [WHO recommendations](#) from this visit include: progressing from a passive to an active sentinel surveillance system, moving from planning stages to implementing stages for camel surveillance, not just collaborating between health and agriculture industries but conducting case investigations jointly, and more broadly sharing lessons learned from nosocomial outbreaks outside of insular hospital systems. 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) have 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. CDC maintains their [Travel Alert Level 2](#) for MERS-CoV in the Arabian Peninsula.

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 37 (+1) 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 13 FEB 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 499 (+4) cases in females to date. CDC reports 294 (+5) of the total cases have been identified as healthcare workers (HCWs). Of these, 185 were from KSA, 31 from UAE, 7 from Jordan, 2 from Iran, 1 from Tunisia, and 29 from ROK.

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 unrecorded human MERS-CoV infections in Kenya. The authors state that because of a low infection rate and a bias towards reporting only severe cases, this finding is not surprising. The authors also note that the lack of a well-developed health system in parts of Africa could lead to underdiagnosis and underreporting, but may preclude large nosocomial outbreaks in hospital settings as seen in ROK and on the Arabian Peninsula.



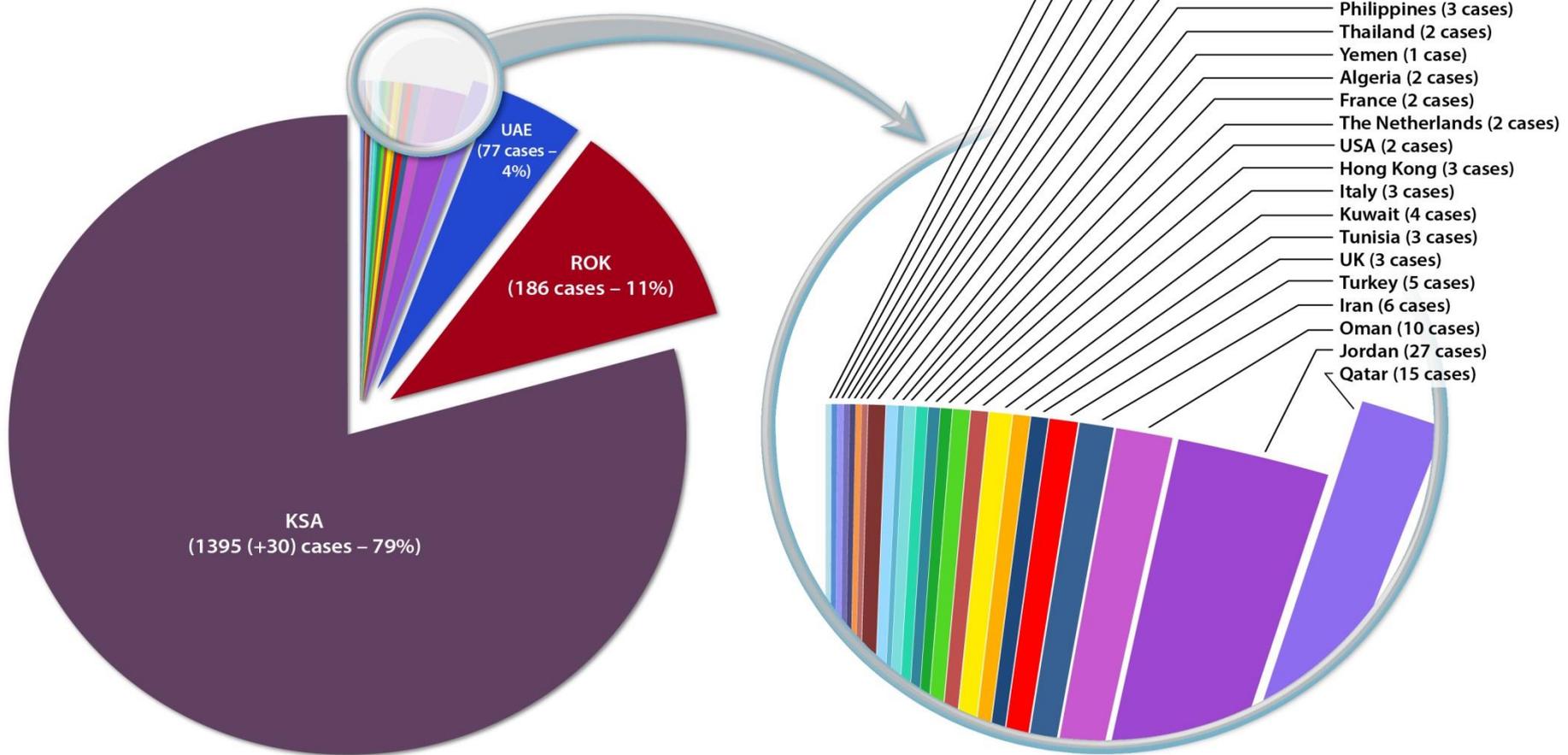
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Global Distribution of Reported MERS-CoV Cases* (SEP 2012–MAR 2016)

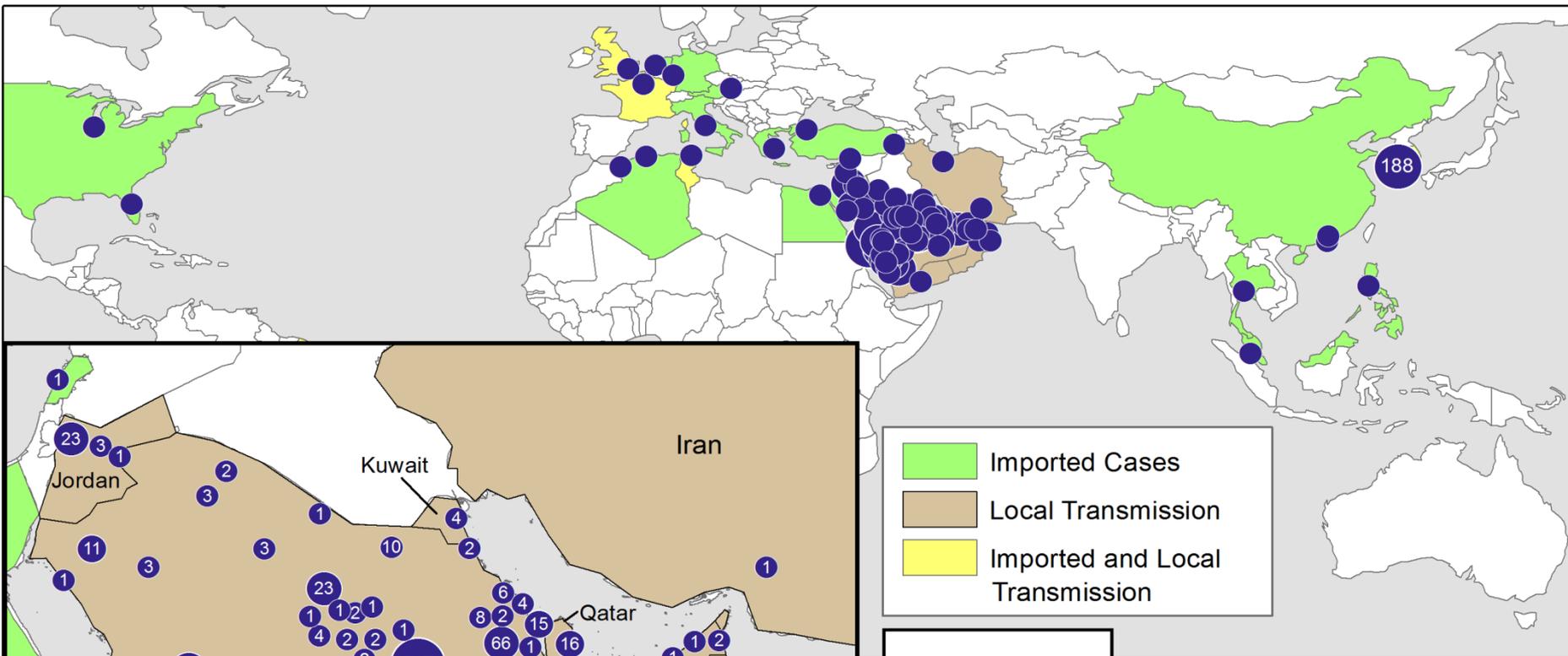


*Data includes confirmed, suspect and probable cases reported by WHO, CDC, and various country MOHs

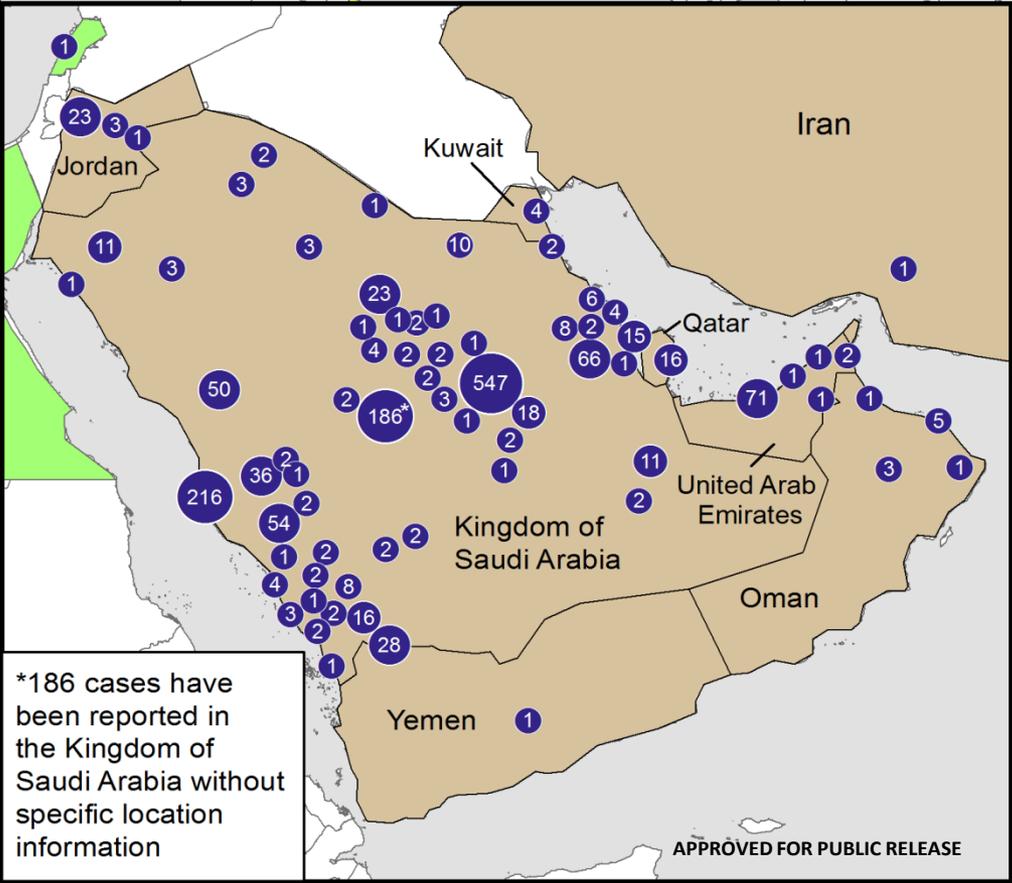
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Imported Cases
 Local Transmission
 Imported and Local Transmission



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

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Total Cases
N = 1,758

- 1 - 10
- 11 - 20
- 21 - 75
- 76 - 150
- 151 - 300
- >300

Geographic Distribution of MERS-CoV Cases
1 APR 2012 - 09 MAR 2016



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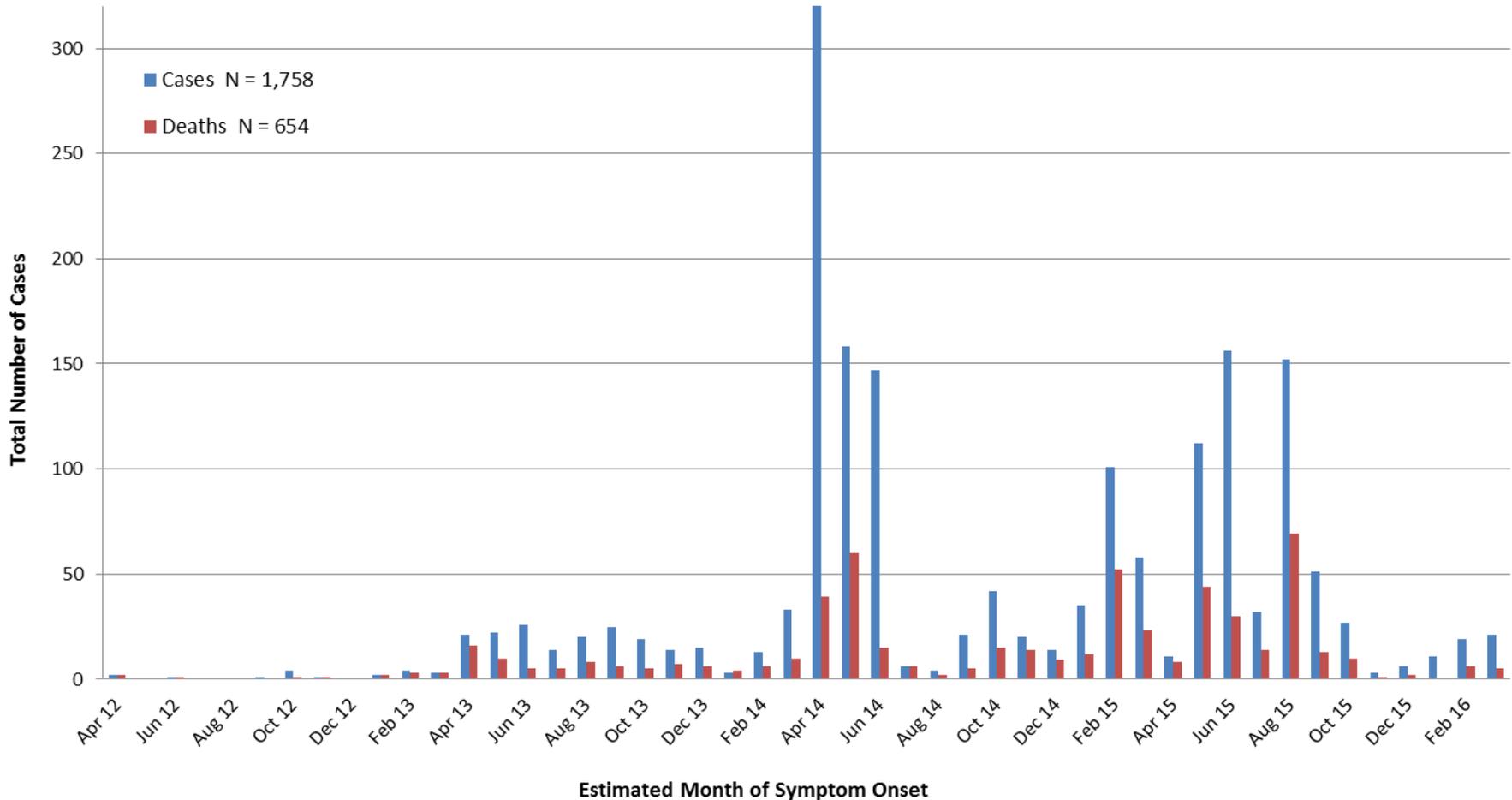
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Global MERS-CoV Epidemiological Curve - 9 MAR 2016





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GLOBAL MERS-CoV NUMBERS AT A GLANCE

	Total in 2012	Total in 2013	Total in 2014	Total in 2015	Total in 2016	Cumulative Total (2012-2016)
Cases	9	171	777	750 cases	51 (+30) cases	1,758 (+30) cases
Deaths*	6 deaths	72 deaths	277 deaths	288 deaths	11 (+8) deaths	at least 654 (+8) deaths
Case-Fatality Proportion	66%	42%	36%	39%	22%	37%
Mean Age	45 years	51 years	49 years	55 years	55 years	52 years
Gender Breakdown*	1 female	at least 58 females	at least 175 females	259 females	6 (+4) female	at least 499 (+4) females
# of Healthcare Workers (HCWs) reported*	at least 2 HCWs	at least 31 HCWs	at least 87 HCWs	109 HCWs	6 (+5) HCW	at least 294 (+5) HCWs

***Disclaimer: Data reported on MERS-CoV cases are limited and adapted from multiple sources including various Ministries of Health, CDC, and WHO. Consequently, yearly information may not equate to the cumulative totals provided by WHO and CDC.**

Legend: Text updated from the previous report will be printed in red; items in (+xx) represent the change in number from the previous Summary (24 FEB 2016).

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