## Current Event

MERS-CoV's Outbreaks Indicators

The Command and Control Centre (CCC) discussed proxy indicators for the emergence of MERS-CoV cases in the community..

Editorial Notes

Saudi Arabia has been repeatedly challenged by unprecedented and sporadic outbreaks of Middle East Respiratory Syndrome (MERS). There is dearth of knowledge on MERS-CoV risk factors of emergence. MERS did not depict a clear seasonal distribution; however, careful review of the outbreaks over the last three years highlighted the following indicators that could be used to pre-emptively abort occurrence of outbreaks, at least the major ones. The community-acquired primary cases of MERS have triggered a series of significant numbers of health-facility acquired infections.

Since its emergence, primary cases of MERS were greatly confined to five regions in Saudi Arabia: Jeddah, Riyadh, Al-Qassim, Al-Ahssa and the Eastern region. The rise in the number of emerging primary cases of MERS has been associated with the breeding season for camels. The two seasons when breeding peaks are: the main one during and immediately after the rainy season, lasting from July to September; and another occurring in December and January. The newly-born camels have more viruses than the adults; the very young animals that pose the greatest threat to humans. People will contract the virus when they come into contact with them or inhale their nasal secretions; e.g., behaviors like kissing camels, drinking raw milk, touching the nostrils and then touching your eyes. About 90% of animals became infected by the age of two and virus shedding was more common in calves than in adults. *(Figure 1)*

Figure 1: Camel-exposed Cases Versus Others
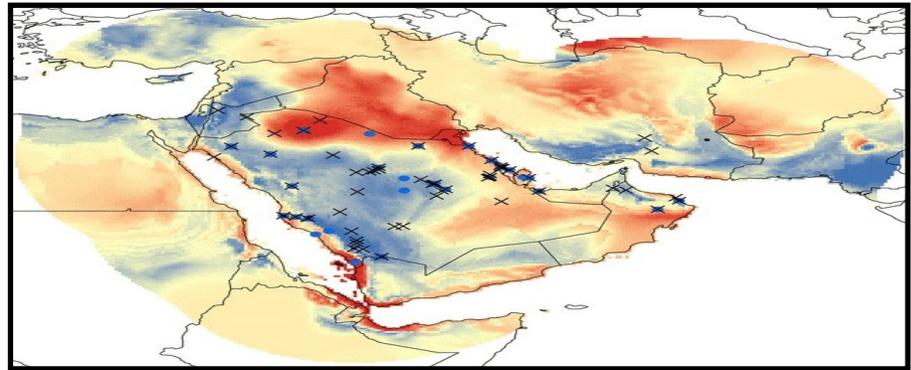
Map of difference between the two ecological niche models (one based on reported camel exposure versus one based on all reported cases). *Red* areas emphasized in the camel-exposed analysis, *blue* areas emphasized in the any-case analysis. *Dots* represent camel-exposed cases; X's represent any case occurrence.

Source: Reeves T, Samy AM, Peterson AT. MERS-CoV geography and ecology in the Middle East: analyses of reported camel exposures and a preliminary risk map. BMC Research Notes. 2015;8:801. doi:10.1186/s13104-015-1789-1.

Cases of MERS-CoV: International Week (IW) No. 3: 17 - 23 Jan 2016

Total	**2**
Symptomatic (S)	2
Asymptomatic (AS)	0
Healthcare worker (S)	0
Healthcare Worker (AS)	0

Recent Publications:

Borucki MK, Lao V, Hwang M, Gardner S, Adney D, Munster V, Bowen R, Allen JE. Middle East Respiratory Syndrome Coronavirus Intra-Host Populations Are Characterized by Numerous High Frequency Variants. PLoS One. 2016 Jan 20;11(1):e0146251. doi: 10.1371/journal.pone.0146251. eCollection 2016.

There is a need to intensify community-based health-educational programs during this camels breeding season targeting camel herders, workers at the slaughter houses among others. The movements of camels in the Kingdom need to be carefully monitored. Public health laws should bar slaughtering of camels outside the designated places. Doctors; especially those working at the emergency departments need to be alerted. Moreover, there is a need to develop and further improve an early warning systems for MERS. Ministries of Agriculture and Health need to maintain an active and integrated human and animal epidemiological and genomic surveillance with sensitive indicators to inform and guide effective preparedness **and response warrant further research.** There is an urgent need to establish an integrated and strategic evidence-based local and nationwide surveillance and response capacity.

MERS-CoV in KSA 2016*

Region	Case	Primary	Secondary	U.C.
Riyadh	0	0	0	0
Al-Ahsaa	0	0	0	0
Eastern Region	0	0	0	0
Jeddah (1)	1	1	0	0
Qassim (1)	1	1	0	0
Najran	0	0	0	0
Taif	0	0	0	0
Madinah	1	1	0	0
Asir	0	0	0	0
Tabuk	0	0	0	0
Makkah	0	0	0	0
Hail	0	0	0	0
Al-Joaf	0	0	0	0
Jazan	0	0	0	0
Northern Borders	0	0	0	0
Qunfotha	0	0	0	0
Al-Baha	0	0	0	0
Bisha	1	1	0	0
Hafr Al-Batin	0	0	0	0
Qurayyat	0	0	0	0
Total	*4*	*4*	*0*	*0*

Case: Confirmed Symptomatic. **U.C. :** Unclassified cases
*Period: Form 3 Jan to 16 Jan 2016
Regions with new cases of this week are highlighted in yellow.