



SEVERE ACUTE RESPIRATORY SYNDROME

FACT SHEET

Public Health Measures in Response to SARS: Isolation, Quarantine, and Community Control

To contain the spread of a contagious illness, public health authorities rely on many strategies. In spring 2003, three of these strategies (isolation, quarantine, and community control measures) were applied—to differing degrees in different countries—as public health measures to control the outbreak of SARS.

Isolation and quarantine are both common practices in public health, and both aim to control exposure to infected or potentially infected individuals. Both may be undertaken voluntarily or compelled by public health authorities. These two strategies differ in that isolation applies to people who are known to have an illness, while quarantine applies to those who have been exposed to an illness but who may or may not have become infected.

Community control measures, which are generally used to decrease social interactions, constitute a third strategy for containment of an infectious disease. Examples of community control measures include voluntary “snow day” or “shelter-in-place,” cancellation of public gatherings, closure of schools and workplaces, and cancellation of large sporting events. In addition, travel restrictions have been used as a large-scale community control measure to limit the spread of infection.

Isolation: For People Who Are Ill

Isolation of people who have a specific illness separates them from healthy people and restricts their movement to stop the spread of that illness. Isolation allows for the focused delivery of specialized health care to people who are ill, and it protects healthy people from getting sick. People in isolation may be cared for in their homes, in hospitals, or at designated health-care facilities. Isolation is a standard procedure used in hospitals today for patients with tuberculosis and certain other infectious diseases. In most cases, isolation is voluntary; however, many levels of government (federal, state, and local) have the basic legal authority to compel isolation of sick people to protect the public.

During the SARS outbreak in spring 2003, CDC recommended that patients in the United States be isolated until they were no longer infectious. This practice allowed patients to receive appropriate care, and it helped contain the spread of the illness. Those who were severely ill were cared for in hospitals. Those whose illness was mild were cared for at home. Individuals being cared for at home were asked to avoid contact with other people and to remain at home until 10 days after the resolution of fever, provided respiratory symptoms were absent or improving.

Quarantine: For People Who Have Been Exposed But Are Not Ill

Quarantine applies to people who have been exposed and may be infected but are not yet ill. Separating exposed people and restricting their movements is intended to stop the spread of illness. Quarantine is medically very effective in protecting the public from disease. During spring 2003, CDC recommended isolation of patients who were ill with SARS but did not use its legal authority to compel quarantine or

Public Health Measures in Response to SARS

(Continued from previous page)

isolation of these individuals. However, some states, under their own separate legal authorities, did compel the isolation and/or quarantine of persons with SARS.

Quarantine as a public health tool represents a collective action for the common good; however, public health authorities must maintain the proper balance between the public good on the one hand and the needs of the individual on the other. One of the lessons of history is that application of quarantine requires the utmost concern to meet the needs of both infected persons and those exposed. Not only do the medical needs of those in quarantine and isolation need to be met, but also their physical needs for food, care, and shelter.

Community Control Measures: To Limit Spread of Infection in the Community

Community control measures refer to controlling a population's exposure to disease through a variety of measures, which may be voluntary or mandatory. These measures, which are designed to limit the spread of disease in uninfected populations, may include decreasing interactions between individuals. At the most basic level, individuals in the community can decide voluntarily whether to send children to school, whether to stay home from work, or whether to participate in public gatherings. Governments may also issue public advisories, scale back transportation schedules, or shut down airports. This is sometimes referred to as a "snow-day" or "shelter-in-place" approach.

Legal Authority for Public Health Measures

Isolation, quarantine, and community control measures may be conducted on a **voluntary basis** or, depending on the circumstances, **compelled on a mandatory basis** through legal authority.

State and Local Law

A state's authority to compel isolation and quarantine within its borders is derived from its inherent "police power," the authority of all state governments to enact laws and promote regulations to safeguard the health, safety, and welfare of its citizens. As a result of this authority, the individual states are responsible for intrastate isolation and quarantine practices and conduct their activities in accord with their respective statutes. Implementing community control measures may also be based on legal authority or involve a series of discretionary determinations by state and local policymakers (e.g., school closings, scaling back public transportation, closing public spaces), which may require no special legal authority.

Federal Law

The Secretary of the Department of Health and Human Services has statutory responsibility for preventing the introduction, transmission, and spread of communicable diseases from foreign countries into the United States (e.g., at international ports of arrival and from one state or possession into another).

Public Health Measures in Response to SARS

(Continued from previous page)

The communicable diseases for which federal authorities may mandate isolation and quarantine are set forth through executive order of the President and include—

- cholera
- diphtheria
- infectious tuberculosis
- plague
- smallpox
- yellow fever
- viral hemorrhagic fevers

On April 4, 2003, a new executive order was issued adding SARS to the list of communicable diseases for which isolation or quarantine could be invoked.

CDC has not used its federal legal authority to compel the isolation or quarantine of anyone for SARS, although some states did use their separate legal authorities. CDC routinely uses the authority of the Public Health Service Act to monitor passengers arriving into the United States for communicable diseases and to temporarily detain incoming planes and interview passengers for health reasons. For example, in December 2001 CDC temporarily detained an incoming plane and interviewed passengers in Seattle to verify that a report of smallpox aboard the flight was in fact a hoax. CDC may work collaboratively with other federal agencies and partners (e.g., U.S. Department of Transportation, U.S. Department of Homeland Security, and the Federal Aviation Administration) to implement other measures to reduce transmission of disease.

Range of Responses to SARS

During the SARS outbreak, countries responded with public health measures that differed depending on several factors related to the severity of the outbreak and the extent of transmission. Some countries promptly isolated infected individuals once they began to show signs and symptoms and instituted heightened monitoring and active surveillance of asymptomatic contacts, through contact tracing. At other times, countries used community control measures, such as closing schools. The range of public health strategies included—

- Education and information, which may include travel alerts, press releases, and interagency partner notification; increased surveillance
- Issuance of travel advisories; voluntary limitation of public gatherings
- Compulsory limitations of public interactions and curfews or cancellation of public events
- Enforcement of these limitations, which may involve a "cordon sanitaire," or establishing a protective ring around geographic area and preventing movement in and out of this area.

Several countries, including Canada, China, Hong Kong Special Administrative Region, and Singapore, instituted maximum health measures, including quarantine, to prevent the further spread of the disease during spring 2003.

Public Health Measures in Response to SARS

(Continued from previous page)

U.S. Response: Ports of Entry and Border Crossings

An important part of the U.S. response to SARS involved measures taken to identify illness among travelers entering the country. At ports of entry and at land border crossings, quarantine officials (or their designees):

- Provided information to returning air travelers arriving in the United States either directly or indirectly from areas with SARS. CDC updated information on its website on the travel status of other areas with SARS as the situation evolved. This same information was provided via the major shipping associations and the International Council of Cruise Lines (ICCL) to persons traveling on cargo ships and cruise ships;
- Distributed health alert notices to air travelers, advising them that they may have been exposed to cases of SARS and that they should monitor their health for at least 10 days and contact their physicians if they become ill. These health alert notices were translated from English into seven other languages, and more than 2.7 million were distributed at U.S. ports of entry to passengers and crew members arriving from areas with SARS;
- Boarded airplanes with travelers reported to be ill to assess whether their symptoms matched the case definition of SARS.

U.S. Response: Pre-Departure Education and Awareness

During the SARS outbreak, CDC did not implement travel restrictions directly related to SARS. However, CDC issued alerts and advisories to keep travelers informed and enable them to take preventive actions to protect their health.

Travel Alert: notification by CDC that an outbreak of a disease is occurring in a geographic area. The purpose of an alert is to provide accurate information to travelers and resident expatriates about the status of the outbreak, how they can reduce their risk for infection, and what to do if they should become ill while in the area. The risk for the individual traveler is felt to be definable and limited; transmission has occurred in defined settings or is associated with specific risk factors (e.g., transmission in a health-care or hospital setting where ill patients are being cared for). ***CDC does not recommend against nonessential travel to the area.***

Travel Advisory: notification by CDC that an outbreak of a disease is occurring in a geographic area. The purpose of an advisory is to provide accurate information to travelers and resident expatriates about the status of the outbreak and how they can reduce their risk for infection. It also serves to reduce the volume of traffic to the affected areas which in turn can reduce the risk of spreading the disease to previously unaffected sites. ***CDC recommends against nonessential travel to the area*** because the risk for the traveler is considered to be high (e.g., the risk is increased because of evidence of recent local transmission and/or inadequate containment).

Criteria for Instituting Travel Alerts and Advisories

- **Disease transmission:** The magnitude and scope of the outbreak in the area will affect the decision to issue an advisory or an alert. Criteria that can be used include the presence or absence of cases occurring in persons who have no known epidemiologic links to ill persons with laboratory-confirmed SARS cases, as well as evidence that cases have spread to other areas and settings within the community.

Public Health Measures in Response to SARS

(Continued from previous page)

- **Containment measures:** The presence or absence of acceptable outbreak control measures in the affected area can influence the decision to issue a travel advisory or alert. Areas where the disease is occurring that are considered to have poor or no containment measures in place may have the potential for a high risk of transmission to exposed persons and spread to other geographic areas.
- **Quality of surveillance:** Criteria include whether health authorities in the area have the ability to accurately detect and report cases and conduct appropriate contact tracing of exposed persons. Areas where the disease is occurring that are considered to have poor surveillance systems may have the potential for a high risk of transmission.
- **Quality and accessibility of medical care:** Areas where the disease is occurring that are considered to have inadequate medical services and infection control procedures in place, as well as remote locations without access to medical evacuation, may be considered to present a high level of risk for the traveler.

Criteria for Downgrading or Removing Travel Alerts and Advisories

To downgrade a **travel advisory** to a **travel alert**, there should be:

- Adequate and regularly updated reports of surveillance data from the area (e.g., during the spring 2003 outbreak, the area reported probable and suspect cases on a regular basis)
- No evidence of ongoing spread for two maximal incubation periods after the date of onset of symptoms for the last case. For SARS, this period should be 20 days since the onset of symptoms for the last case without an epidemiologic link, as reported by the public health authorities.

To remove a **travel alert**, there should be:

- Adequate surveillance data from the area (e.g., during the spring 2003 SARS outbreak, the area reported both probable and suspect cases on a regular basis)
- No evidence of new cases for three incubation periods after the date of onset of symptoms for the last case, as reported by the public health authorities. For SARS, this period should be 30 days. (Note that this CDC criterion differs from that of the World Health Organization.)
- Limited or no recent instances of exported cases from the area (excluding intentional or planned evacuations)

For up-to-date information, please visit the CDC SARS website: <http://www.cdc.gov/ncidod/sars/> .