

ORDER OF THE CENTERS FOR DISEASE CONTROL AND PREVENTION,
DEPARTMENT OF HEALTH AND HUMAN SERVICES

ACTION: Notice of embargo of civets (Family: Viverridae).

SUMMARY: According to published scientific articles, Severe Acute Respiratory Syndrome (SARS)-like virus has been isolated from civets (Family: Viverridae) captured in areas of China where the 2002-2003 SARS outbreak originated. Shipments of civets are being imported into the United States and further distributed. CDC is banning the importation of all civets immediately and until further notice. CDC is taking this action to prevent the importation and spread of SARS, a communicable disease.

DATE: This embargo is effective on January 13, 2004, and will remain in effect until further notice.

SUPPLEMENTARY INFORMATION:

Background

Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus (SARS-CoV). In general, SARS begins with a high fever (temperature greater than 100.4F [$>38.0^{\circ}\text{C}$]). Other symptoms may include headache, an overall feeling of discomfort, and body aches. Some people also have mild respiratory symptoms at the outset. About 10 percent to 20 percent of patients have diarrhea. After 2 to 7 days, SARS patients may develop a dry cough. Most patients develop pneumonia. The case-fatality rate among persons with illness is approximately 10%.

The main way that SARS seems to spread is by close person-to-person contact. The virus that causes SARS is thought to be transmitted most readily by respiratory droplets (droplet spread) produced when an infected person coughs or sneezes. Droplet spread can happen when droplets from the cough or sneeze of an infected person are propelled a short distance (generally up to 3 feet) through the air and deposited on the mucous membranes of the mouth, nose, or eyes of persons who are nearby. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches his or her mouth, nose, or eye(s). In addition, it is possible that the SARS virus might spread more broadly through the air (airborne spread) or by other ways that are not now known.

At this time, there is no known effective treatment for SARS.

Public Health Risks

SARS was first reported in Asia in February 2003. Over the next few months, the illness spread to more than two dozen countries in North America, South America, Europe, and

Asia. According to the World Health Organization (WHO), during the SARS outbreak of 2003, a total of 8,098 people worldwide became sick with SARS; of these, 774 died. In the United States, there were a total of 192 cases of SARS among people, using the 2003 WHO case definitions of “probable” and “suspect,” all of whom recovered. Eight of these cases were subsequently laboratory confirmed as SARS-CoV.

Public health officials worldwide commonly used isolation and quarantine measures to control the outbreak. In the US, some states exercised their legal authorities to compel isolation of suspect cases. On April 4, 2003, the President added SARS to the list of diseases for which the federal government could isolate or quarantine individuals, though use of this federal authority never became necessary.

The SARS global outbreak of 2003 was contained after extraordinary global effort that focused on reducing contact with infected individuals. Subsequently, there have been 2 laboratory acquired cases of SARS, one in Taiwan and one in Singapore; however, on January 5, 2004 the government of China and the World Health Organization confirmed the first non-laboratory-acquired case of SARS infection in a human since the initial outbreak subsided in the spring of 2003. Measures being taken by Chinese health authorities since the 2004 non-laboratory-acquired case was reported include interventions on civets in the animal market based upon an accumulating but as yet unpublished body of evidence linking them with SARS-CoV infection.

To date, scientists have not been able to confirm the origin of SARs in humans. Some public health officials hypothesize that SARS-CoV was transmitted from an animal to human thereby sparking the 2003 outbreak. There is growing indirect evidence suggesting that exposure to certain wild animals, may be associated with infection, although there is no evidence that humans have become infected with the SARS coronavirus from direct contact with certain wild animals. During the initial investigations of cases of SARS coronavirus infection, it was reported that cases occurred among restaurant workers that handled wild animals and among workers in animal associated professions (1,2). Two subsequent investigations demonstrated higher rates of seropositivity against the SARS coronavirus among wild animal traders compared to controls (1,3). An analysis of the epidemiology of the SARS outbreak in Guangdong indicated that the outbreak appeared to have originated in many different municipalities without identified person to person linkages (4). Assuming humans acquire infection directly from animals, this suggests that there may have been multiple introductions from animals to humans and that the transmission was not a one-time unusual occurrence.

To date a SARS-like coronavirus has been isolated from many palm civets (*Paguma larvata*) (1). A comparison of isolates from civets and humans demonstrated 99.8% homology (1). In addition, there have been reports of small numbers of other animals that have demonstrated evidence of infection with SARS-like coronaviruses (1,5,6). Although it is possible that other animals may have a role in the lifecycle of the SARS coronavirus, to date the best available evidence points towards involvement of civets.

Civets, being wild terrestrial carnivores, also can be infected with and transmit rabies (7).

In 2001-2002, 98 civets were imported into the United States (44% from Asia); most, if not all, were imported for private ownership. Introduction of non-native species, such as civets, into the United States can lead to outbreaks of disease in the human population. CDC is therefore taking this action to reduce the chance of the introduction or spread of SARS into the U.S. Importation of civets infected with SARS would present a public health threat, and, based upon currently available evidence, banning the importation of civets is an effective way of limiting this threat.

Because there is no current evidence suggesting that SARS-infected civets have been imported and are causing disease in the U.S., this order does not include restrictions upon the domestic movement of civets already in the U.S.

Immediate Action

Therefore, pursuant to 42 CFR 71.32(b) and in accordance with this order, no person may import or attempt to import any civets (Family: Viverridae), whether dead or alive, or any products derived from civets. This prohibition does not apply to any person who imports or attempts to import products derived from civets if such products have been properly processed to render them noninfectious so that they pose no risk of transmitting or carrying the SARS virus. Such products include, but are not limited to, fully taxidermied animals and completely finished trophies. This prohibition also does not apply to any person who receives permission from the CDC to import civets or unprocessed products from civets for educational, exhibition, or scientific purposes as those terms are defined in 42 CFR 71.1.

Julie Louise Gerberding
Director, Centers for Disease Control
and Prevention

References:

1. Guan Y, Zheng BJ, He YQ, et al. Isolation and characterization of viruses related to the SARS coronavirus from animals in southern China. *Science* 2003;302(5643):276-8.
2. He SF et al. Severe acute respiratory syndrome in Guangdong province of China: epidemiology and control measures. *Chin J Prev Med* 2003;37(4):227.
3. CDC. Prevalence of IgG Antibody to SARS-associated coronavirus in animal traders – Guangdong Province, China, 2003. *MMWR* 2003;52(41):986-7.
4. He SF et al. An epidemiological study on the index cases of severe acute respiratory syndrome occurred in different cities in Guangdong province. *Chin J Epidemiol* 2003;24(5):347.
5. Normille D and Enserink M. Tracking the roots of a killer. *Science* 2003;301:297-9.
6. Ng SKC. Possible role of an animal vector in the SARS outbreak at Amoy Gardens. *Lancet* 2003;362:570-2.
7. CDC. Human rabies prevention - United States, 1999. Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 1999;48(No. RR-1):1-21.