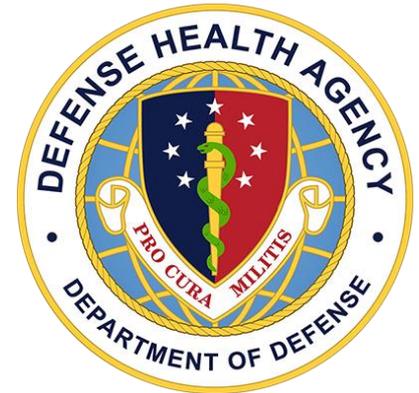


Department of Defense
Armed Forces Health Surveillance Branch
Global MERS-CoV Surveillance Summary
(20 APR 2016)



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DEPARTMENT OF DEFENSE (AFHSB)

Global MERS-CoV Surveillance Summary #81

20 APR 2016 (next Summary 4 MAY)



CASE REPORT: As of 20 APR 2016, 1,809 (+12) cases of Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported, including 683 (+7) deaths, in the Kingdom of Saudi Arabia (KSA) (+11), 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 (+1), and the U.S. On 9 APR, MERS-CoV was reported for the first time in Bahrain in a Saudi patient with comorbidities and recent travel to KSA. After diagnosis, this case was transferred back to KSA for further treatment. It was later reported that the man had contact with camels, most recently on 28 MAR in Eastern Province, KSA. On 11 APR, OIE released information on three camel outbreaks, affecting a total of 18 camels, in the cities of Bisha (Asir Province), Al-Kharj (Ar Riyadh Province), and Hafr al-Batin (Eastern Province) in KSA. OIE reports these camel outbreaks are known to be associated with confirmed human cases. According to OIE, the only previous report of MERS-CoV in Jeddah (Makkah Province) was in 11 camels in JAN 2016. On 17 APR, Saudi media reported that the KSA Ministry of Agriculture (MOA) has banned the transportation of camels from farms to markets to prevent slaughter and sale of the animals.

Since 22 FEB, there have been 36 (+1) cases and 20 (+1) deaths associated with the ongoing Buraidah cluster. Of the 36 cases, six occurred in HCWs, three of which were reported to be asymptomatic. On 5 MAR, the KSA Ministry of Health (MOH) confirmed these cases are the result of a nosocomial cluster at King Fahad Specialist Hospital. Media report 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. On 15 MAR, Egyptian media reported at least 12 camels transported through Sudan, origin unknown, tested positive for a coronavirus by the Egyptian Ministry of Agriculture. Some media report the camels were positive for MERS-CoV, while others do not specify the type of coronavirus; language translation has made de-conflicting these reports difficult. Media report at least 12 people traveling with the camels are being monitored for symptoms. 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.

DIAGNOSTICS/MEDICAL COUNTERMEASURES: Clinical diagnostic testing is available at BAACH, NAMRU-3, LPMC, 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.

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) 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 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 26 MAR 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 512 (+1) cases in females to date. CDC reports 299 (+1) of the total cases have been identified as healthcare workers (HCWs). Of these, 191 were from KSA, 30 from UAE, 7 from Jordan, 2 from Iran, 1 from Tunisia, and 29 from ROK. A recent 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. In their latest *Weekly Monitor* publication, the KSA MOH published information on recurring delays identified within the specimen delivery chain. In its 12 APR publication, the MOH detailed common factors associated with MERS-CoV outbreaks in health care facilities related to environmental conditions, administrative issues, and individual behaviors. These include: inadequate triaging, inappropriate referral of MERS cases, inadequate HCW awareness of the case definition, discharging patients against medical advice without documentation, crowded emergency departments, irregular control of health care facility entrances, inadequate control of visitors, and poor adherence to infection control practices. The MOH suggests mandatory training of infection control measures, triage training, increased awareness of case definitions, rearranging triage areas, and controlling access to emergency departments. This kind of analysis is a welcome change from KSA's historical reporting methods.

Text updated from the previous report will be printed in red; items in (+xx) represent the change in number from the previous Summary (6 APR 2016).

All information has been verified unless noted otherwise. For questions or comments, please contact: dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil

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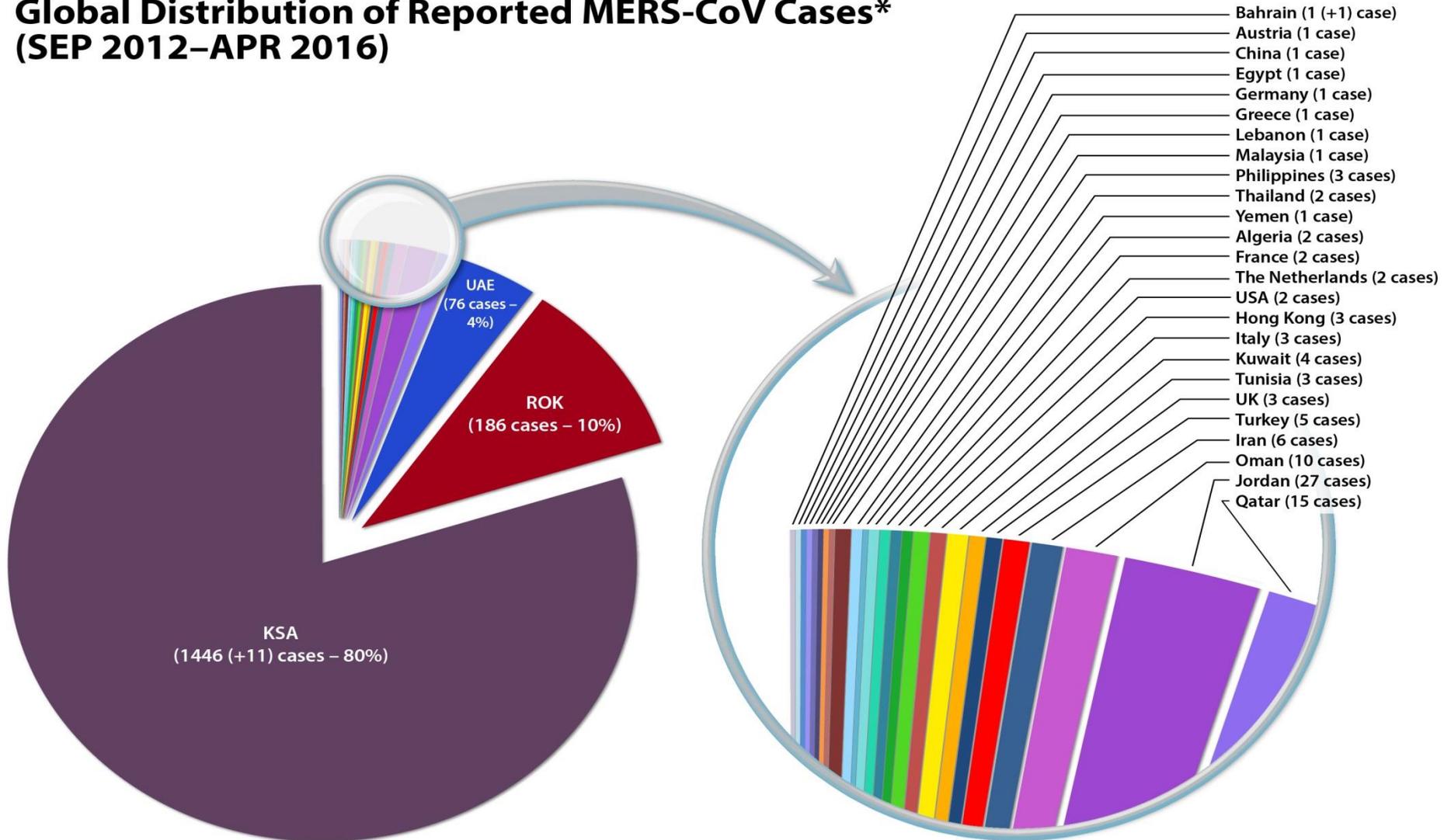
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Global Distribution of Reported MERS-CoV Cases* (SEP 2012–APR 2016)

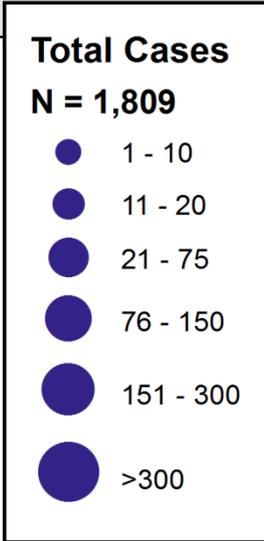
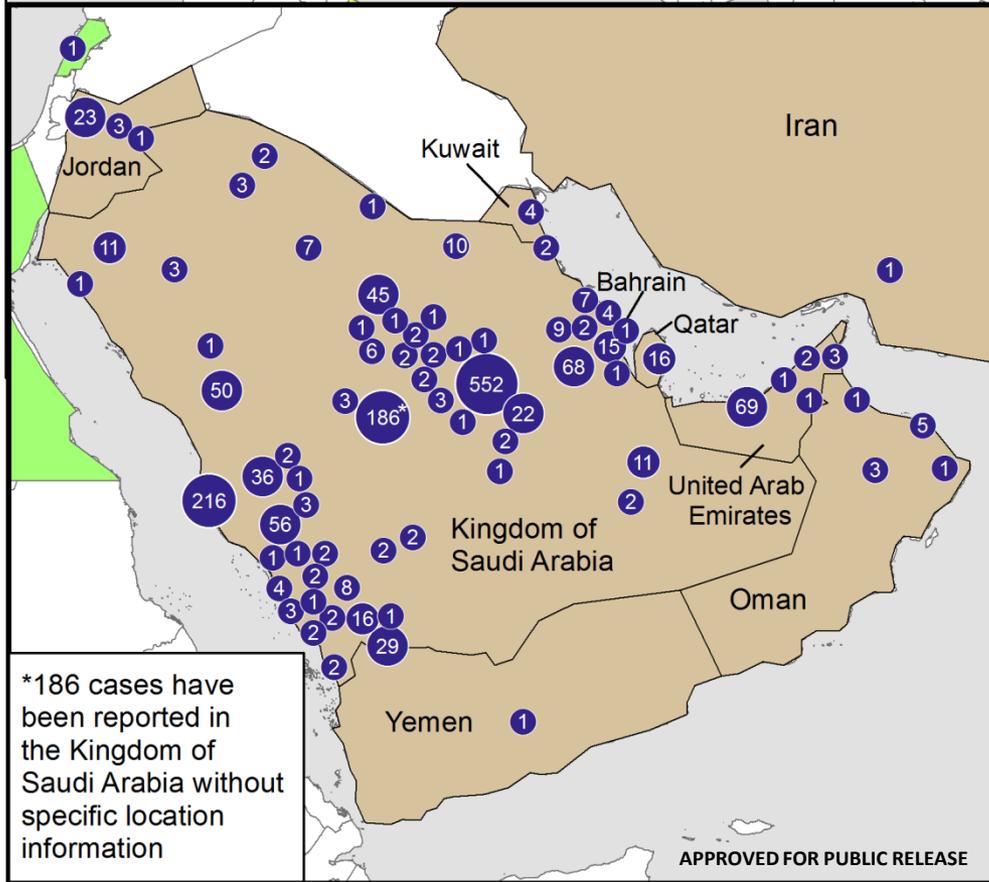
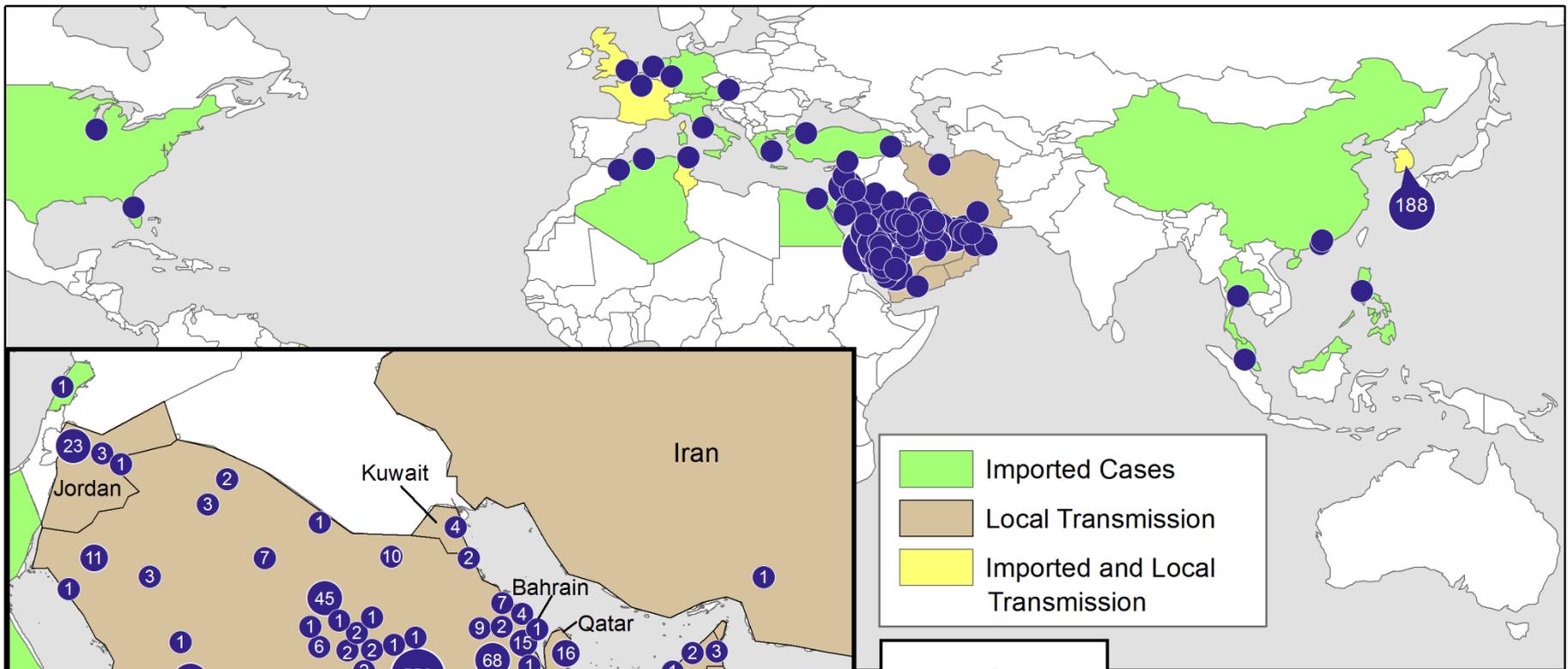


*Data includes confirmed, suspect and probable cases reported by WHO, CDC, and various country MOHs

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Geographic Distribution of MERS-CoV Cases
1 APR 2012 - 20 APR 2016



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

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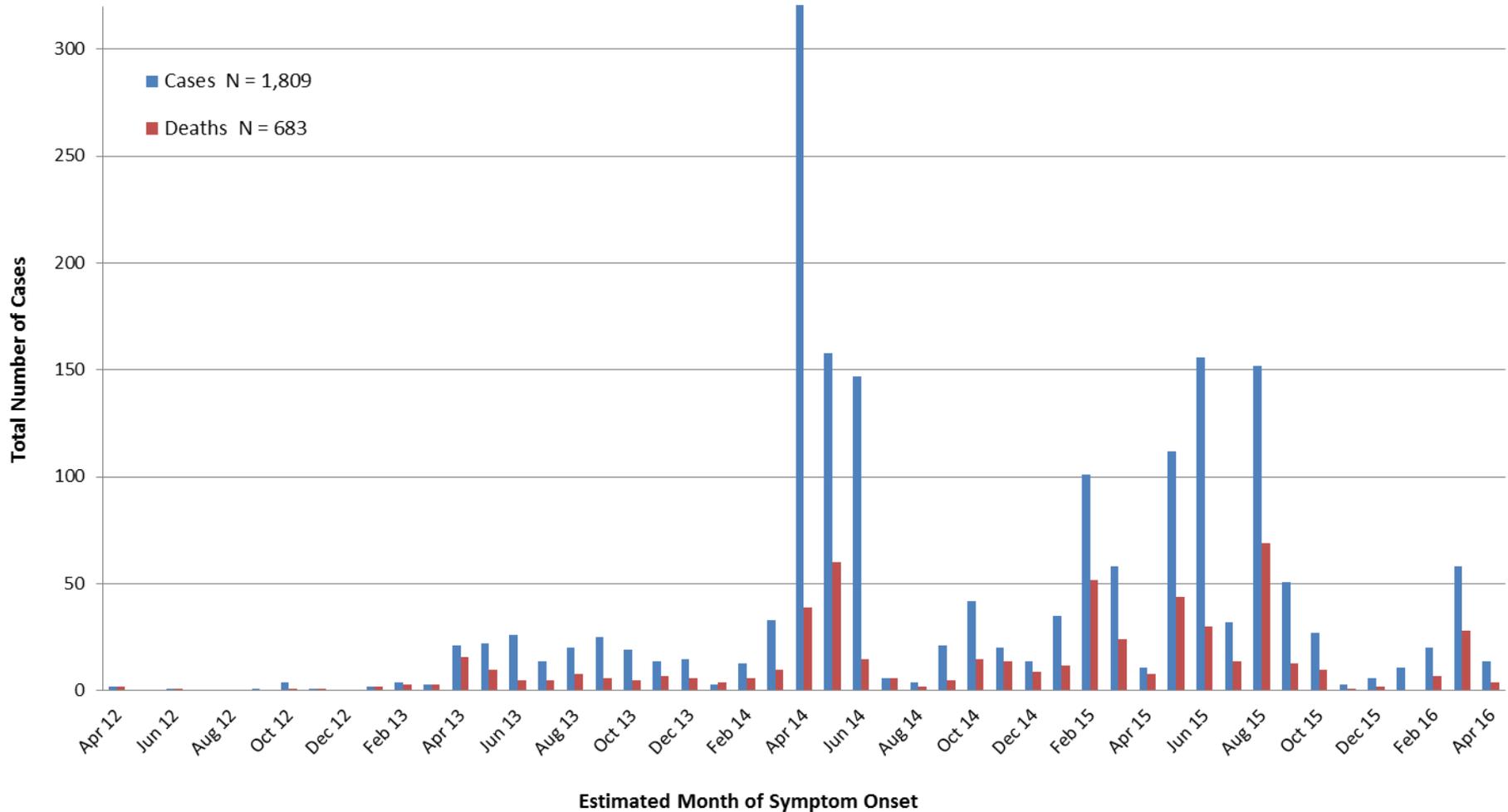
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Global MERS-CoV Epidemiological Curve - 20 APR 2016





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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	776	750 cases	103 (+12) cases	1,809 (+12) cases
Deaths*	6 deaths	72 deaths	277 deaths	288 deaths	40 (+4) deaths	at least 683 (+4) deaths
Case-Fatality Proportion	66%	42%	36%	39%	39%	38%
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	19 (+1) females	at least 512 (+1) females
# of Healthcare Workers (HCWs) reported*	at least 2 HCWs	at least 31 HCWs	at least 86 HCWs	109 HCWs	12 (+1) HCWs	at least 299 (+1) 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.

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