

Department of Defense
Armed Forces Health Surveillance Center
MERS-CoV Surveillance Summary
(1 APR 2015)



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DEPARTMENT OF DEFENSE (AFHSC)

MERS-CoV Surveillance Summary #51

1 APR 2015



CASE REPORT: From SEP 2012 to 1 APR 2015, 1147 (+20) cases of Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported including 429 (+5) deaths in the Kingdom of Saudi Arabia (KSA), Jordan, Qatar, United Arab Emirates, United Kingdom, France, Germany, Tunisia, Italy, Oman, Kuwait, Yemen, Malaysia, Greece, Philippines, Egypt, Lebanon, Netherlands, Iran, Algeria, Austria, Turkey, and the U.S.

On 31 MAR, WHO released a [MERS-CoV Situation Update](#) stating that the recent epidemiological and demographic characteristics of the outbreak are not significantly different from those reported in previous years. However, WHO did say that more cases in 2015 have no known history of exposure to other MERS patients when compared to data from previous years.

The latest WHO Disease Outbreak News (DON) reports a single case who denied contact with camels and other risk factors but reported frequent contact with sheep and regular consumption of raw sheep products.

According to a 26 MAR KSA media report the Saudi Minister of Health announced that health professionals in KSA that fail to report suspect cases of MERS-CoV face up to six months in jail, fines up to SR 100,000 (\$26,650), and the potential loss of their medical license. In addition to these new infection control policies, the MOH also reported that testing of MERS-CoV samples has increased from 100 samples/week last year to 2000 samples/week now.

In mid-FEB, a team of WHO, UN FAO, OIE, and Institute Pasteur experts travelled to KSA to evaluate the current MERS-CoV situation and make recommendations for improving surveillance, prevention, and control efforts. On 26 FEB, Dr. Keiji Fukuda of WHO spoke on the joint mission's findings saying that while data collection and surveillance have improved in recent months, critical gaps in knowledge remain.

Recommendations include: better understanding of modes of infection and transmission, further research on the epidemiology of MERS-CoV, improving disease prevention, and intensifying social mobilization, community engagement, communications, and inter-sectoral cooperation.

DIAGNOSTICS: Clinical diagnostic testing is available at NAMRU-3, LRMC, NHRC, USAFSAM, Tripler AMC, SAMMC, WRNMMC, and NIDDL (NMRC). Surveillance testing capability is available at NHRC, AFRIMS, NAMRU-2, NAMRU-3, NAMRU-6, and Camp Arifjan. Additionally all 50 state health laboratories and the New York City DHMH have been offered clinical testing kits. AFHSC has placed updated [MERS-CoV testing guidelines](#) for DoD components on their website. These guidelines are aimed at capturing mild cases that may present in healthier populations such as DoD personnel.

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 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 32 spatial clusters predominately involving close contacts. Limited camel-to-human transmission of MERS-CoV has been proven to occur; and [recent studies suggest](#) camels infected with MERS-CoV may appear asymptomatic but are able to shed large quantities of the virus from the upper respiratory tract.

A [study](#) published in the EIDJ found increased infectivity of MERS-CoV in camel calves (<4 years of age) in Dubai, UAE, and suggests that delayed social separation of calves might reduce human infection risk. However, EIDJ also published a [study](#) noting the lack of transmission from a herd of infected camels to humans with various levels of contact with the animals. A [study](#) published in the Journal of Virology showed that antibodies from dromedary camels protected mice from MERS-CoV when given prophylactically, and reduced the severity and duration of illness in infected mice when antibodies were given therapeutically. More research is underway to determine if camel antibodies will be successful in humans.

The most recent known date of onset is 19 MAR 2015; however at least 40% of symptomatic cases have been reported without onset date. Due to inconsistencies in reporting, it is difficult to determine a cumulative breakdown by gender, however AFHSC is aware of [at least 279 cases in females to date](#). On 18 JAN, Qatar's SCH reported that [their recent studies have shown](#) people in the 50-69 year age group are more vulnerable to the MERS-CoV virus. CDC reports [200 of the total cases have been identified as healthcare workers](#) (HCWs). Of these, 134 were from KSA, 31 from UAE, 5 from Jordan, 2 from Iran, and 1 from Tunisia. Characteristics of reported cases are limited, however, CDC reports among the 200 HCW cases: 11 died; 55 were asymptomatic; 20 had comorbidities; and 15 presented with only mild symptoms.

Media outlets, as well as the ECDC and [a review article](#) in the American Journal of Infection Control, indicate "strict infection control measures are essential, given that MERS-CoV survival on hospital surfaces is at least 48 hours and that it has been detected for up to 16 days in respiratory specimens and stool and up to 13 days in urine." [The WHO Situation Update from 31 MAR also notes that nosocomial outbreaks in hospitals have recently been reported in Riyadh, Qassem, Al-Jouf, and Eastern Regions.](#)

INTERAGENCY/GLOBAL ACTIONS: WHO [reiterated](#) on 3 FEB that people with diabetes, renal failure, or chronic lung disease, and immunocompromised persons are considered to be at high risk of severe disease from MERS-CoV infection. WHO convened the [Eighth International Health Regulations \(IHR\) Emergency Committee](#) on 4 FEB to discuss MERS-CoV and concluded that the conditions for a Public Health Emergency of International Concern (PHEIC) have not yet been met. CDC's [Level 2 Travel Watch](#) remains in effect and specifically notes health care providers should be alert for patients who develop severe acute lower respiratory illness within 14 days of travel from the Arabian Peninsula. On 30 JAN, [CDC issued an MMWR](#) with updated guidance for the public, clinicians, and public health authorities on when to consider MERS-CoV infection.

Text updated from the previous report will be printed in red; items in (+xx) represent the change in number from the previous Summary (19 MAR 2014).

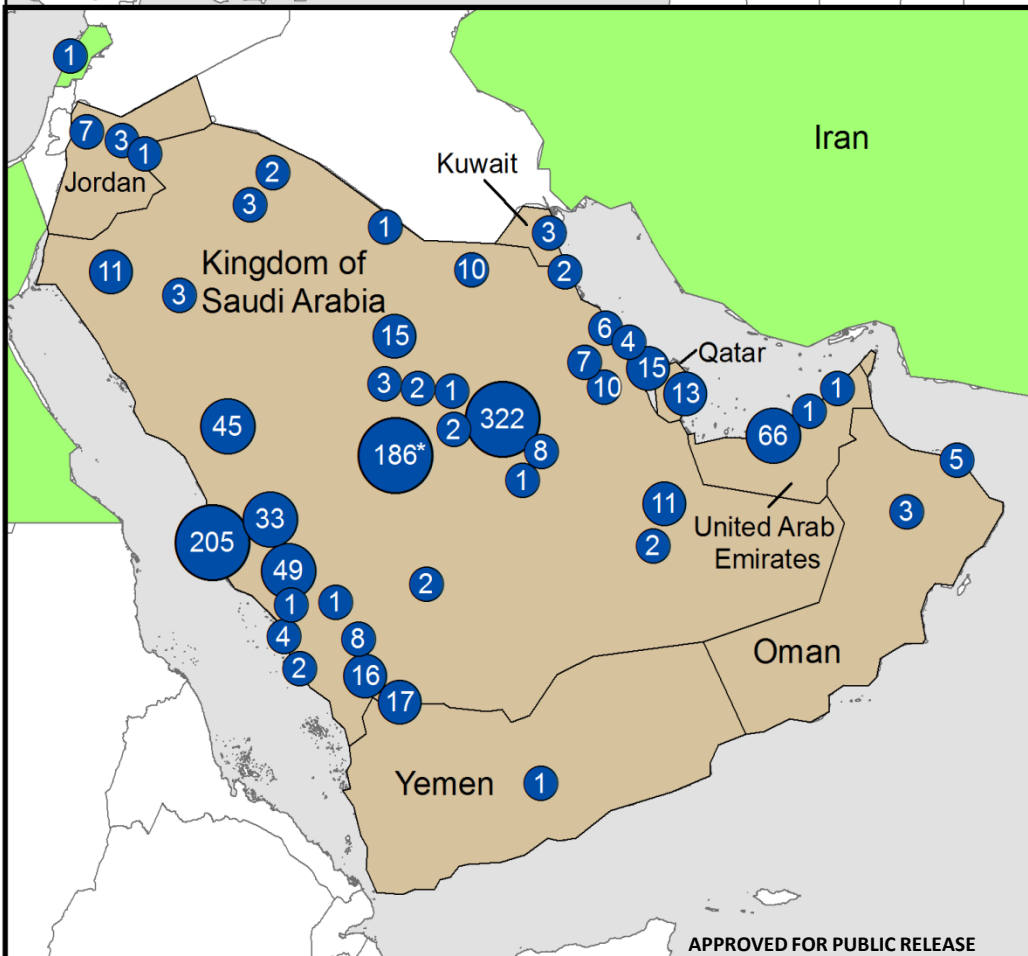
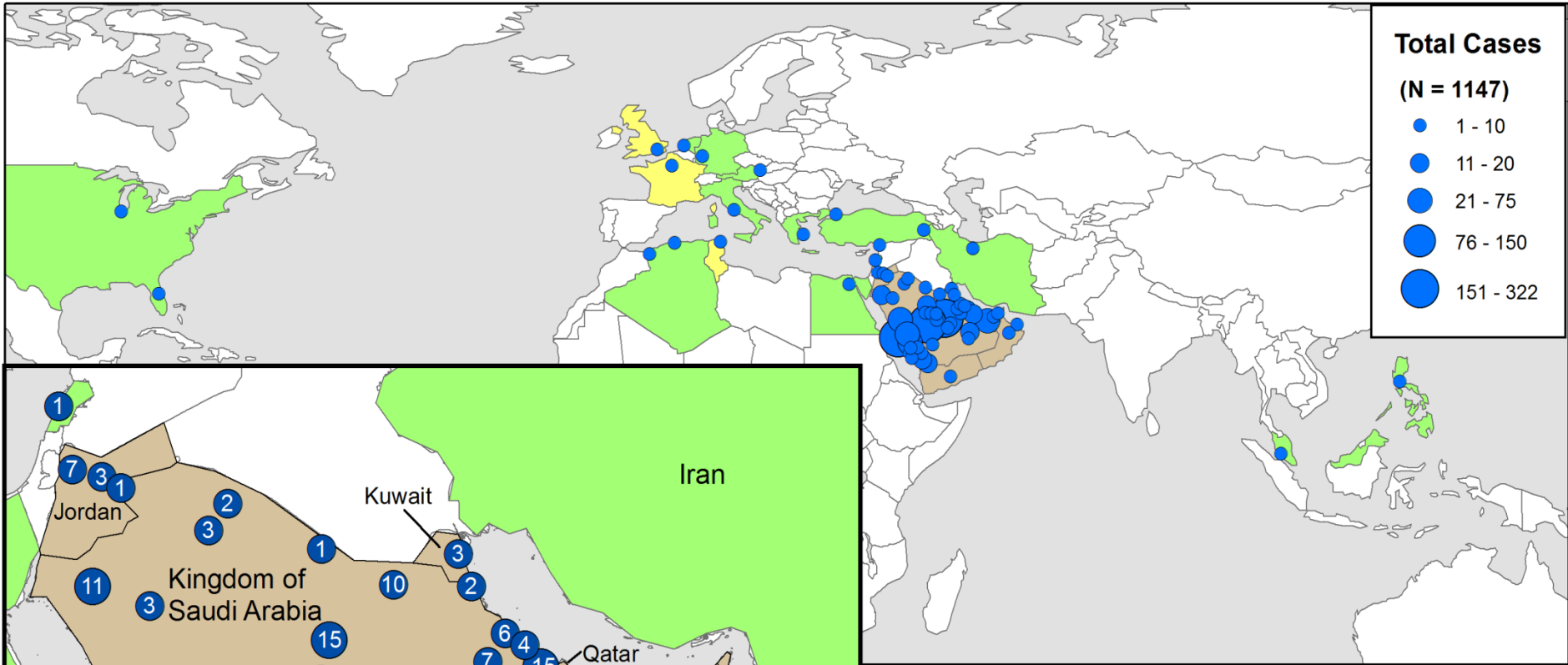
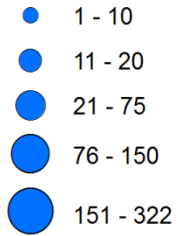
All information has been verified unless noted otherwise. Sources include the CDC, WHO, KSA MOH, ECDC, NEJM, SCH Qatar, and ASM.

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Total Cases

(N = 1147)



Geographic Distribution of MERS-CoV Cases 1 APR 2012 - 1 APR 2015



- Imported Cases
- Imported Cases with Local Transmission
- Local Transmission

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



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MERS-CoV NUMBERS AT A GLANCE

	Total in 2012	Total in 2013	Total in 2014	Total in 2015	Cumulative Total (2012-2015)
Confirmed Cases	9	171	772	195 (+20)	1147 cases (+20)
Confirmed Deaths*	6 deaths	72 deaths	273 deaths	78 deaths (+5)	at least 429 deaths (+5)
Case-Fatality Proportion	66%	42%	35%	40%	37%
Mean Age	45 years	51 years	49 years	57 years	51 years
Gender Breakdown*	1 female	at least 58 females	at least 175 females	45 females (+2)	at least 279 females
# of Healthcare Workers (HCWs) reported*	at least 2 HCWs	at least 31 HCWs	at least 87 HCWs	21 HCWs (+1)	at least 200 HCWs

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

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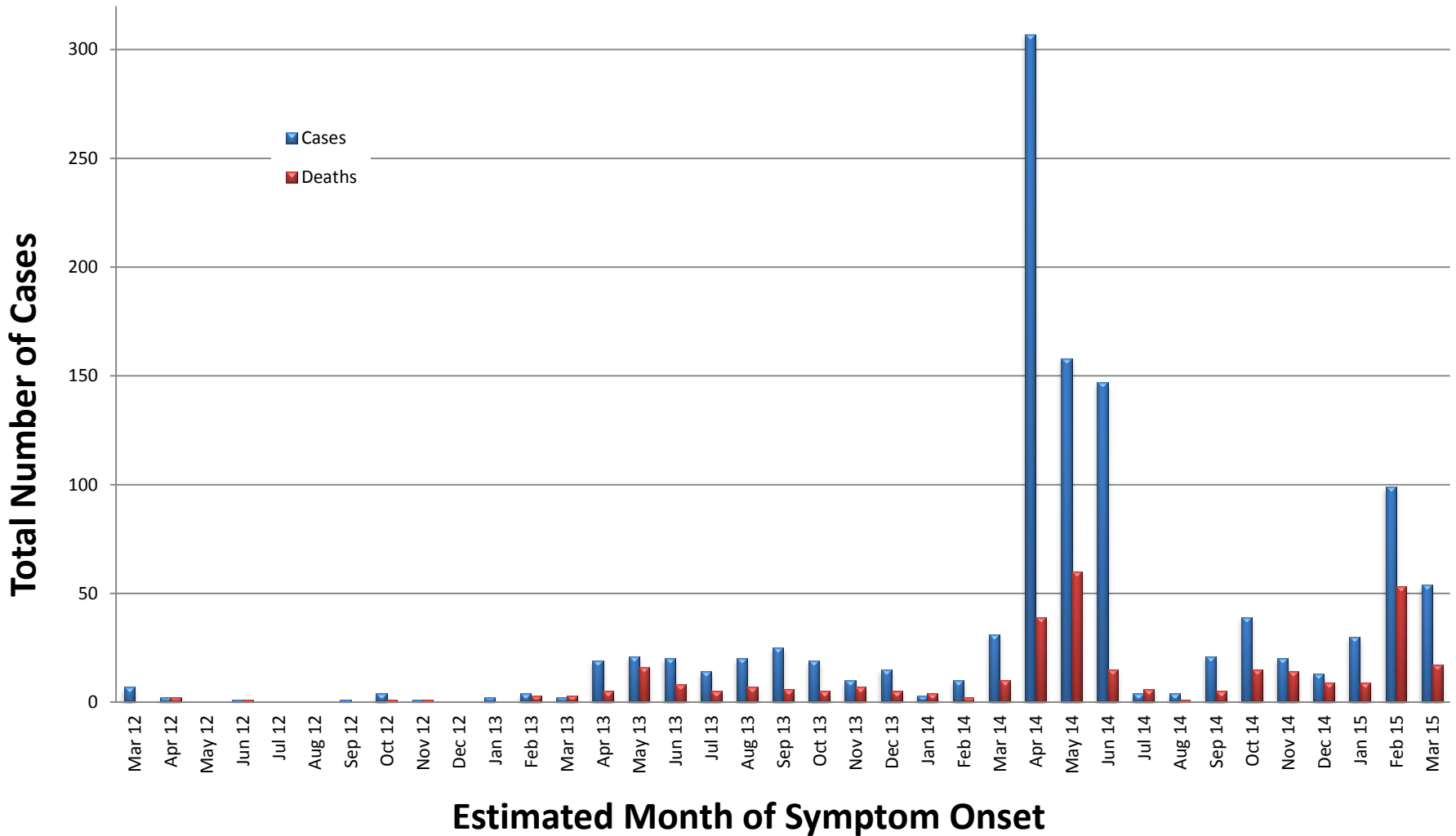
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MERS-CoV Epidemiological Curve – 1 APR 2015



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MERS-CoV Web Sites

- [WHO](#)
- [WHO Lab Testing Guidance](#)
- [WHO Travel Advice for Pilgrimages](#)
- [WHO 8th IHR Meeting Press Release](#)
- [CDC](#)
- [CDC Travel Advisory](#)
- [ECDC](#)
- [AFHSC Detecting and Reporting Guidelines for MERS-CoV](#)

Information and News

- [MERS-CoV Situation Report](#) (WHO, 31 MAR)
- [Latest WHO DON on MERS-CoV](#) (WHO, 26 MAR)
- [Saudi doctors face jail, loss of license over MERS](#) (Arabian Business, 26 MAR)
- [Passive Immunotherapy With Dromedary Immune Serum In An Experimental Animal Model For MERS Coronavirus Infection](#) (American Society for Microbiology (ASM), 18 MAR)
- [Acute Middle East Respiratory Syndrome Coronavirus Infection in Livestock in Dromedaries, Dubai, 2014](#) (CDC EIDJ, early release on 13 MAR 2015, anticipated publication date JUN 2015)
- [Ghost "Corona" pays officials to stop the surgery and emergency department](#) (KSA Ministry of Information, 8 MAR)
- [Absence of MERS-Coronavirus in Bactrian Camels, Southern Mongolia, November 2014](#) (CDC EIDJ, early release on 6 MAR 2015, anticipated publication date JUL 2015)
- [MOH Issues a Weekly Report on Coronavirus, Records 18 New Cases](#) (KSA, 2 MAR)
- [MERS-CoV Cases Surge Amidst Concern of International Spread](#) (Homeland Security Today, 26 FEB)
- [2014 MERS-CoV Outbreak in Jeddah – A Link to Health Care Facilities](#) (NEJM, 26 FEB)
- [Saudi Arabia suspends leave in heightened effort to combat MERS](#) (African News, 19 FEB)
- [More progress needed to control the Middle East respiratory syndrome coronavirus \(MERS-COV\) in Saudi Arabia](#) (WHO, 23 FEB)
- [Ministry to set up command and control reference center to fight MERS](#) (Saudi Gazette, 12 FEB)
- [CDC MMWR: Update on the Epidemiology of Middle East Respiratory Syndrome Coronavirus \(MERS-CoV\) Infection, and Guidance for the Public, Clinicians, and Public Health Authorities](#) (CDC, 30 JAN)
- [Middle East Respiratory syndrome coronavirus: Implications for health care facilities](#) (AJIC, DEC 2014)
- [MERS Coronavirus Neutralizing Antibodies in Camels, Eastern Africa, 1983–1997](#) (CDC, 19 NOV 2014 Emerging Infectious Diseases Journal (EIDJ))
- [Replication and Shedding of MERS-CoV in Upper Respiratory Tract of Inoculated Dromedary Camels](#) (CDC, 18 NOV 2014 EIDJ)
- [WHO DON on first novel coronavirus infection](#) (WHO, 23 SEP 2012)