



Supplement: Community Containment Measures, Including Non-Hospital Isolation and Quarantine

Appendix D2

Frequently Asked Questions about Use of Community Containment Measures

If SARS-CoV reappears in the United States, will quarantine definitely be required and used?

No. Quarantine is only one of a spectrum of actions that may be considered during a future SARS outbreak in the United States. Although rapid control is likely to require bold and swift action, measures that are less drastic than legally enforced quarantine may suffice, depending on the epidemiologic characteristics of the outbreak. For example, active monitoring without activity restrictions may be adequate when most cases are either imported or have clear epidemiologic linkages at the time of initial evaluation. When the epidemiology of the outbreak indicates a need for stronger measures, jurisdictions can adopt a voluntary quarantine approach and reserve legal measures only for those who fail to comply. When an outbreak progresses to include large numbers of cases for which no epidemiologic linkages can be identified, community-level interventions may become necessary. Even at this stage, however, measures designed to increase social distance, such as snow-days, may be preferred alternatives. Wider use of quarantine is generally reserved for situations in which all other control measures are believed to be ineffective.

The choice of containment measures requires frequent and ongoing assessment of an outbreak and evaluation of the effectiveness of existing control measures. Officials must be prepared to make decisions based on limited information and then modify those decisions as additional information becomes available.

Does the effectiveness of containment measures require 100% compliance?

No. Containment measures, including quarantine, are effective even if compliance is less than 100%. Even partial or “leaky” quarantine can reduce transmission. Therefore, strict legal enforcement is not necessarily always needed; in most cases, jurisdictions can rely on voluntary cooperation. Modeling studies of the relative contributions of quarantine and vaccination in control of smallpox outbreaks suggest a benefit from quarantine even when compliance is as low as 50%. The incremental benefit of quarantine approaches a maximum at a compliance rate of approximately 90%, with little additional benefit from higher rates of compliance. Therefore, containment measures can be important components of the response to a communicable disease outbreak even when compliance is not high.

Does “quarantine” always mean using a legal order to restrict someone’s activity?

No. The term “quarantine” is often defined narrowly to refer to the legally mandated separation of well persons who have been exposed to a communicable disease from those who have not been exposed. Although the precise legal definition of quarantine may differ from jurisdiction to jurisdiction, when used clinically or programmatically, quarantine may be defined more broadly to include all interventions, both mandatory and voluntary, that restrict the activities of persons exposed to a communicable disease. Therefore, whenever an exposed person is placed under a regimen of monitoring that includes an activity restriction, even when those restrictions are adhered to voluntarily, the person is said to be under quarantine.

Supplement D: Community Containment Measures, Including Non-Hospital Isolation and Quarantine

(continued from previous page)

Must quarantine be mandatory to be effective?

No. Although the federal government and nearly all states have the legal authority to place persons exposed to certain communicable diseases under quarantine and enforce the required restrictions on activity, use of this authority may not always be necessary or practical. Previous experiences with the use of quarantine, including those during the 2003 SARS outbreaks, suggest that the majority of persons comply voluntarily with requests from health authorities to remain in quarantine and observe the recommended activity restrictions.

During the 2003 outbreaks, at least one jurisdiction outside the U.S. used an incremental approach to institution of quarantine. A request for voluntary quarantine resulted in compliance by more than 90% of affected persons. Those who did not adhere to the request were served with a legally enforceable order. This approach has the advantage of being perceived by the public as being less severe, since compliance with the initial request is voluntary. In addition, in jurisdictions where prevailing statutory quarantine authorities require separate orders for each person placed under activity restrictions, this approach reduces the legal workload to a more practical level.

Does being placed in quarantine increase a person's risk for acquiring disease?

Historically, placement in quarantine has been associated with increased disease transmission. One reason may be that separation between ill and well persons was not maintained. One of the fundamental principles of modern quarantine is that persons in quarantine are to be closely monitored so that those who become ill are efficiently separated from those who are well. A second principle is that persons in quarantine should be among the very first to receive any available disease-prevention interventions. Adherence to these two principles of modern quarantine should prevent an increase in risk for acquiring disease while in quarantine.

Is quarantine really necessary if everyone who develops symptoms is rapidly placed in isolation?

Although theoretically true, it would be unrealistic to believe that even the most efficient system for initiation of isolation will minimize delays to the extent required to prevent transmission. Among the factors contributing to delays in recognition of symptoms are the insidious nature of disease onset and denial that symptoms have developed. Early in the 2003 outbreak in Singapore, the average delay from onset of symptoms to initiation of isolation was 7 days. Officials were able to reduce this delay only to 3 days, even with an aggressive public awareness campaign on the importance of symptom recognition and isolation.

Quarantine helps to reduce transmission associated with delays in isolation in two ways. First, quarantine enables health officials to quickly locate symptomatic persons who should be placed in isolation. Second, although quarantine locations may not be as efficient as isolation facilities in preventing transmission, quarantine reduces the number of persons who might be exposed while awaiting transfer to an isolation facility. If quarantine was not used, symptomatic and infectious persons could move about freely in public places, potentially exposing large numbers of additional persons and thereby fueling the outbreak.

Is quarantine useful only for diseases in which transmission is possible before the onset of symptoms?

No. Although quarantine clearly has benefits for prevention of diseases in which the period of communicability precedes onset of symptoms, a second, often overlooked, benefit is relevant to diseases such as SARS, in which infectiousness is likely to coincide with the onset of symptoms. Quarantine facilitates both close monitoring and prompt follow-up of persons who are at high risk for developing disease. Both these factors are likely to reduce the delay in initiation of isolation following onset of

Supplement D: Community Containment Measures, Including Non-Hospital Isolation and Quarantine

(continued from previous page)

symptoms. Quarantine also limits the number of additional persons exposed if the quarantined person develops disease. Thus, quarantine can be a useful strategy even with diseases that are infectious only after symptoms develop.

Is quarantine useful only for diseases that are spread by the airborne route?

No. Quarantine simply refers to the separation and restriction of activity of persons exposed to a communicable disease who are not ill. It is designed to minimize interactions between those exposed to a disease and those not yet exposed. As such, quarantine can be used for any disease that is spread from person to person. In practice, however, because the activity restrictions associated with quarantine infringe on personal liberties, the intervention is generally reserved for diseases that are easily and rapidly spread from person to person. The indication for quarantine for diseases purely transmitted by the airborne route is clear. However, this tool can also be useful where transmission can occur through close personal contact with secretions or objects contaminated by an ill person. Smallpox is an excellent example of a disease where quarantine can be effective in controlling spread although transmission may occur by means other than the airborne route.

Will the public accept the use of quarantine?

Yes. The negative connotations associated with quarantine likely stem from its misuse or abuse in the past. Although inappropriate use of quarantine, either voluntary or mandatory, would not and should not be accepted by the public, efforts should be made to gain public acceptance when use of this measure is indicated. Experiences with the use of quarantine during the SARS outbreaks of 2003 suggest that public acceptance of quarantine may be greater than previously thought. In Canada, almost all persons asked to observe quarantine restrictions did so willingly, with only a small number requiring a legal order to gain cooperation. In all cases, cooperation and acceptance was achieved through clear and comprehensive communication with the public about the rationale for use of quarantine.

For more information, visit www.cdc.gov/ncidod/sars or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)