CORONAVIRUS

ALL YOU NEED TO KNOW

Coronaviruses are a large group of viruses that are common among animals. In rare cases, they are what scientists call zoonotic, meaning they can be transmitted from animals to humans.

The viruses can make people sick, usually with a mild to moderate upper respiratory tract illness, similar to a common cold.

Coronaviruses are the largest RNA viruses

They infect humans and animals in which they cause respiratory and enteric diseases.

Coronaviruses cause about one third of "common colds" and the newly recognized Severe acute respiratory syndrome (SARS).

Epidemiology

Most people harbor anti-coronavirus antibodies but reinfection is common indicating that there are many circulating serotypes of the virus in the human population.

Major outbreaks occur every few years with a cycle that depends on the type of virus involved.

Pathogenesis

Coronaviruses cause respiratory and enteric disease in a variety of animals.

In humans, the major site of virus replication is the epithelial cells of the respiratory tract about one-third of colds are caused by coronaviruses.

The **symptoms are runny nose, sore throat, cough, headache, fever, chills** etc.

Incubation period 3 days.

Viral spread is limited by the immune response of most patients but this immunity is short-lived.

Severe acute respiratory syndrome (SARS)

In late 2002, a new syndrome was observed in southern China (Guangdong Province).

It was named severe acute respiratory syndrome (SARS).

This disease, has now been reported in Asia, North America, Africa and Europe.

Symptoms may last about a week with considerable variation between patients.

Often there are no apparent symptoms but the patient still sheds infectious virus

Transmission is by transfer of nasal secretions such as in aerosols caused by sneezes.

Viruses that infect epithelial cells of the enteric tract cause diarrhea.

Many patients have abnormal chest radiographs.

Some cases progress rapidly to acute respiratory distress, requiring ventilatory support.

Death from progressive respiratory failure occurs in almost 10% of cases, with the death rate highest among the elderly.

The SARS coronavirus causes severe respiratory disease.

The incubation period averages about 6 days.

Common early symptoms include fever above 380C, malaise, chills, headache, dizziness, cough, and sore throat, followed a few days later by shortness of breath.

It has been shown that SARS coronavirus can be airborne in a health care setting, suggesting that airborne transmission might occur.

SARS contamination of frequently touched surfaces, such as a bed table (fomites), has been observed also.

Serology

Because of the difficulty of virus isolation, serodiagnosis using acute and convalescent sera is the practical means of confirming coronavirus infections.

ELISA and **hemagglutination** tests may be used.

SARS virus RNA was detectable in plasma by PCR, with viremia most readily detectable between days 4 and 8 of infection.

Isolation of human coronaviruses in cell culture has been difficult.

However, the SARS virus was recovered from oropharyngeal specimens using Vero monkey kidney cells.

PREVENTION

There are currently no vaccines available to protect you against human coronavirus infection. Transmission is reduced thru:

- Washing your hands often with soap and water
- Avoiding touching eyes, nose, or mouth with unwashed hands
- Avoiding close contact with people who are sick

If you are mildly sick, keep yourself hydrated, stay at home, and rest.

If you are concerned about your symptoms, you should see your healthcare provider.

Laboratory Diagnosis

Antigen and Nucleic Acid Detection

Coronavirus antigens in cells in respiratory secretions may be detected using the ELISA test if a high-quality antiserum is available.

Enteric coronaviruses can be detected by examination of stool samples by **electron microscopy**.

Diagnosis

Most coronavirus infections go undiagnosed and the disease is self-limiting.

Diagnosis can be carried out using immuno-electron microscopy and serology.

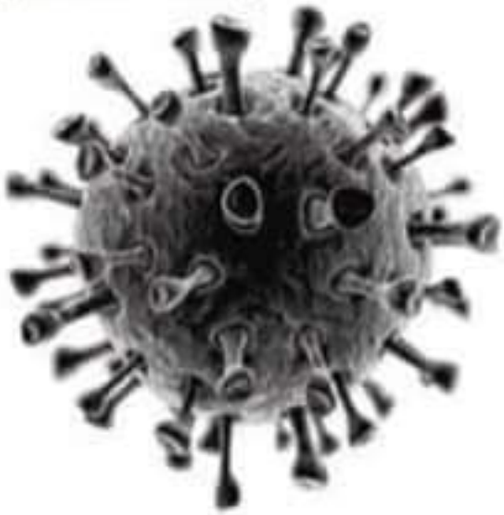
There are no anti-viral for routine coronavirus infections but over-the-counter remedies to alleviate symptoms are useful

WHAT IS THE CORONAVIRUS?

These are a large family of viruses that cause illnesses from the common cold to more severe diseases such as MERS and SARS

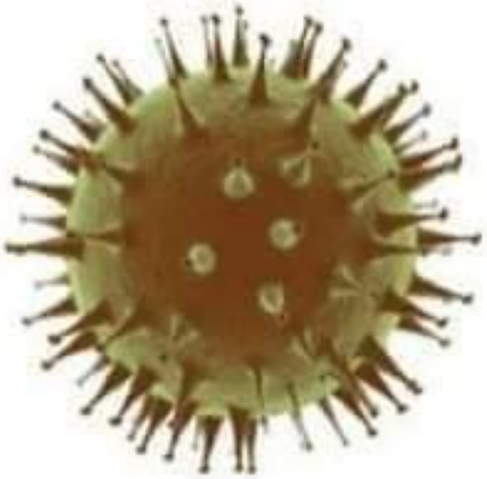
OTHER RECENT EPIDEMICS

Middle East Respiratory Syndrome (MERS-CoV)



- First identified in Saudi Arabia in 2012
- Over 800 killed in Middle East since
- From dromedary camels to humans

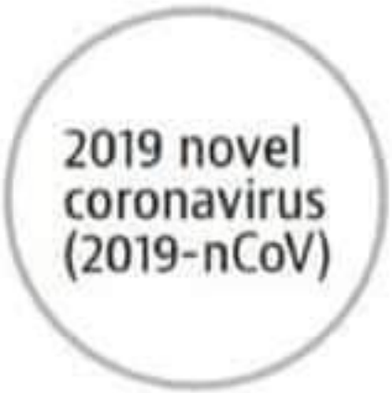
Severe Acute Respiratory Syndrome (SARS-CoV)



- Identified in 2003, first infected humans in China in 2002
- Killed nearly 650 people in China/ Hong Kong 2002-2003
- Thought to be from bats, spread to civet cats to humans

NEW STRAIN

New China strain SARS-like virus



- First identified in late December 2019 in Wuhan, China
- Hundreds of cases detected in China, a number of deaths. Cases detected in Japan, Thailand, South Korea
- Seafood/animal market in Wuhan is centre of outbreak. Human-to-human transmission confirmed by Chinese

VIRUS ALERT

What is coronavirus?

Coronaviruses are a large family of viruses that cause illness in humans and animals. In people, coronaviruses can cause illnesses ranging in severity from the common cold to Severe Acute Respiratory Syndrome (SARS).

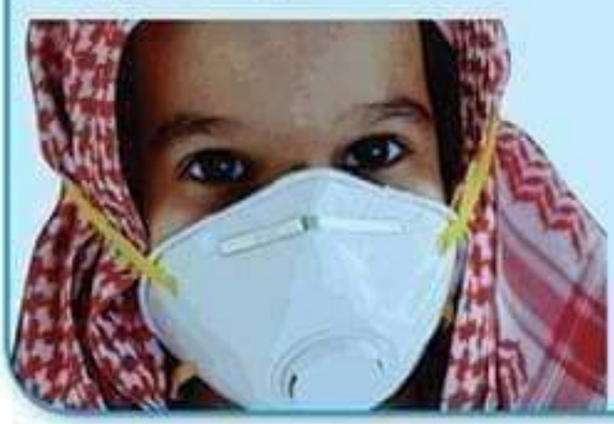
This new coronavirus is now known as Middle East respiratory syndrome coronavirus (MERS-CoV).

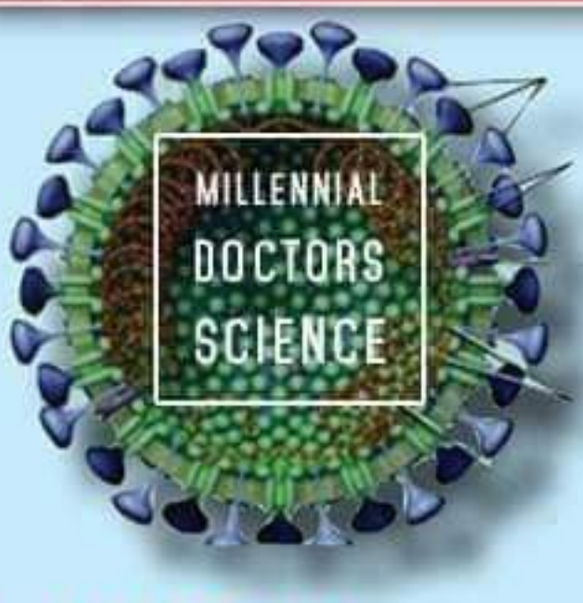
What are the symptoms?

- Fever
- Cough
- Breathing difficulties
- Most patients have had pneumonia.

In some cases: Diarrhea

In advanced cases: Respiratory Failure





How MERS-CoV is transmitted?

- Mingling with affected people
- Droplets from coughs or sneezes
- Germs are often spread when a person touches something that is contaminated with germs and then touches his or her eyes, nose or mouth.

Is there a vaccine or treatment for MERS-CoV?

No.

No vaccine is currently available.

Treatment is largely supportive and should be based on the patient's clinical condition.