

Incidence and Mortality Rate of "Middle East Respiratory Syndrome"-Corona Virus (MERS-CoV), Threatens and Opportunities

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Abstract

Background: Middle East Respiratory Syndrome (MERS) virus causing acute severe respiratory Diseases has been reported in 2012 in Saudi Arabia. Causative agent is corona virus which is called MERS-CoV. Confirmed cases of virus positive came to have MERS-CoV were presented with severe acute respiratory illness. Typically developed fever, cough, and shortness of breath. And almost half of the confirmed diagnosis was died so far, which revealed high mortality rate.

Objectives: To study the incidence and mortality rate of MERS-CoV, to identify main threatens and opportunities.

Methodology: MEDLINE and CINAHL electronic databases were searched using a pre-defined search strategy. Additional references from the bibliographies of retrieved articles were also reviewed and experts in the area were contacted.

Selection Criteria: Only original research articles on MERS-CoV incidence.

Search Result and Quality Assessment: The initial literature search identified 47 papers. Of these, 9 original articles met the selection criteria, and directly related. All were type II evidence-population-based clinical MERS-CoV Studies. The methodological qualities of included studies were assessed using the Downs and Black checklist. systematic review of the relevant literature, using specific search engine strategies and specific key words, out of 47 research only 9 original articles were only included.

Results: Since 2012 the cases has been reported in 21 countries, yet most of the reporting still come from Arab Peninsula region, almost 842 cases has been reported, about 322 case were died, main countries affected by the disease is Saudi Arabia 714 cases reported among which 292 (40 %) were died and UAE as 71 cases were diagnosed among which 9 were died (21.6%), So far, all the cases have been linked to six countries in or near the Arabian Peninsula. And 2 cases have been identified in the U.S. This virus has spread from ill people to others through close contact. However, the virus has not shown to spread in a sustained way in communities. The situation is still evolving.

Conclusion: The disease is taking propagating epidemic curve and trending towards more spreading and adding more and more cases at the beginning of the epidemic, by time increasing number of index cases led to change to new epidemiological curve pattern into explosive curve, Recommendations, Breaking transmission chain at its main weak point is highly recommended, health care professionals with direct concern needs to do deep Gap analysis studies to address why the virus still circulating and propagating in spite of all advanced preventive and control measures applied so far, and the main question needs to be addressed here is how to reach sources of infections and to breaking down the transmission chain, CDC is working with partners to better understand the risks of this virus, including the source, how it spreads, and how infections might be prevented.

Keywords: MERS-CoV; Threatens; Opportunities

Introduction

Corona viruses are species in the genera of virus belonging to one of two subfamilies Coronavirinae and Torovirinae in the family Coronaviridae [1,2]. Corona viruses are enveloped viruses with a positive-sense RNA genome and with a nucleocapsid of helical symmetry. The genomic size of corona viruses ranges from approximately 26 to 32 kilo bases, extraordinarily large for an RNA

virus. The name "corona virus" is derived from the Latin corona, meaning crown or halo, and refers to the characteristic appearance of virions under electron microscopy (E.M.) with a fringe of large, bulbous surface projections creating an image reminiscent of the solar corona. In 2003, following the outbreak of Severe acute respiratory syndrome (SARS) which had begun the prior year in Asia, and secondary cases elsewhere in the world, the World Health Organization issued a press release stating that a novel corona virus identified by a number of laboratories was the causative agent for SARS. The virus was officially named the SARS corona virus (SARS-

CoV). The epidemic resulted in over 8,000 infections, about 10% of which resulted in death [3]. X-ray crystallography studies performed at the Advanced Light Source of Lawrence Berkeley National Laboratory have begun to give hope of a vaccine against the disease "since [the spike protein] appears to be recognized by the immune system of the host [4,5]". In September Objectives: to study the incidence and mortality rate of MERS-CoV, to identify main threats and opportunities.

Methodology

MEDLINE and CINAHL electronic databases were searched using a pre-defined search strategy. Additional references from the bibliographies of retrieved articles were also reviewed and experts in the area were contacted. Selection Criteria: Only original research articles on incidence of Search Result and Quality Assessment: The initial literature search identified 47 papers. Of these, 9 original articles met the MERS-CoV selection criteria, and directly related to the All were type II evidence—population-based clinical MERS-CoV. Studies. The methodological qualities of included studies were assessed using the Downs and Black checklist. systematic review of the relevant literature, using specific search engine strategies and specific key words, out of 47 research only 9 original articles were only included.

Results and Discussion

From 2012, what is believed to be a sixth new type of coronavirus, tentatively referred to as Novel Coronavirus 2012 [6], being like SARS (but still distinct from it and from the common-cold coronavirus) was discovered in Qatar and Saudi Arabia [7]. The World Health Organization has accordingly issued a global alert [8] and an interim case definition to help countries to strengthen health protection measures against it [9]. The WHO update on 28 September 2012 said that the virus did not seem to pass easily from person to person [10]. However, on May 12, 2013, a case of contamination from human to human in France was confirmed by the French Ministry of Social Affairs and Health [11]. In addition, cases of person-to-person transmission have been reported by the Ministry of Health in Tunisia. Two confirmed cases seem to have caught the disease from their late father, who became ill after a visit to Qatar and Saudi Arabia. On Oct. 30 2013, Oman officials announced the first case in this sultanate. So far (as of Oct. 30 2013), there have been one hundred and twenty four cases and fifty two deaths in Saudi Arabia [12,13]. After the Dutch Erasmus Medical Centre sequenced the virus, the virus was given a new name, Human Corona Virus-Erasmus Medical Centre (HCoV-EMC). The final name for the virus is: Middle East respiratory syndrome corona virus (MERS-CoV). On 14th April 2014 - WHO has been informed of an additional 16 laboratory-confirmed cases of infection with Middle East respiratory syndrome corona virus (MERS-CoV) from Saudi Arabia and the United Arab Emirates (UAE). The 15 additional laboratory-confirmed cases, including two deaths announced on the Ministry of Health of Saudi Arabia website and provided to WHO between 6 and 11 April include: A 57 year-old man from Riyadh with underlying medical conditions. He became ill on 16 March, was admitted to a hospital on 19 March and died on 30 March. Four men aged 29, 33, 34 and 70 years old from Jeddah. Additionally,

a previously laboratory-confirmed case has died. The concerned health authorities in Saudi Arabia are currently conducting investigations into the contacts of the cases. Globally, from September 2012 to date, WHO has been informed of a total of 842 laboratory-confirmed cases of infection with MERS-CoV, including 322 deaths?

Current update as per (European CDC) up to 2nd of July Table 1 and Figures 1 & 2.

Region/country	Cases	Deaths	Date of onset/reporting for most recent case
Middle East			
Saudi Arabia	714	292	01-07-2014
United Arab Emirates	71	9	11-06-2014
Qatar	7	4	04-11-2013
Jordan	18	5	23-05-2014
Oman	2	2	20-12-2013
Kuwait	3	1	07-11-2013
Egypt	1	0	22-04-2014
Yemen	1	1	17-03-2014
Lebanon	1	0	22-04-2012
Iran	3	1	27-05-2014
Europe			
UK	4	3	06-02-2013
Germany	2	1	08-03-2013
France	2	1	08-05-2013
Italy	1	0	31-05-2013
Greece	1	0	08-04-2014
Netherlands	2	0	05-05-2014
Africa			
Tunisia	3	1	01-05-2013
Algeria	2	1	24-05-2014
Asia			
Malaysia	1	1	08-04-2014
Philippines	1	0	11-04-2014
Americas			
USA	2	0	01-05-2014
Total	842	322	

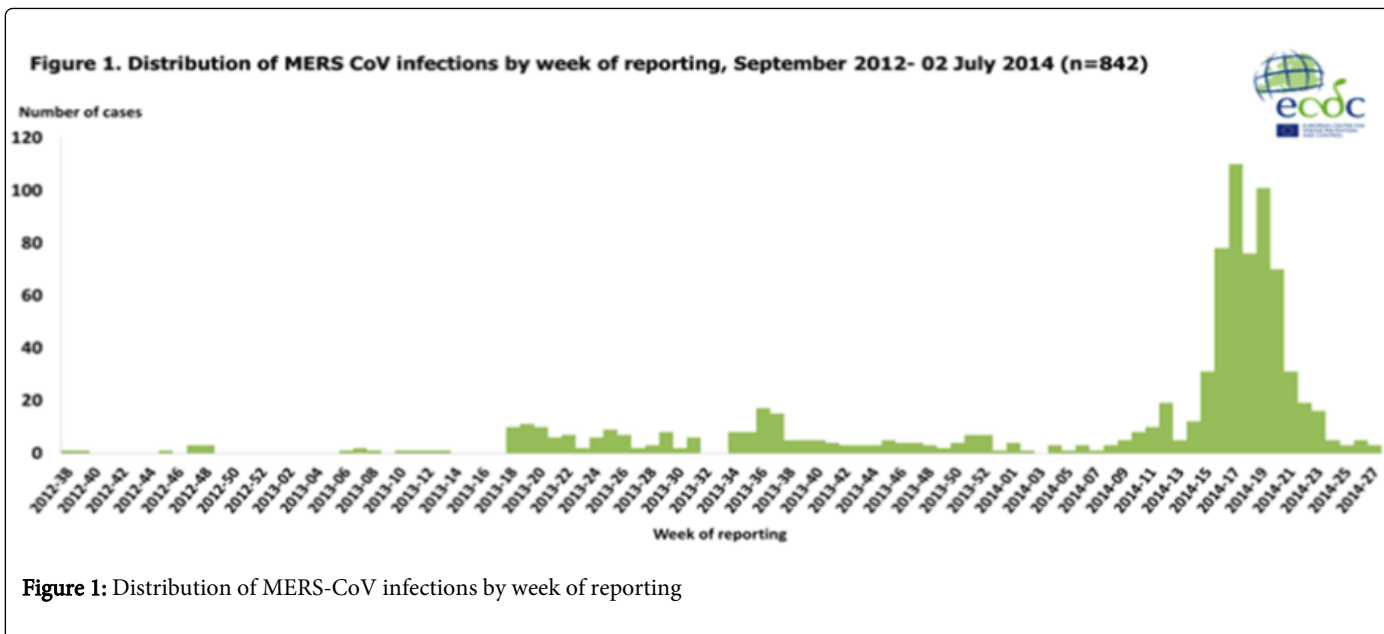


Figure 1: Distribution of MERS-CoV infections by week of reporting

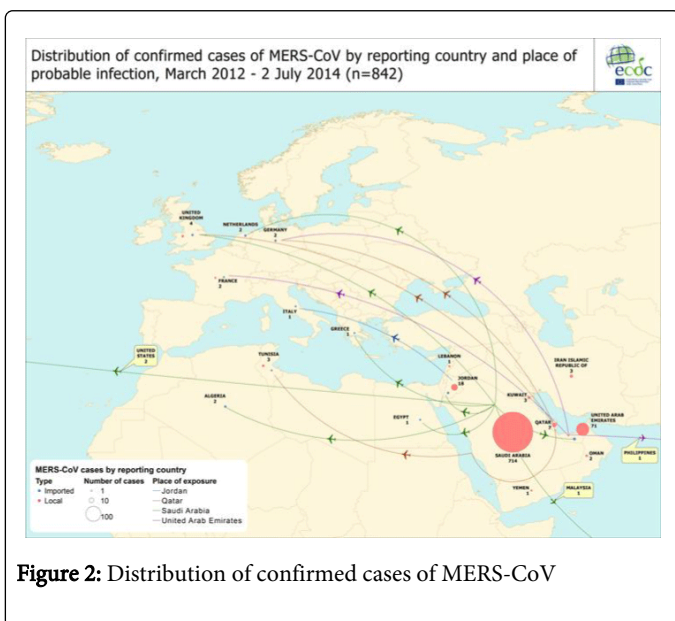


Figure 2: Distribution of confirmed cases of MERS-CoV

addressed here is how to reach sources of infections and to breaking down the transmission chain, CDC is working with partners to better understand the risks of this virus, including the source, how it spreads, and how infections might be prevented.

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Conclusion

The diseases is taking propagating epidemic curve and trending towards more spreading and adding more and more cases, by time increasing number of index cases will led to change to new epidemiological curve pattern, where to be changed to explosive epidemic curve which is considered to be quite threatening when it comes to Corona Virus as the case fatality rate is extremely high and mortality rate is almost reach up to 40%.

Recommendation: Health care professionals with direct concern needs to do deep Gap analysis studies to address why the virus still circulating and propagating in spite of all advanced preventive and control measures applied so far , and the main question needs to be