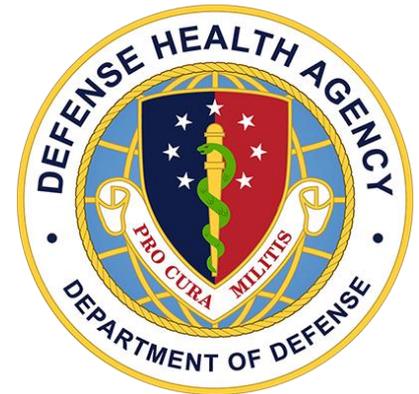


Department of Defense
Armed Forces Health Surveillance Branch
Global MERS-CoV Surveillance Summary
(13 JAN 2016)



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DEPARTMENT OF DEFENSE (AFHSB)

Global MERS-CoV Surveillance Summary #74

13 JAN 2016 (next Summary 27 JAN)



CASE REPORT: As of 13 JAN 2016, 1,708 (+6) cases of Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported, including 642 (+1) deaths, in the Kingdom of Saudi Arabia (KSA) (+5), Jordan, Qatar, United Arab Emirates (UAE), United Kingdom (UK), France, Germany, Tunisia, Italy, Oman (+1), Kuwait, Yemen, Malaysia, Greece, Philippines, Egypt, Lebanon, Netherlands, Iran, Algeria, Austria, Turkey, Republic of Korea (ROK), China, Thailand, and the U.S. Additionally, seven suspected cases have been reported since 25 DEC. One suspected case was reported in Hong Kong. Six were reported in Turkey: five hospitalized in the Kayseri province, had recent travel to KSA for the Umrah pilgrimage, and one with no recent travel, is currently hospitalized at the Yuzuncuyl University Hospital in Van. On 10 JAN, the Korean CDC acknowledged the findings of recent studies regarding a viral mutation that occurred during outbreak of MERS-CoV in ROK (declared over on 23 DEC) and stated that while “a mutation did take place...it is doubtful [it] could have meaningfully altered the capability of the virus to spread...and its ability to make people sick.”

DOD RELEVANCE: On 13 NOV, GeneOne Life Science, Inovio Pharmaceuticals, and Walter Reed Army Institute of Research (WRAIR) [announced](#) a partnership to create a MERS-CoV vaccine. The Deputy Commander of Operations at WRAIR voiced his support for this partnership as “U.S. military personnel could be at risk in the event of a large scale MERS-CoV outbreak” and noted the clinical trials will be conducted at the WRAIR Clinical Trials Center.

DIAGNOSTICS: Clinical diagnostic testing is available at BAACH, NAMRU-3, LRMC, MAMC, NHRC, USAFSAM, SAMMC, TAMC, WBAMC, WRNMMC, and NIDDL (NMRC). Tripler AMC (TAMC) completed validation of clinical diagnostic testing capability on 24 NOV. 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 16 JUL, AFHSB updated [MERS-CoV testing guidelines](#) for DoD, which include lab contact information, and are aimed at capturing mild cases that may present in healthier populations such as DoD personnel. On 8 DEC, CDC updated its [Interim Patient Under Investigation \(PUI\) Guidance and Case Definitions](#) for MERS-CoV. Notable changes include: removing references to ROK, clarifying that fever may not be present in some patients, and revising the guidance for testing a PUI. AFHSB will update their Detecting and Reporting Guidelines to reflect these changes.

INTERAGENCY/GLOBAL ACTIONS: WHO convened the [Tenth International Health Regulations \(IHR\) Emergency Committee](#) on 2 SEP 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 have a heightened sense of concern as transmission from camels to humans continues in some countries and instances of human-to-human transmission continue to occur in health care settings. The Committee further noted that its advice has not been completely followed as asymptomatic cases that have tested positive for the virus are not always being reported as required. CDC maintains their [Travel Alert Level 2](#) for MERS-CoV in the Arabian Peninsula. In late NOV, CDC removed the Level 1 Travel Watch for the ROK. On 10 JAN, the MOH of KSA announced it will re-evaluate at least 400 hospitals in country for compliance with MERS-CoV prevention and control policies in an effort to improve “readiness.”

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 35 spatial clusters predominately involving close contacts. Limited camel-to-human transmission of MERS-CoV has been proven to occur. On 1 JAN, a study by the University of Hong Kong and King Abdulaziz University (KSA) found a high prevalence of co-circulating coronaviruses in camels. The majority of CoV-positive camels tended to be juveniles and local camels (not imported); a high proportion were also found to be asymptomatic. Additionally, the authors identified a recombinant lineage dominant in camels during DEC 2014 and identified in human outbreaks later in 2015, supporting the previously suspected epidemiological link between camels and humans. The most recent known date of symptom onset is 25 DEC 2015; however 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 493 cases in females to date. CDC reports 288 of the total cases have been identified as healthcare workers (HCWs). Of these, 178 were from KSA, 31 from UAE, 7 from Jordan, 2 from Iran, 1 from Tunisia, and 29 from ROK. Characteristics of reported cases are limited; however, CDC reports among 288 HCW cases with available information: 11 died; 55 were asymptomatic; 20 had comorbidities; and 15 presented with mild symptoms.

Text updated from the previous report will be printed in red; items in (+xx) represent the change in number from the previous Summary (16 DEC 2015).

All information has been verified unless noted otherwise. Sources include USFK, ROK MOHW, U.S. CDC, WHO, KSA MOH, Hong Kong CHP, Today's Zaman, and Science Magazine.

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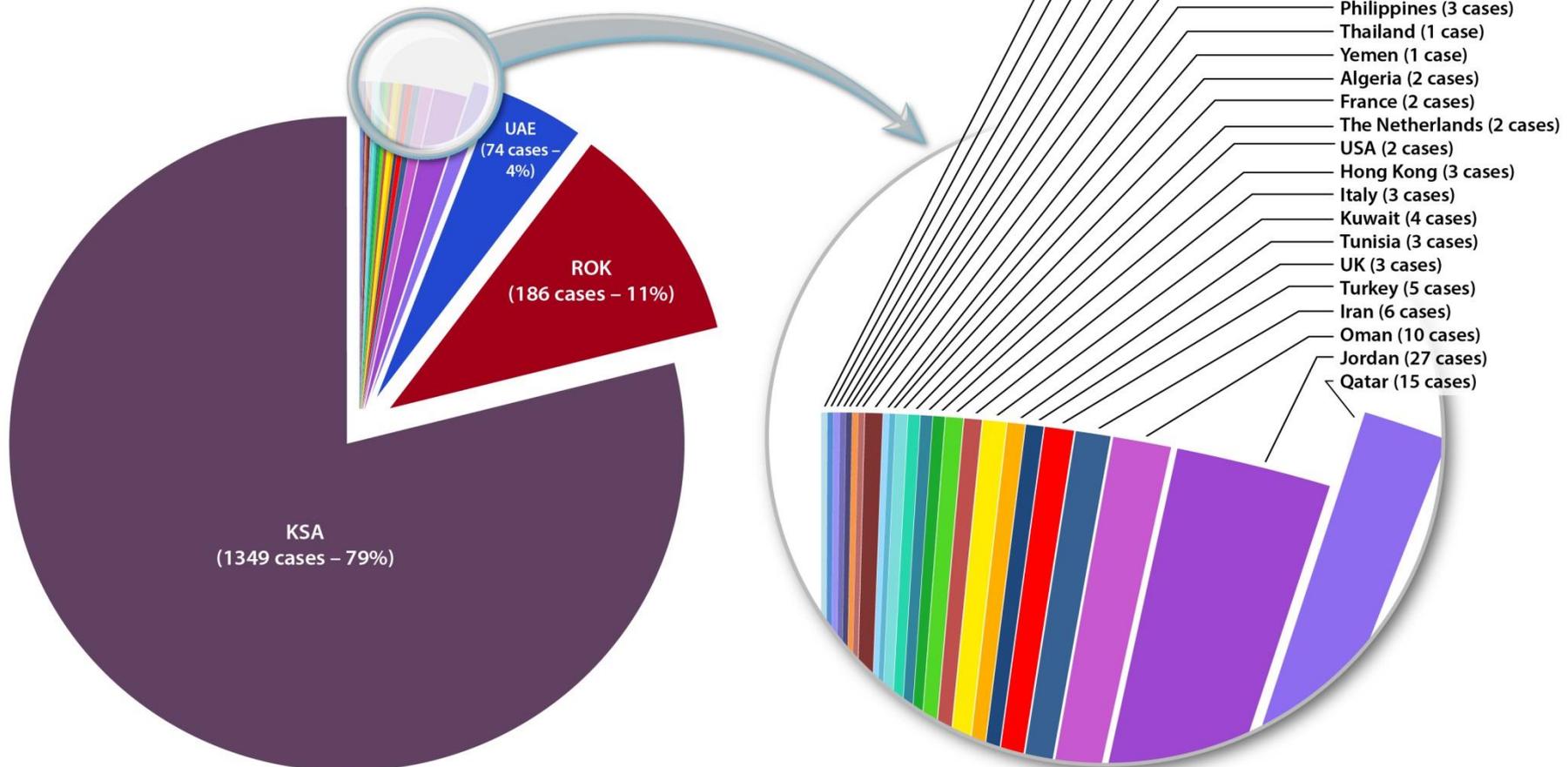
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Global Distribution of Reported MERS-CoV Cases* (SEP 2012 – JAN 2016)

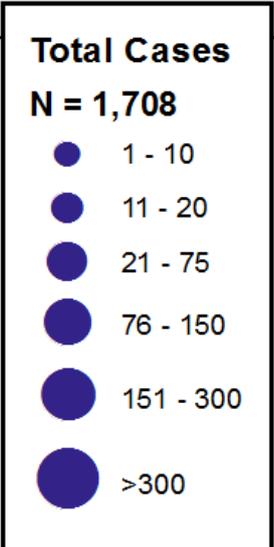
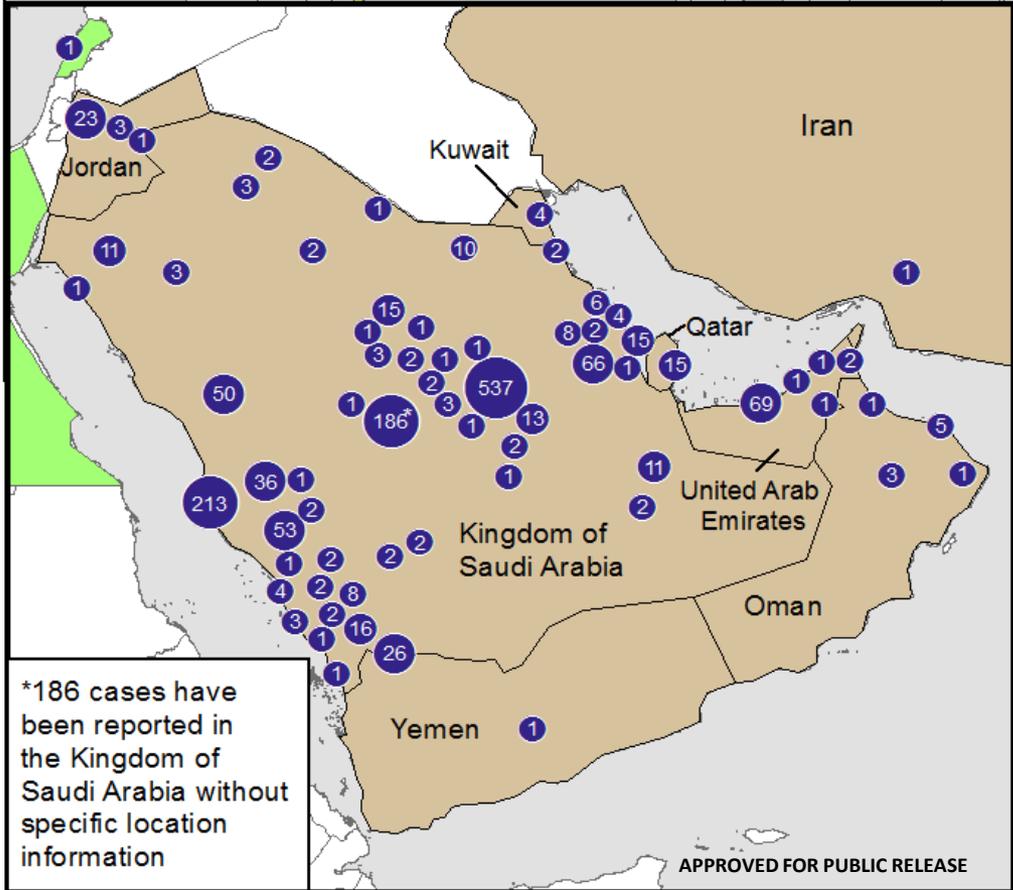
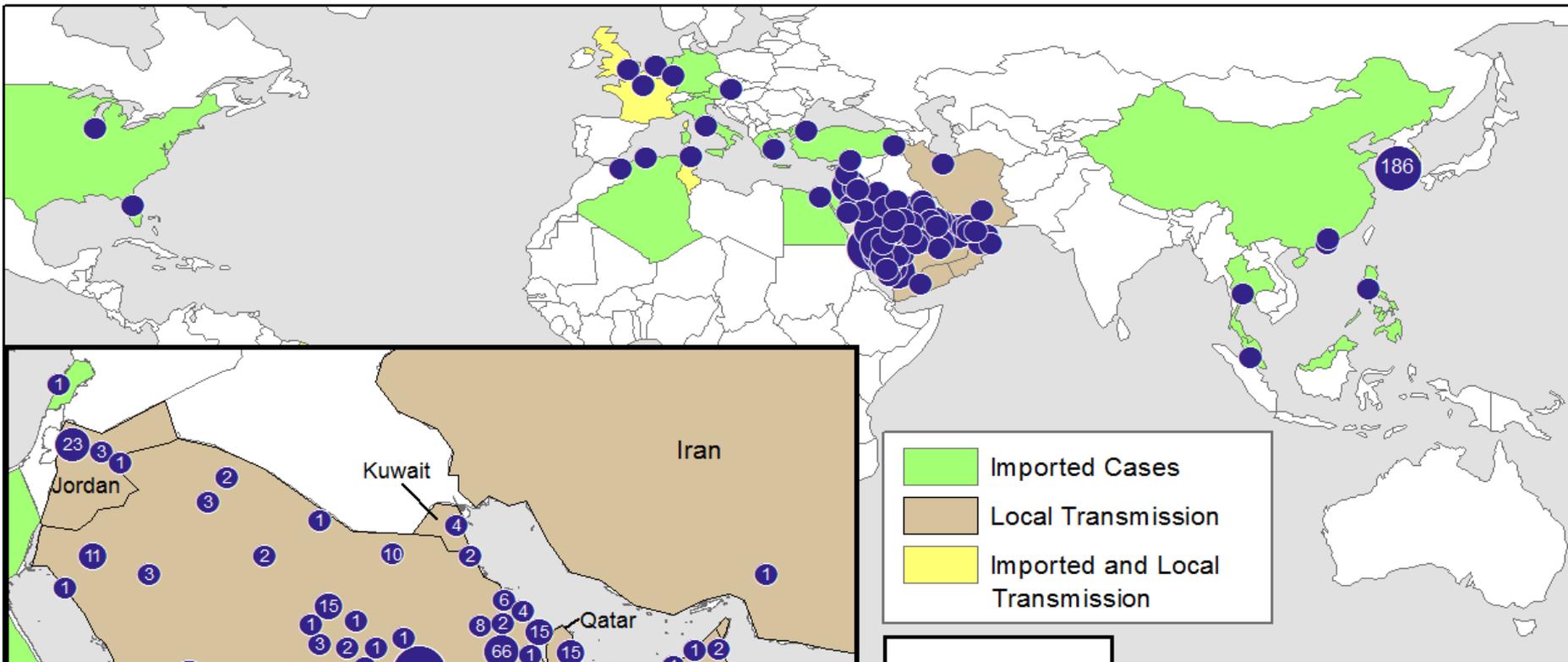


*Data includes confirmed, suspect and probable cases reported by WHO, CDC, and various country MOHs

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Geographic Distribution of MERS-CoV Cases
1 APR 2012 - 13 JAN 2016



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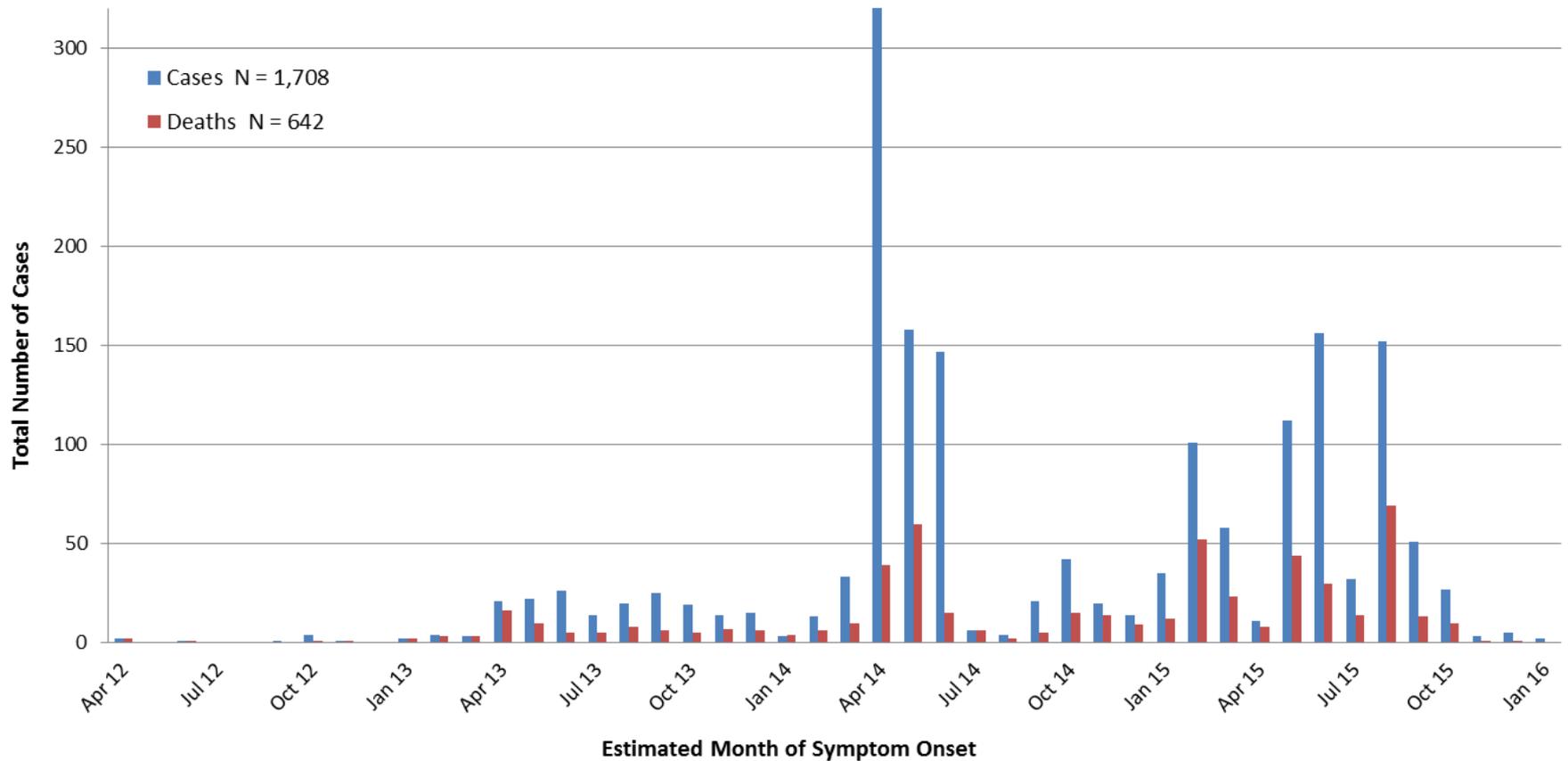
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Global MERS-CoV Epidemiological Curve - 13 JAN 2016





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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	746 (+4) cases	2 (+2) cases	1,708 (+6) cases
Deaths*	6 deaths	72 deaths	277 deaths	287 (+1) deaths	0 deaths	at least 642 (+1) deaths
Case-Fatality Proportion	66%	42%	36%	39%	0%	38%
Mean Age	45 years	51 years	49 years	55 years	68 years	52 years
Gender Breakdown*	1 female	at least 58 females	at least 175 females	259 females	0 females	at least 493 females
# of Healthcare Workers (HCWs) reported*	at least 2 HCWs	at least 31 HCWs	at least 87 HCWs	109 HCWs	0 HCWs	at least 288 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 (16 DEC 2015).

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MERS-CoV Web Sites

- [WHO](#)
- [WHO Lab Testing Guidance](#)
- [WHO Travel Advice for Pilgrimages](#)
- [WHO 10th IHR Meeting Press Release](#)
- [CDC](#)
- [CDC Travel Advisory for the Arabian Peninsula](#)
- [CDC Travel Advisory for ROK](#)
- [CDC MMWR](#)
- [CDC Interim PUI Guidance](#)
- [ECDC](#)
- [AFHSB Detecting and Reporting Guidelines for MERS-CoV](#)

Information and News

- [Exportations of Symptomatic Cases of MERS-CoV Infection to Countries outside the Middle East](#) (CDC EID, APR 2016)
- [Conference to focus on MERS link with camel](#) (Arab News, 12 JAN 2016)
- [Hospitals to be checked for MERS compliance](#) (Arab News, 10 JAN 2016)
- [Korea Centers For Disease Control And Prevention Discovers Mutation In MERS Virus](#) (Korea Portal, 10 JAN 2016)
- [Latest WHO DON on MERS-CoV in Oman](#) (WHO, 7 JAN 2016)
- [The recent ancestry of Middle East respiratory syndrome coronavirus in Korea has been shaped by recombination](#) (Nature, 6 JAN 2016)
- [Latest WHO DON on MERS-CoV in the Arabian Peninsula](#) (WHO, 4 JAN 2016)
- [5 hospitalized on suspicion of MERS](#) (Today's Zaman, 4 JAN 2016)
- [Hong Kong - CHP announces suspected coronavirus MERS case](#) (HK CHP/FluTrackers, 4 JAN)
- [An orthopoxvirus-based vaccine reduces virus excretion after MERS-CoV infection in dromedary camels](#) (Science, 1 JAN 2016)
- [Surveillance for Coronaviruses in Bats, Lebanon and Egypt, 2013–2015](#) (CDC EID, JAN 2016)
- [One hospitalized in Van on MERS suspicion, emergency ward quarantined](#) (Today's Zaman, 25 DEC)
- [Turkey: A MERS case in Van?](#) (Crof's Blog, 25 DEC)
- [Co-circulation of three camel coronavirus species and recombination of MERS-CoVs in Saudi Arabia](#) (Science, 17 DEC)
- [Middle East respiratory syndrome coronavirus \(MERS-CoV\) in dromedary camels in Nigeria, 2015](#) (Eurosurveillance, 10 DEC)
- [Multifacility Outbreak of Middle East Respiratory Syndrome in Taif, Saudi Arabia](#) (CDC EID, JAN 2016)
- [Researchers Create a Mouse that Can Get MERS](#) (MD Magazine, 8 OCT)
- [MERS coronavirus: Candidate vaccine gears up for clinical](#) (EurekAlert, 22 JUN)
- [Presence of Middle East respiratory syndrome coronavirus antibodies in Saudi Arabia: a nationwide, cross-sectional, serological study](#) (Lancet, 5 MAY)
- [WHO DON on first novel coronavirus infection](#) (WHO, 23 SEP 2012)