SARS Fact Sheet

Definition
Severe acute respiratory syndrome (SARS) is caused by the newly described SARS-associated coronavirus (SARS-CoV), an RNA virus. Certain coronaviruses are a common cause of mild to moderate upper-respiratory illness in humans and have been linked to pneumonia in vulnerable populations. In animals, coronaviruses are known to cause severe respiratory, neurological, gastrointestinal and liver disease.

Significance
SARS is the first newly emerging, severe and readily transmissible infectious disease of the 21st century.

History
Evidence suggests that SARS emerged in the Guangdong Province in southern China in November 2002. More than 33 percent of the cases reported before February 1, 2003 involved people who handled, killed or sold wildlife destined for human consumption, or prepared and served such food.

As of August 7, 2003, a total of 8,422 cumulative probable cases and 916 deaths were reported in 29 countries. Approximately 5,324 cases and 349 deaths were reported from Mainland China. In the face of an emerging epidemic and pandemic, Singapore was the first city to begin mass quarantines, isolating a total of 8,000 people and threatening them with jail fines if they left home. The World Health Organization (WHO) declared the outbreak over on July 5, 2003.

As of January 15, 2004, one confirmed case and two suspect cases of SARS have been reported in the Guangdong Province of southern China. The suspect cases are undergoing further testing.

Cause and Transmission
The disease’s spread appears to be primarily through direct mucous membrane exposure (eye, nose, mouth) to infectious respiratory droplets and/or contact with contaminated objects such as clothing or dishes.

Transmission can be prevented to a large degree by basic infection and public health control measures, such as rapid identification and reporting of cases, case isolation, tracing of contacts, basic hand washing and the use of personal protective equipment.

Animal Link
Evidence links SARS with the handling and slaughter of wildlife for human consumption in southern China. A survey of wildlife taken from open markets in the region found coronaviruses in masked palm civets and raccoon dogs that were very similar to SARS-CoV. Another species, the Chinese ferret badger, showed antibodies against SARS-CoV. Other species that have tested positive include cynomologus macaques, fruit bats, snakes and
wild pigs. Although these species may have acquired the virus from other, yet unidentified, species, the data suggest that some of these species may be functioning as intermediate hosts that enable the virus to cross species to humans through Chinese culinary practices. Of 508 animal handlers tested in the Guangdong markets, 66 were serologically positive, i.e., infected but did not develop disease. This indicates that SARS-CoV exists outside a human host.

Environmental contamination, with possible animal vectors, was implicated in the transmission of SARS-CoV in some multiple living unit complexes in Hong Kong. In these instances, several companion animals (dogs and cats) tested positive for SARS-CoV. Cockroaches carried the virus on their body surfaces and in their gut contents and may have acted as mechanical vectors.

**Prevention and the Search for a Vaccine**
The origin of SARS-CoV is unknown, meaning that early identification and containment of the next outbreak will rely upon infection control and isolation/quarantine measures. Research in the hunt for the natural reservoir has stalled. Several research teams are pursuing developing a safe and efficacious vaccine with an adenovirus-based vaccine candidate holding promise. However, some believe that SARS-CoV’s potential for rapid and unpredictable change (host-species shifting), characteristic of coronaviruses, may prove challenging for those identifying and developing a vaccine and therapeutics.