DECLARATION OF EPIDEMIC PUBLIC HEALTH WITH NOVEL CORONAVIRUS

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Abstract

Coronaviruses (CoV) are broad enveloped RNA viruses in humans and animals are mostly correlated with enteric and respiratory problems. Within the last decades, incidents of high death rate triggered by the spread of CoV from animals to humans have occurred. Certain pathogen city of CoV is known species-dependent as with the extent of infection; Complications typically appear in closely associated human hosts. Epidemiologists assume that the SARS virus arose in bats (natural reservoirs hosts) that were transferred to persons in Wuhan, China. Presently, the available diagnostic tests are aimed at the traditional early detection of the causes of pneumonia, promote disease prevention efforts and collaborate with research laboratories that can conduct pan coronavirus detection or controlled sequencing. No vaccine is sufficient to protect toward coronaviruses. Also there is no clear treatment for corona virus disease. Patients take comprehensive medication in clinics and typically heal on their own after several times. A vaccine can take up to 45 months to develop. Let's stay safe during this period of time.

Keywords: Coronaviruses, Spreading, bats, diagnostic, vaccine

Introduction

The WHO declares a Global Health Disaster of International Interest anytime there is an "extraordinary occurrence should be determined to pose a public health danger to other countries by the transmission. "Of epidemic internationally."

Five global public health crises have also been declared:

- **Swine flu, 2009 -**

The transmission of the H1N1 virus around the world in 2009, killing greater than 200,000 people.

- **Polio, 2014 –**

While nearer than ever to eliminate in 2012, polio number s increased in 2013.

- **Zika, 2016 -**

The WHO recorded Zika a global health emergency in 201 after the infection spread quickly across the Americas.

- **Ebola, 2014 and 2019 –**

The first epidemic outbreak lasted between August 2014 to March 2016, when nearly 30,000 people were diagnosed which is more than 11,000 died in West Africa. There was a second emergency proclaimed last year as a series of outbreaks in DR Congo (1)

What is the novel Coronavirus?

Coronaviridae is a diver's family of, enveloped, positive-Single-stranded RNA viruses with 27-32 kb genome that imparts a large degree of gene plasticity and, part of that,,

flexibility and biodiversity to CoV. Coronaviruses (CoV) cause infections starting from common colds to more serious diseases such as severe acquired respiratory syndrome (SARS). coronaviruses Spherical (120-160 nm) due to the presence of spike glycoproteins. Behave as unusual crowns (2). They get a unique replication mode that generates a collection of subgenomic mRNAs using the transcription switching process design. From the point of view of human disease, coronavirus experiments were initially considered "backwater virology" Then they were more of the veterinary income due to deadly diseases in livestock often Associated with dairy and meat products or domestic uses (3) (4).

There are already 7 classes of coronaviruses known by the CDC, including: common human coronaviruses

1. 229E (alpha coronavirus)
2. NL63 (alpha coronavirus)
3. OC43 (beta coronavirus)
4. HKU1 (beta coronavirus)
5. MERS-CoV (beta coronavirus causing the Mideast Respiratory Disorder or MERS)
6. SARS-CoV (Beta coronavirus triggering severe acute respiratory disorder, or SARS)
7. 2019 Novel Coronavirus (2019-nCoV) (5).

Coronaviruses proteins structural

Spike (S) it's a broad (17-20 nm, 1128-1427 aa, mol. Amount 150-180 kDa) petal shaped type I Membrane protein

1) That integrates infected cells membrane complexes, triggers Membrane fracture as well as being a major target of CoV neutralization antibodies (6). It appears as a mature homotrimer from each monomer containing many functional and structural domains.

The globular N-terminal S1 domain is extremely variable amongst the CoV family, regulates receptor identification and is essential for both the modified virulence factors and antigenicity of the CoV species. (7). the proximal stem of the membrane, S2, is more preserved and contains two heptad-repeat (HR) regions (Fig1)

Figure 1: Transmission electron micrograph (TEM) of a number of *Coronaviridae* family members.

The coiledcoil configuration implicated well into the viral cell fusion reaction during the entrance of the virus into the cells. S1 and S2 regions create a single polypeptide which could be broken down by host enzymes, and the degree of the sideboob relies on both the host kind and differs among CoVs. Spike from many other CoVs of a Alpha genus were not divisible, although few as canine invasive peritonitis virus (FIPV) Could trigger cell-cell fusion (8,9).

The source of Coronavirus

- Present estimates of the virus incubation duration vary from 2 to 10 days, and these ranges will be improved as more evidence is available. Understanding that compromised patients can spread this virus for others is crucial to containment efforts.
- The new coronavirus (nCoV) correlated with this epidemic is quite close to the SARS (Severe Acute Respiratory Disorder) that occurred in 2003 and the MERS (Middle East Respiratory Disorder) that emerged in 2012. It is nothing like Ebola, which is caused by a different virus type altogether (Filoviridae). Ebola spreads from person to person by contact with bodily fluids from infected individuals (10).
- Novel Coronavirus 2019 is a virus that has been reported as the major cause of an epidemic of respiratory disease first observed in Wuhan, China. Initially as shown in Fig (2),
- There was a correlation between the animal marketplace and the wide demand for seafood, which indicated that it had expanded from animal to human.
- However, since an increasing number of patients without exposure to the animal market have contracted the disease, a person has been shown to be transmitted to each other (11).
- A first infection was identified at the beginning of December 2019. It is still uncertain how quickly or sustainably that virus can transmit among humans.
- WHO (World Health Organization) has described it as a novel strain of the virus (Novel Coronavirus (2019-nCoV)) at the end of January 2020. There have been 300 reported cases in China. International airports across the world have begun to test for signs and little cases have been recorded in Japan, India, Thailand, Canada, Germany and the United States (12).

Figure 2: Novel Coronavirus 2019 first observed in Wuhan, China. Initially

From the bats to the snakes

- The scientists is using an assessment of the proteins codes preferred by the latest coronavirus and contrast ed it with the proteins codes of coronaviruses associa ted with different animal species, such as ducks, rode nts, marmots, hedgehogs, manes, bats and human (13).
- Snakes also hunt in the wild for bats. Reports have su ggested when snakes was sold on a local seafood sect or in Wuhan, increasing the likelihood that 2019nCoV may have transferred from the host organism — bats to snakes then to humans at the start of this coronavirus epidemic. Coronavirus: Snakes purchased on the Wuhan marketplace may have sparked a fatal outbreak. (14).
- Snakes including the Chinese cobra and Chinese krait i s perhaps the source of the recently discovered coron avirus that caused the epidemic of fatal infectious res piratory illnesses in China this winter.
- The multibanded krait, also identified as Taiwanese kr ait, is indeed a deadly poisonous species of snakes dis tributed in most of Southern and central China and So utheast Asia.
- The disease was first identified in Wuhan, a main tow n in central China, at the end of December 2019 and h as spread rapidly. Then, sick passengers from Wuhan have contaminated people in China and many countri es, like the United States (15).
- COVID-19 Spreading
- The virus COVID-19 tends to spread quickly and efficiently in the popul ation. Virus spreads from person to person can differ. The virus is believed to transmit primarily from individ ual to individual. Among persons who are in direct co ntact with each other (within around 6 feet) or via the respiratory droplets created whenever an infected in dividual sneezes or coughs. These droplets that fall in t he eyes, mouth or noses of anyone nearby or probabl y inhaled through the lungs (16). In addition anybody can transmit the virus without even being infected.
- People are considered as being the most infectious be cause they are the most exhibiting signs (the sick). • T his transmission may be possible until people are sho wing symptoms; this has been confirmed with that ki nd of novel coronavirus, but that is not believed the b est way for virus spreads. (17).
- Spread from touch with contaminated surfaces or ma terials It could be probable for a person to get COVID1 9 by contacting a surface or substance which includes a virus on it and also contacting their nose, eyes or m outh , but that is not considered to become the major route this virus spreads (18).
- Laboratory Diagnosis:
- Presently, the available Diagnostic Examination are aimed at the traditional early detection of the causes of pneumonia promote disease prevention efforts and collaborate with research laboratories that can c onduct pan coronavirus detection or controlled seque ncing (19). The suggested diagnostic procedures shall be included;
- Discovery of a virus in epithelial cells in human airwas
- Use of the pancoronavirus test for amplification accompanied by a Real-Time Reverse Transcription (RT)-PCR check intended to identify viral sequences.

- Entire genome sequencing examination by bioinformatics, particularly phylogenetic tree building, to differentiate the features of 2019-nCoV from many other coronaviruses
- Serological studies to validate immune responses to a particular virus, e.g. 2019nCoV, cytokine recognition, assessment and quantification. (20)

Who is to be screened for coronavirus?

Patients who have a rapid onset of at least one of the above:

- cough
- sore throat,
- shortness of breath
- AND followed at least one of the following guidelines 14 days before the onset of symptoms.
 - has close contact with such a 2019-nCoV patient (health related access, worked together during Close proximity or having the same classroom environment, commuting together in every kind of conveyance, residing in same household);
 - has a background of traveling to places of continuing population spread of 2019-nCoV;
 - has operated in or visited a healthcare facility whereby patients with 2019-nCoV infections have been diagnosed (21, 22).

Vaccine Development

No vaccine is sufficient to protect toward coronaviruses. Also there is no clear treatment for coronavirus disease. Patients take comprehensive medication in clinics and typically heal on their own after several time. • You can consider having a flu vaccine before you visit a country where most are reported or suspicious cases to protect you from developing flu symptoms that may deceive the temperature control authorities.(23).

Australian scientists are using "molecular clamp technologies developed by university scientists that helps researchers to quickly develop new vaccines solely based on a DNA sequencing of the virus.. French researchers at the Pasteur Institute are improving the measles vaccine to function toward coronavirus, but do not anticipate it to be available for around 20 months. Furthermore, according to the state-run news outlet Xinhua, the Chinese Institute for Disease Control and Prevention has already begun developing vaccines. A vaccine can take up to 45 months to develop. Let's stay safe during this period of time (24).

Emergency recommendation convened by the WHO

- The Committee desired to reemphasize the significance of researching the potential cause to exclude secret communication and to advise risk management initiatives.
- The Committee further highlighted the need for increased monitoring in areas outside Hubei, particularly pathogen

gene sequencing, to consider how local transmission cycles are occurring (25).

- The WHO will proceed using its network of technical experts to determine how well this epidemic can be managed worldwide.
- The WHO must provide enhanced assistance for preparedness and reaction, particularly in vulnerable regions and countries.
- Policies to guarantee development and accessibility to possible vaccinations, treatments, antiviral drugs as well as other medicinal goods for small- and middle-income communities should be established (26)
- The WHO will proceed to provide all required logistical and organizational assistance to react to this epidemic, including through its extensive network of collaborators and partnering organizations, the introduction of a robust risk marketing strategy and the development of research and technological advances in regard towards this new coronavirus (27).
- The WHO will continue to investigate the advisability of establishing an adequate level of warning and between binary proposals of PHEIC or PHEIC, in a manner which does not entail the re-opening of discussions on the IHR document (28).

- The WHO will evaluate the situation in a timely manner with consistency and improve its proof-based advice.

- This Committee does not propose any transport or exchange limits on the basis of the latest evidence available (2)

CONCLUSIONS:

- Corona virus is present in all mammals. The history of the CoV was discussed extensively and the bats were listed early due to the close phylogeny between certain CoV species.
- There is growing evidence of an animal reserve in dromedary bats. Transmission is probably related to direct contact or to the consumption of bats as food products.
- Infection of Nosocomial is a critical health risk for human to human spreading, prevention strategies for Infection are therefore essential to deter the potential transmission of CoV inside health facilities.
- Contact precautions involving protection of Eye must be applied to the diagnosis of reported or documented cases of CoV infection.
- No clear treatment for coronavirus disease. Researchers are begun developing new vaccines for coronaviruses.

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