Severe Acute Respiratory Syndrome (SARS)

What is SARS?
Severe acute respiratory syndrome (SARS) is a rapidly spreading, potentially fatal infectious viral disease. In February 2003, the World Health Organization (WHO) announced the first SARS outbreak, which ended in July 2003. During the outbreak, SARS spread to more than two dozen countries in Asia, Europe, and North and South America. According to WHO, more than 8,400 people became ill and 813 died from the 2003 SARS outbreak. In the United States, health officials reported eight cases with lab results indicating infection, but no deaths.

Although they were dealing with a newly-discovered virus that behaved differently than other known viruses, world health officials were able to contain the SARS epidemic within a few short months. In order for another SARS outbreak to emerge, the SARS virus would need to be transmitted from an animal source, a laboratory accident, or humans who have not been rapidly diagnosed, isolated, and treated. China has reported a few cases of SARS since December 2003. Chinese health care professionals have heightened awareness of symptoms and are prepared to use proper infection control measures to prevent another outbreak.

What causes SARS?
A virus known as SARS-associated coronavirus (SARS-CoV) causes the illness. When viewed under a microscope, coronaviruses are a group of viruses that look like they have crowns or halos. Coronaviruses commonly cause mild to moderate upper-respiratory illness in humans, but can cause respiratory, gastrointestinal, liver, and neurologic diseases in animals.

As researchers quickly rushed to stop the spread of SARS in 2003, they learned more about the characteristics of SARS-CoV, which had never been identified before. While they still have not confirmed the disease's origin, many believe SARS-CoV first occurred in animals and then spread to humans. In humans, the virus' incubation period from exposure to infection is two to seven days, although infection has taken as long as 10 days in some cases. However, not everyone exposed to the disease becomes ill. Scientists from around the world are collaborating to gain a better understanding of the cause of SARS.

What are the symptoms of SARS?
SARS can be difficult to recognize because it mimics other respiratory diseases, such as influenza. It generally begins with a fever higher than 100.4° F (38° C) and one or more of the following symptoms:

- headache
- overall feeling of discomfort
- body aches and chills
- sore throat
- cough
- difficulty breathing
- shortness of breath
- hypoxia (insufficient oxygen in the blood)
- diarrhea (for 10 percent to 20 percent of patients)

The symptoms of SARS may resemble other medical conditions. Always consult your physician for a diagnosis. Experience with the 2003 outbreak indicates that one-third of patients with SARS improve quickly. However, two-thirds have persistent fever, increasing shortness of breath, worsening of respiratory problems, and the onset of diarrhea. As the disease progresses, about 20 percent to 30 percent of patients develop pneumonia or acute respiratory distress syndrome and require hospitalization.
How does SARS spread?
SARS-CoV spreads from one person to another mainly through close contact with a SARS patient. When a person with SARS coughs or sneezes without covering his or her mouth, respiratory droplets containing living virus can spray up to 3 feet and invade the mucous membranes of another person. Individuals in close contact with someone with SARS are most at risk, which means they live or work with someone with SARS or have direct contact with the person through kissing, hugging, or sharing eating utensils. The virus also can spread when an individual touches an object with infectious droplets on it and then touches his or her mouth, nose, or eyes. It is not known whether SARS can spread more broadly through the air.

Research suggests that SARS patients are infectious only when they are experiencing symptoms, such as fever or cough. They are most infectious during their second week of illness. As a precaution, the CDC recommends that SARS patients stay in isolation at home or in the hospital to keep others from getting sick. They should stay home from work or school for 10 days after their symptoms have gone away. Some individuals have been exposed to SARS, but have not become ill or may not yet be ill. In 2003, health authorities in the US and Canada recommended that exposed individuals monitor their temperature and health status for 10 days. In addition, these individuals were asked to follow careful precautions to prevent spreading the virus, such as staying home, washing hands frequently, covering the mouth and nose when coughing or sneezing, and contacting a physician should symptoms appear.

Treatment for SARS:
Research is currently underway to develop an effective antiviral drug for SARS-CoV. Until then, SARS patients may receive the same treatment that any patient with severe atypical pneumonia might receive. This treatment is mainly supportive therapy, with oxygen and fluids to help ease symptoms, and antibiotics to help prevent or treat secondary infections.

Preventing SARS:
Currently, there is no vaccine available to prevent SARS. The CDC recommends taking the following steps toward prevention of SARS:

- Wash your hands regularly with warm water and soap.
- Avoid touching your eyes, nose, and mouth.
- Use a disposable tissue instead of your hands to cover your mouth when you cough, and throw it away immediately after use.
- Follow public health recommendations if you are in the area of an epidemic.

Experts from CDC and WHO rely on rapid diagnosis of SARS to prevent it from spreading and infecting additional persons. Worldwide advisories help identify individuals at risk of developing SARS because of exposure to ill persons. During the 2003 SARS outbreak, quarantines were used as a public health measure to stop the spread of SARS. CDC and WHO continue to partner in a global effort to address SARS and prevent future outbreaks. Always consult your physician for more information.