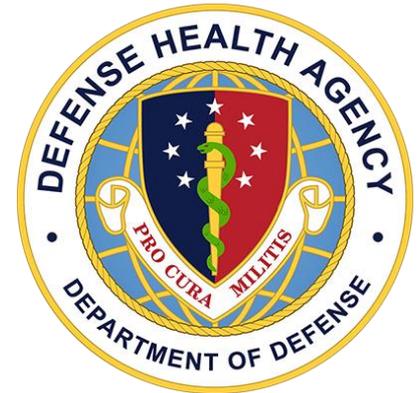


Department of Defense  
Armed Forces Health Surveillance Branch  
Global MERS-CoV Surveillance Summary  
(11 FEB 2016)



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# DEPARTMENT OF DEFENSE (AFHSB)

## Global MERS-CoV Surveillance Summary #76

### 11 FEB 2016 (next Summary 24 FEB)



**CASE REPORT:** As of 11 FEB 2016, 1,718 (+2) cases of Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported, including 643 deaths, in the Kingdom of Saudi Arabia (KSA) (+2), 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. The most recently identified cases were reported in Taif and Riyadh, KSA. On 25 JAN, the Thailand Ministry of Health (MOH) reported its second case of MERS-CoV (the first was reported in JUN 2015) in a traveler from Oman seeking medical care in Thailand, a common practice among Middle East residents. This case traveled, against medical advice, from Muscat to Bangkok on 22 JAN and is receiving treatment at Chulalongkorn Hospital. On 11 FEB, media reported this individual recovered and has returned to Oman. On 28 JAN, OIE reported 11 camels from a livestock market in Jeddah tested positive for MERS-CoV. This is the first time the Ministry of Agriculture has reported MERS-CoV positive camels associated with livestock markets inside KSA, a possible indication of increased animal surveillance in the country. Media report that camel market closures occurred in Jeddah following this announcement. Consequently, the MOH has ordered the Command and Control Center (the lead for outbreak response activities) to conduct more camel testing in the country.

**DOD RELEVANCE:** On 13 NOV 2015, 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, LPMC, MAMC, NHRC, USAFSAM, SAMMC, TAMC, WBAMC, WRNMMC, and NIDDL (NMRC). Tripler AMC (TAMC) completed validation of clinical diagnostic testing capability on 24 NOV 2015. 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 2015, 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 2015, 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.

**INTERAGENCY/GLOBAL ACTIONS:** On 11-14 JAN 2016, WHO led a joint mission to KSA to review the MERS-CoV situation in the country, assess progress in implementing previous WHO recommendations, identify gaps in research, and agree on a joint operation plan for controlling MERS-CoV. This is the third such mission led by WHO - the previous two occurred in FEB and AUG 2015. The mission concluded that while KSA has made progress in being "more responsive" to acute events, such as repeated nosocomial outbreaks, more still needs to be done. [WHO recommendations](#) 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 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.

**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. The most recent known date of symptom onset is 14 JAN 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 494 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.

Text updated from the previous report will be printed in red; items in (+xx) represent the change in number from the previous Summary (28 JAN 2016).

All information has been verified unless noted otherwise. Sources include U.S. CDC, WHO, USFK, and the KSA MOH.

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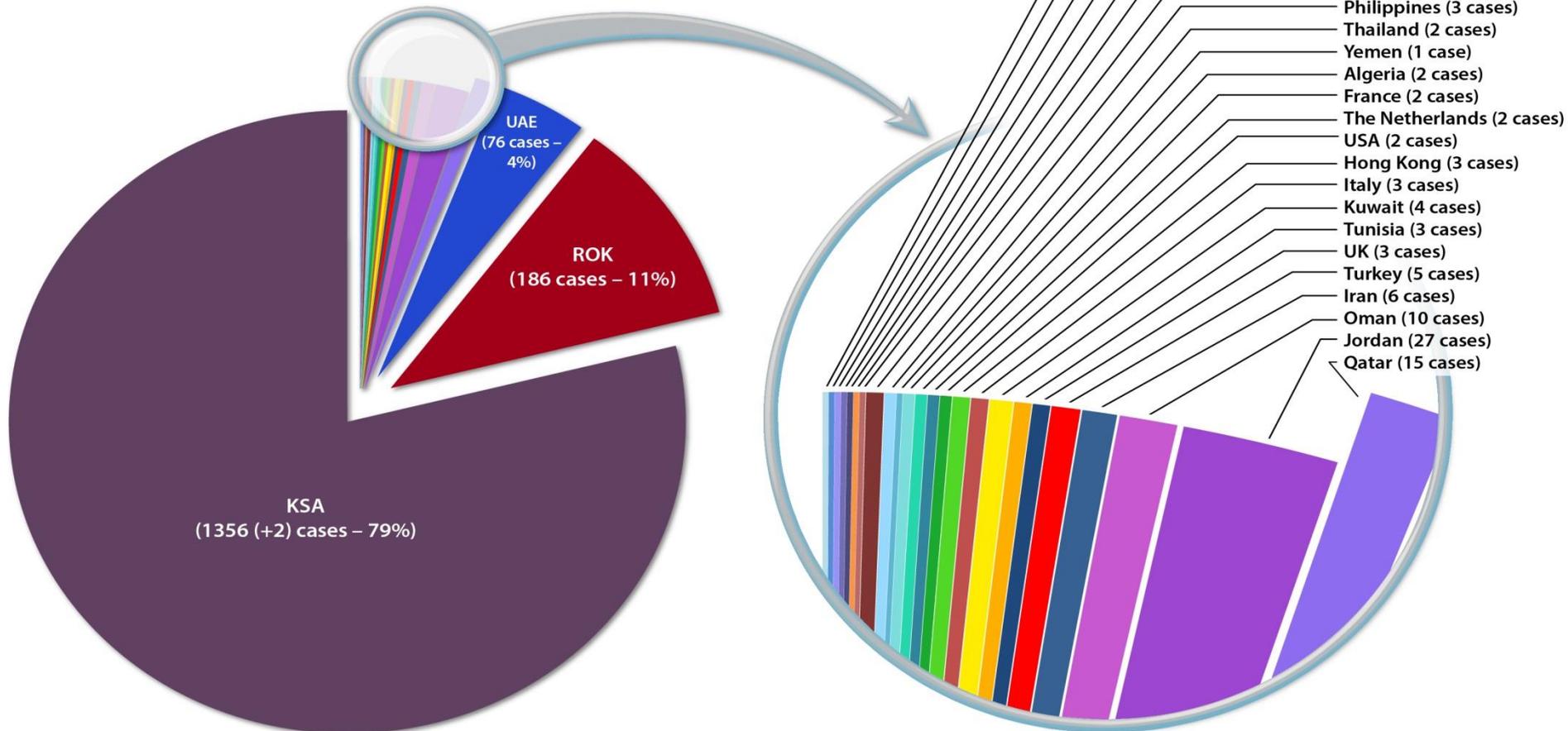
# DEPARTMENT OF DEFENSE (AFHSB)

## Global MERS-CoV Surveillance Summary #76

### 11 FEB 2016



## Global Distribution of Reported MERS-CoV Cases\* (SEP 2012–FEB 2016)

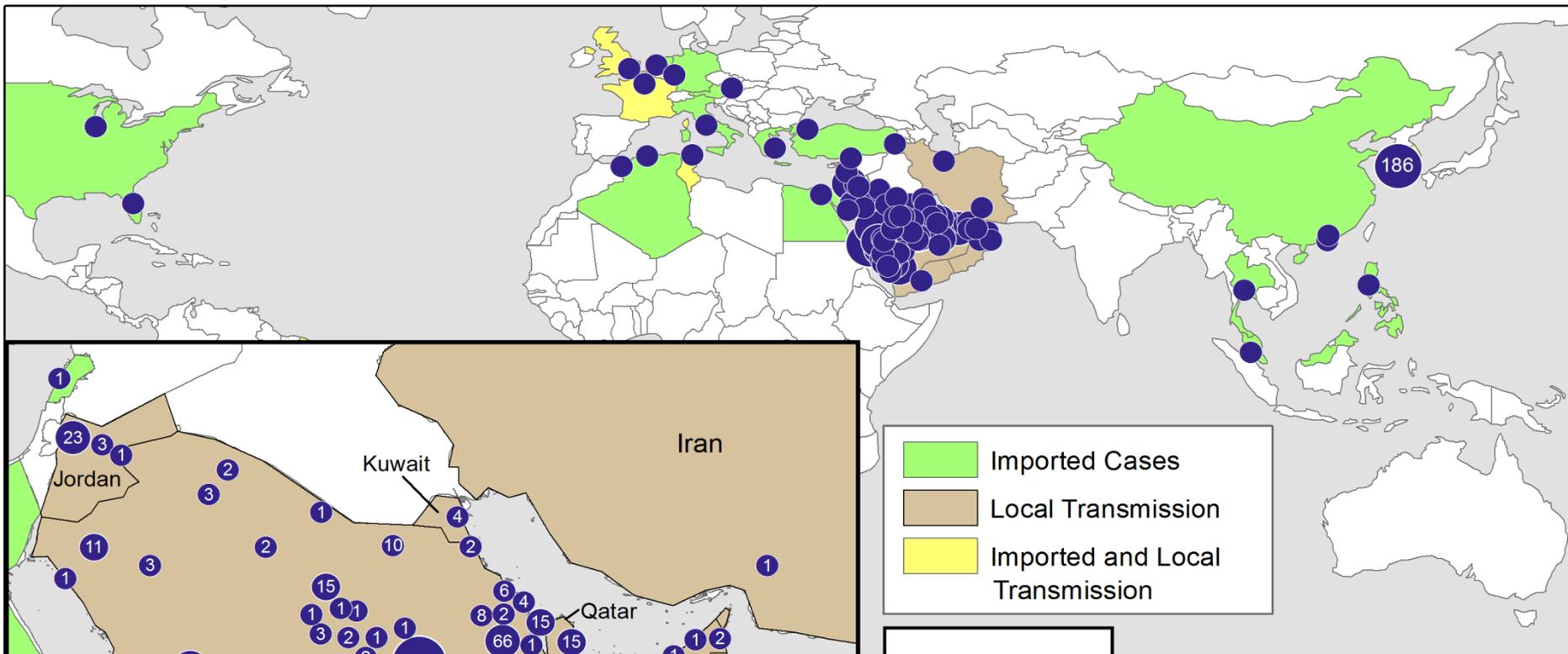


\*Data includes confirmed, suspect and probable cases reported by WHO, CDC, and various country MOHs

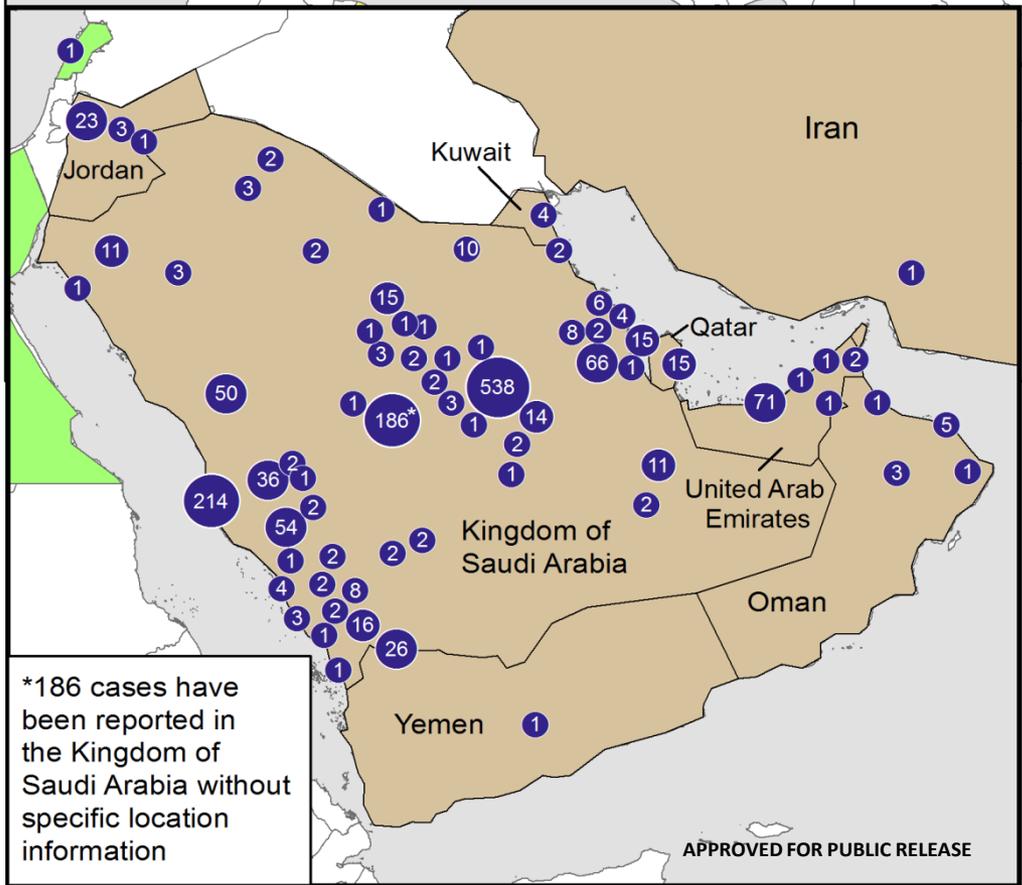
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Imported Cases  
 Local Transmission  
 Imported and Local Transmission



**Total Cases**  
N = 1,718

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

**Geographic Distribution of MERS-CoV Cases**  
1 APR 2012 - 11 FEB 2016



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

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**RETURN TO TOP**

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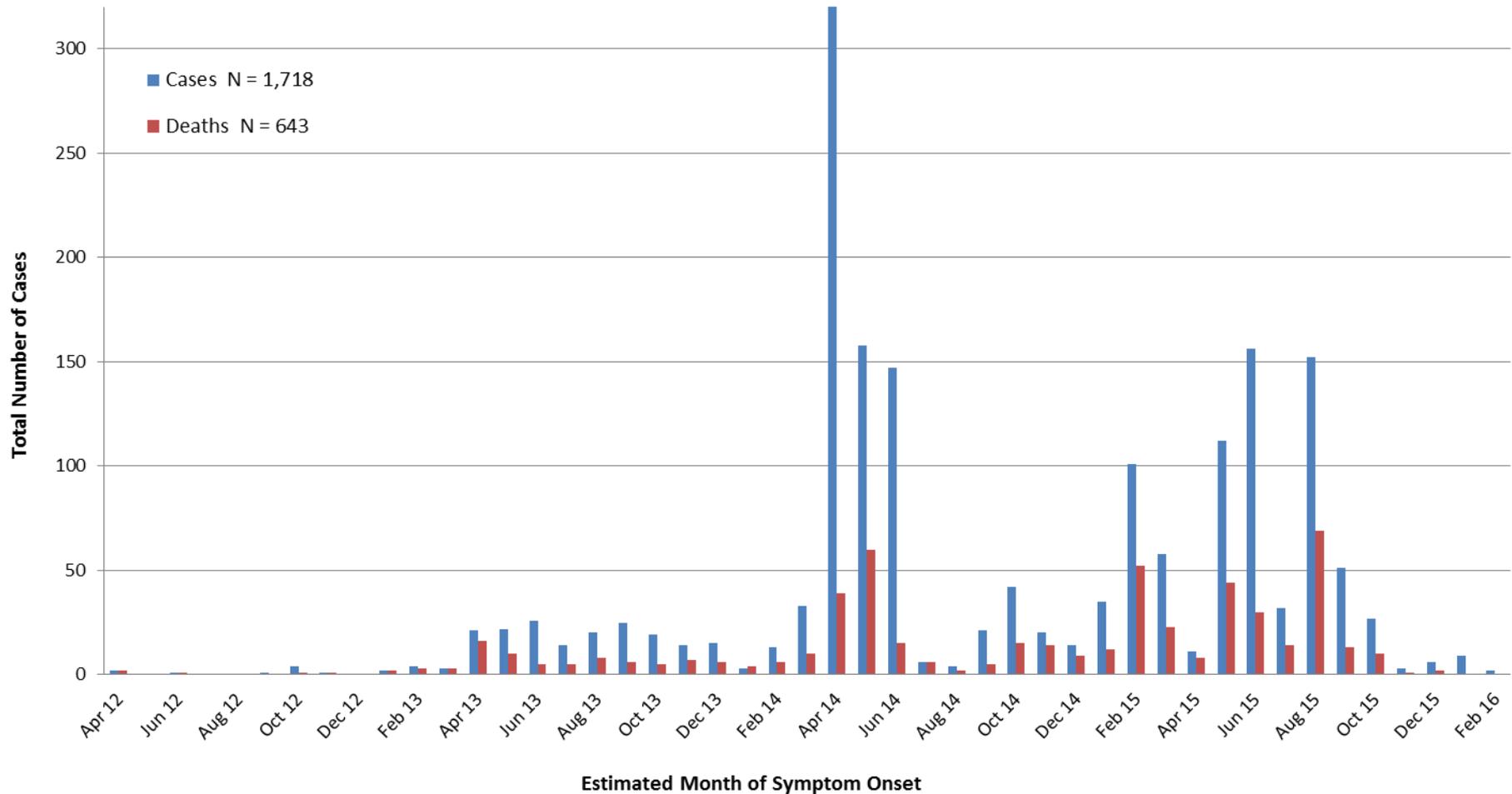
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## Global MERS-CoV Surveillance Summary #76

11 FEB 2016



### Global MERS-CoV Epidemiological Curve - 11 FEB 2016





# DEPARTMENT OF DEFENSE (AFHSB)

## Global MERS-CoV Surveillance Summary #76

### 11 FEB 2016



### 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	11 (+2) cases	1,718 (+2) cases
Deaths*	6 deaths	72 deaths	277 deaths	288 deaths	0 deaths	at least 643 deaths
Case-Fatality Proportion	66%	42%	36%	39%	0%	37%
Mean Age	45 years	51 years	49 years	55 years	61 years	52 years
Gender Breakdown*	1 female	at least 58 females	at least 175 females	259 females	1 female	at least 494 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 (28 JAN 2016).

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## Global MERS-CoV Surveillance Summary #76

### 11 FEB 2016



#### 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)
- [Second MERS patient detected in Thailand returns to Oman](#) (*The Nation*, 22 FEB)
- [The epidemiology of Middle East Respiratory Syndrome \(MERS\) coronavirus in the Kingdom of Saudi Arabia, 2012-2015](#) (*International Journal of Infectious Disease*, 10 FEB)
- [First reported autopsy of patient with MERS coronavirus infection provides critical insights](#) (*Science Daily*, 5 FEB)
- [Latest WHO DON on MERS-CoV in the Arabian Peninsula](#) (WHO, 2 FEB)
- [Camel market closed to prevent possible coronavirus outbreak](#) (*Saudi Gazette*, 28 JAN)
- [MERS Monitoring ordered after camels test positive for virus](#) (*Arab News*, 28 JAN)
- [OIE Notification of MERS-CoV in Camels in Jeddah](#) (OIE, 28 JAN)
- [The recent ancestry of Middle East respiratory syndrome coronavirus in Korea has been shaped by recombination](#) (*Nature*, 6 JAN)
- [WHO's high-level mission to Saudi Arabia on Middle East respiratory syndrome coronavirus \(MERS-CoV\) 11–14 January 2016](#) (WHO, JAN 2016)
- [An orthopoxvirus-based vaccine reduces virus excretion after MERS-CoV infection in dromedary camels](#) (*Science*, 1 JAN)
- [Surveillance for Coronaviruses in Bats, Lebanon and Egypt, 2013–2015](#) (CDC EID, JAN 2016)
- [Multifacility Outbreak of Middle East Respiratory Syndrome in Taif, Saudi Arabia](#) (CDC EID, JAN 2016)
- [Co-circulation of three camel coronavirus species and recombination of MERS-CoVs in Saudi Arabia](#) (*Science*, 17 DEC 2015)
- [Middle East respiratory syndrome coronavirus \(MERS-CoV\) in dromedary camels in Nigeria, 2015](#) (*Eurosurveillance*, 10 DEC 2015)
- [Researchers Create a Mouse that Can Get MERS](#) (*MD Magazine*, 8 OCT 2015)
- [MERS coronavirus: Candidate vaccine gears up for clinical](#) (*EurekAlert*, 22 JUN 2015)
- [Presence of Middle East respiratory syndrome coronavirus antibodies in Saudi Arabia: a nationwide, cross-sectional, serological study](#) (*Lancet*, 5 MAY 2015)
- [WHO DON on first novel coronavirus infection](#) (WHO, 23 SEP 2012)

RETURN TO TOP

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