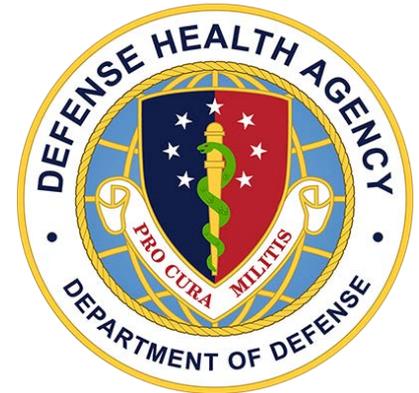


Department of Defense
Armed Forces Health Surveillance Branch
Global MERS-CoV Surveillance Summary
(13 JUL 2016)



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DEPARTMENT OF DEFENSE (AFHSB)

Global MERS-CoV Surveillance Summary #87

13 JUL 2016 (next Summary 27 JUL)



CASE REPORT: As of 13 JUL 2016, 1,863 (+11) cases of Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported, including at least 576 (+7) deaths (CDC reports at least 658 deaths as of 12 JUL) 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, and the U.S. AFHSB's death count (Case Fatality Proportion (CFP) - 31%) includes only those deaths which have been publicly reported and verified. While CDC's death count (CFP - 37%) may present a more complete picture, it's unclear when and where those additional deaths occurred during the outbreak.

From 9 JUN to 29 JUN, a total of 30 cases were identified in Riyadh and were believed to be associated with a nosocomial cluster at King Khalid Hospital. The index case of this cluster had symptom onset on 9 JUN and passed away on 20 JUN; it is unclear if the patient was from Riyadh or from Buraidah, where a separate cluster of MERS-CoV was reported earlier this spring. As of 21 JUN, [WHO](#) reports that because of other predominant symptoms, MERS-CoV was not considered early on in the treatment process and consequently at least 49 health care workers (HCWs) and patients were exposed. Of the 30 cases associated with this cluster, four were identified as secondary household contacts, and three others were identified as HCWs that directly cared for the index case. The number of asymptomatic cases reported in association with this cluster was unusual; in total, 25 cases were reported as asymptomatic. Due to the inconsistent reporting by the KSA Ministry of Health (MOH), it is difficult to determine if this increase in reported asymptomatic cases reflects an increase in contact tracing efforts or a true increase in asymptomatic transmission of the virus. On 24 JUN, the Director of Public Administration for Infection Control at the KSA MOH suggested that the recent rise in cases could be attributed to the increased consumption of camel meat during Ramadan, which began on 5 JUN and ended on 5 JUL. On 12 JUL, a local media source reinforced this suggestion by noting that the KSA MOH had reported 49 cases during Ramadan, while "since the beginning of Shawwal [6 JUL]... three new cases of the virus were reported." AFHSB has not identified any association between the period of Ramadan and a spike in MERS-CoV cases since the disease first emerged in 2012.

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 51 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 23 JUN 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 587 (+6) cases in females to date. CDC reports 304 of the total cases have been identified as healthcare workers (HCWs). A joint study by the Health Authority of Abu Dhabi, UAE, and the U.S. CDC retrospectively analyzed medical data on MERS-CoV patients in UAE from JAN 2013 to MAY 2014, and found that mild and asymptomatic MERS-CoV cases made up the majority (35% and 35% respectively) of UAE's cases in this time period (65 cases), and that many of these mild/asymptomatic individuals were shown to shed the virus for longer than two weeks. A [study published by CDC found that antibodies to MERS-CoV can persist for up to 34 months after infection; furthermore, observed differences in immunologic responses to MERS-CoV exposure and infection suggest a potential role for genetic factors in the immune response](#). 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. On 22 JUN, FAO reported that, to date, field surveys have identified MERS-CoV seropositive livestock in the following countries: Spain (the Canary Islands), Nigeria, Tunisia, Ethiopia, Somalia, Kenya, Sudan, Egypt, Jordan, KSA, Oman, and UAE. A recent study in Tropical Animal Health and Production found that dromedary camels from KSA show significantly higher MERS-CoV carrier rates than dromedaries imported from Africa. Additionally, the two MERS-CoV lineages identified in Nigerian camels were found to be genetically distinct from those strains currently circulating in the Arabian Peninsula. These findings support the theory that camel imports from Africa are not contributing significantly to the circulation of MERS-CoV in camels in the Arabian Peninsula. The latest KSA MOH Weekly Monitor publication described Public Health Legislations implemented by the MOH to control the spread of MERS-CoV, as well as the penalties associated with noncompliance.

Text updated from the previous report will be printed in red; items in (+xx) represent the change in number from the previous Summary (29 JUN 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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Global MERS-CoV Surveillance Summary #87

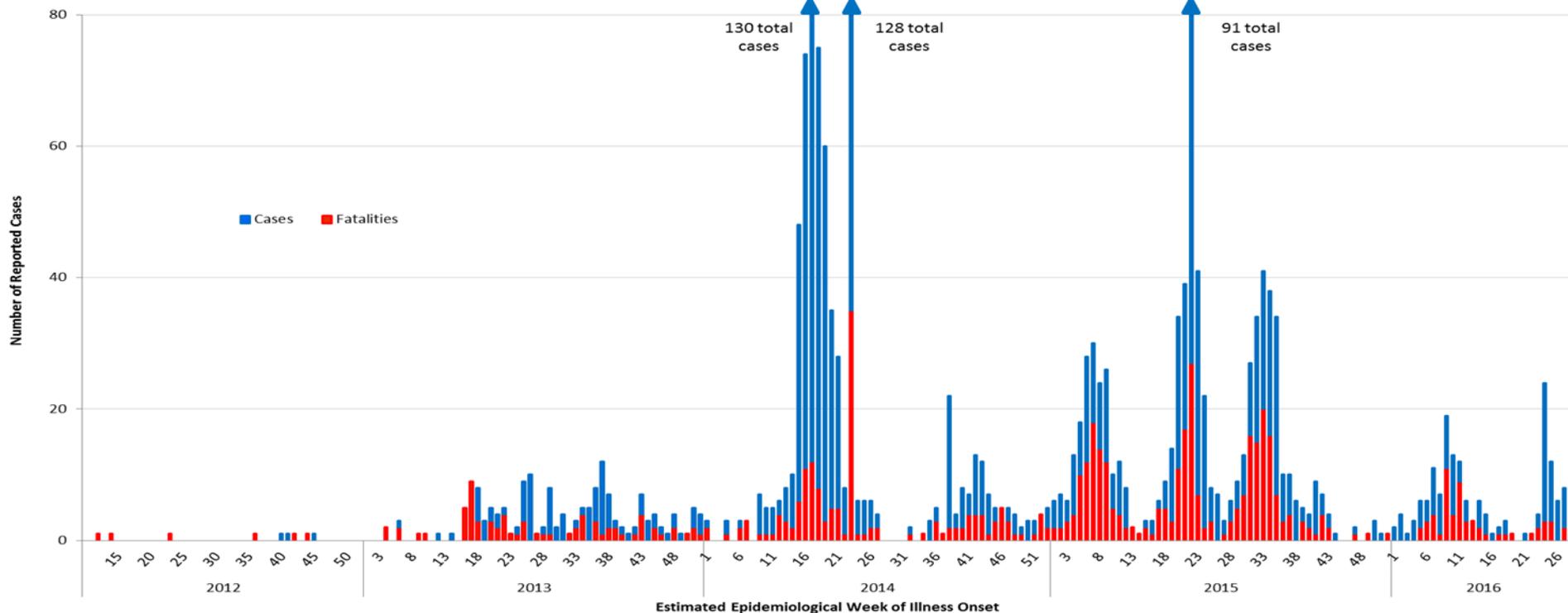
13 JUL 2016



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 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) had 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. **On 13 JUL, CDC released updated [guidance](#) for the monitoring and movement of potential MERS-CoV cases, including a table with specific guidance for public health actions based on exposure category and clinical criteria.**

Global MERS-CoV Epidemiological Curve by Illness Onset



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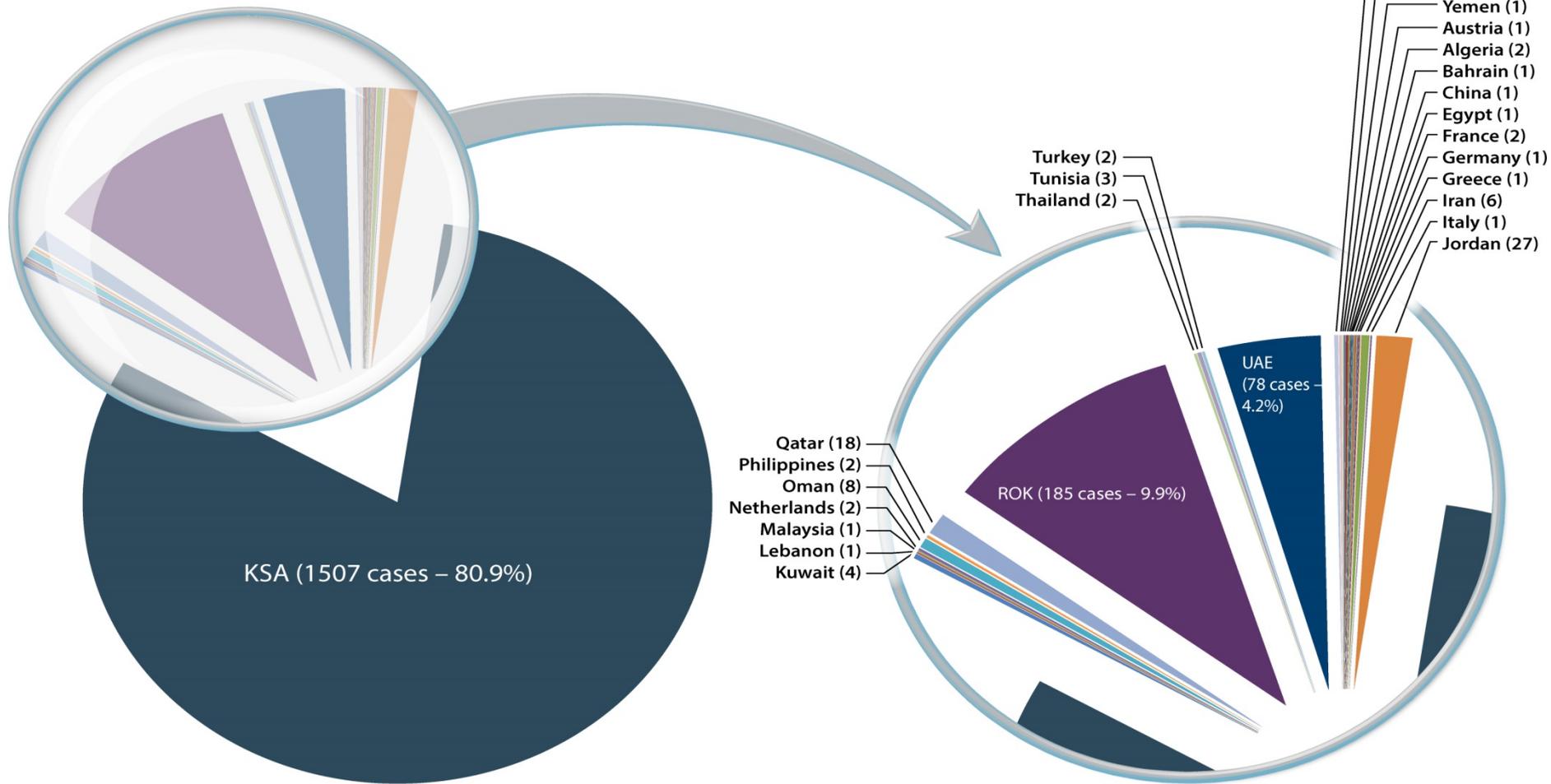
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Global MERS-CoV Surveillance Summary #87

13 JUL 2016



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

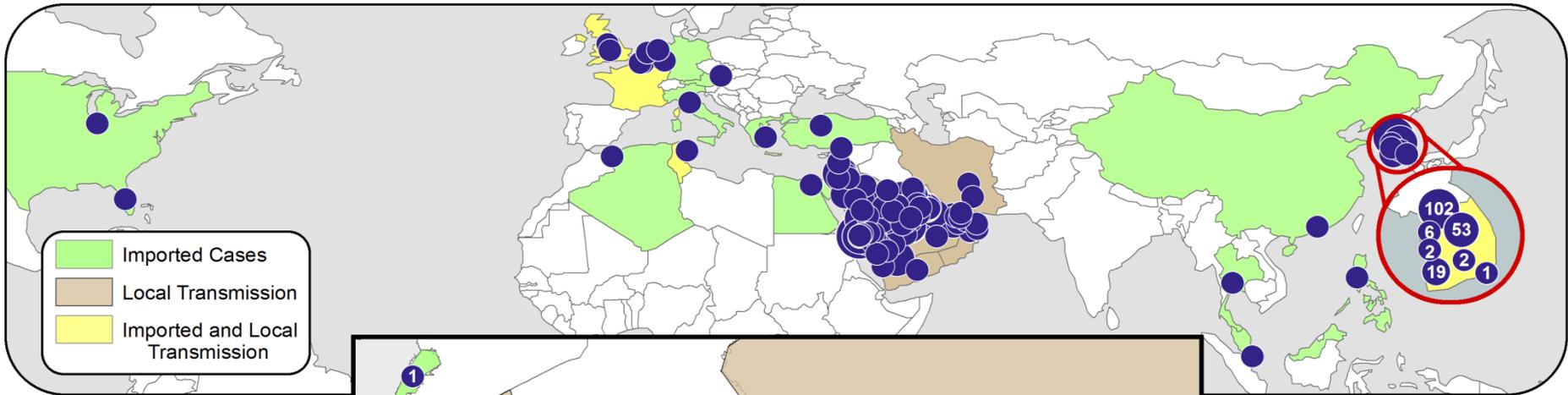


*Data includes confirmed, suspect and probable cases reported by WHO, CDC, and various country MOHs

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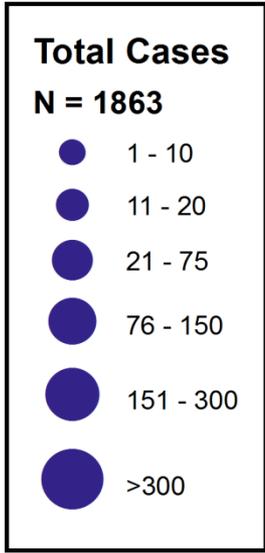
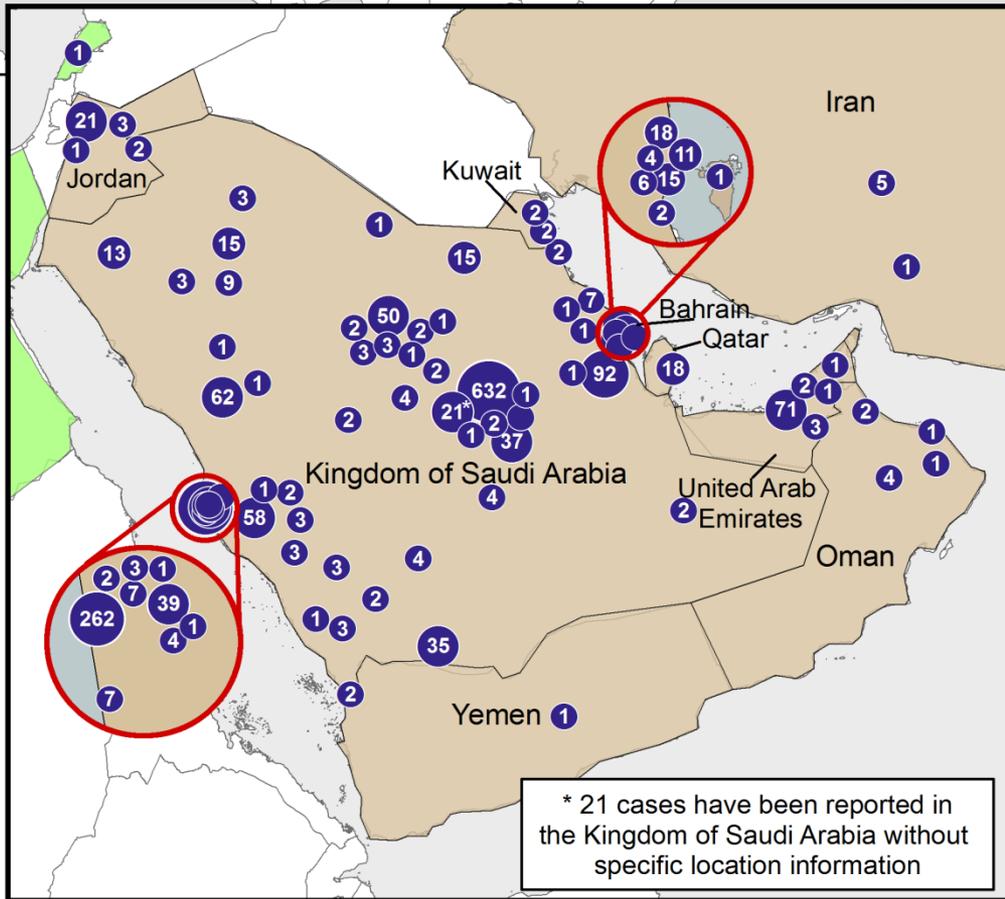


Geographic Distribution of MERS-CoV Cases

01 APR 2012 - 13 JUL 2016



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

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