Let Him Who Desires Peace Prepare for War: United States Hospitals and Severe Acute Respiratory Syndrome Preparedness

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(See the article by Srinivasan et al. on pages 272–4)

On 12 March 2003, the World Health Organization (WHO) first posted a worldwide alert concerning an outbreak of severe acute respiratory syndrome in Vietnam, Hong Kong, and Guangdong Province, China [1]. In June 2003, the Centers for Disease Control and Prevention (CDC) surveyed members of the Infectious Disease Society of America Emerging Infections Network (EIN) about SARS preparedness in their hospitals. It is a measure of the rapid globalization of both the outbreak and the outbreak response that, 3 months after the outbreak was recognized, 30% of responding members of the EIN reported that their hospital had cared for a patient meeting the case definition of SARS and that 90% had plans in place to address SARS preparedness.

The most important and most difficult component of SARS preparedness programs is the identification of infected patients. SARS is a febrile respiratory illness that is often clinically indistinguishable from other causes of fever and pulmonary infiltrates [3–5]. Identification of cases depends on prompt recognition of epidemiological risk and clustered infections. Of the 456 EIN members responding to the survey in this issue of Clinical Infectious Diseases [2], 381 (83%) reported that patients with respiratory symptoms in their emergency department (ED) would be screened for a travel history. Routine screening in the ED is a substantial investment for most hospitals and one that some may judge to be of dubious benefit, given that only 8 laboratory-confirmed cases of SARS were diagnosed in the United States [6]. On the other hand, the hospitals of 17% of respondents that have not implemented screening are dependent on their admitting physicians to consider SARS in the differential diagnosis and to order appropriate precautions. This latter system has been shown to repeatedly fail to identify tuberculosis, another cause of acute respiratory disease [7, 8]. SARS is much more likely than tuberculosis to be transmitted and to result in disease. In the event of another outbreak of SARS, systematic screening of ED patients, at least those who are to be admitted to the hospital, should be part of every plan.

Some aspects of the plans from June 2003 will likely now have changed. For instance, the relatively low percentage of plans (70%) that incorporated follow-up of exposed patients and visitors reflected the focus on health care worker infections early in the outbreak. Documentation indicating that exposed visitors and patients who became ill were the major source of transmission should result in the incorporation of prompt patient and visitor follow-up into all plans [9, 10].

Similarly, at the height of the outbreak, uncertainties about transmission led many institutions to impose quarantine on returning travelers (and led some travelers to self-impose quarantine). However, transmission of SARS was almost invariably linked to households and hospitals and did not occur before the onset of symptoms [10–12]. Thus, quarantine of travelers is not a necessary measure. Recognizing the power of denial, however, some hospitals may continue to require...
daily checks of returning workers until the full incubation period has passed.

As noted by Srinivasan et al. [2], the survey also highlights more-general issues in infection control in hospitals. It may still be possible to manage SARS safely in the significant minority of hospitals (17%) and EDs (29%) that lack airborne isolation rooms. However, it is not possible to manage chickenpox, measles, or tuberculosis without appropriate airborne isolation precautions. Because 30% of the responding hospitals admitted a traveler from an area of SARS endemicity despite travel restrictions, it seems unlikely that they can avoid caring for all diseases spread by the airborne route.

The issue of whether protection from SARS requires airborne precautions will continue to generate controversy. A careful assessment of exposures in SARS outbreaks, particularly those due to superspreading events and transmission despite compliance with isolation precautions, is needed to determine whether airborne spread occurs [10, 13–15]. In addition, continued work on the science of health care worker respiratory protection is clearly needed. National standards vary widely in the developed world. In the United States, the standards of the Occupational Safety and Health Association recommend annual fit testing for N95 respirators [16]. The results of this survey suggest that compliance with this recommendation is the exception rather than the rule. In Canada, the Canadian Standards Association, in the absence of data, has made no recommendation for protection against infectious agents [17]. In some countries of the European Union, fit testing is required before use but is not required annually; in others, fit testing of individuals is not currently recommended [18]. The issue of how best to assure protection for each ward nurse in the middle of a weekend night is real. So is the fear that the logistical problems associated with always having a supply of fit-tested masks for all health care workers will push investigators to downplay the risk of airborne spread.

At least 2 issues of importance in hospital preparedness for SARS were not touched on in the survey reported by Srinivasan et al. [2]. Disaster preparedness plans allow most facilities to contact all staff rapidly at the beginning of an emergency. Outbreaks of disease, however, require plans for regular (sometimes twice daily) information updates for hospital staff, patients, visitors, and related medical service professionals. Preparedness for SARS also requires clear delineation of the roles and responsibilities of hospitals and government agencies in many areas of outbreak management. For instance, it is essential before outbreaks to determine who will set hospital policy (e.g., restrictions on hospital admissions, requirements for managing infected patients, and decisions as to which hospitals will admit patients with SARS), who will establish work restriction policies for exposed health care workers, and who is responsible for follow-up of exposed patients, staff, and visitors.

A number of EIN members surveyed expressed concerns about health care worker compliance with precautions. At least 2 analyses of risks associated with health care worker infection despite the use of precautions now identify that >2 h of infection-control training and confidence that precautions would be protective are associated with substantial reductions in the risk of infection (Toronto SARS hospital investigation, unpublished data; Lau et al. [19]). Management personnel at all hospitals should now be asking themselves how confident they are that clinical staff clearly understand infection-control precautions and how they can be sure that, if SARS should reemerge, all health care workers have the training necessary to comply with precautions.

One challenge for hospitals is to maintain the impetus to integrate the rapidly expanding new knowledge about SARS into the best prevention programs. A second is to reassess the management of exposure to droplet-spread pathogens in hospitals. The CDC is currently recommending that all hospitals consider offering masks to all coughing patients and using droplet precautions (placing patients for whom such precautions are required in a private room, if possible; masking health care workers within 1 m of such patients or upon room entry; and limiting the movement of such patients outside of their room), in addition to standard precautions, for all patients with symptoms of respiratory infections [20]. Although, as Srinivasan et al. [2] suggest, these isolation precautions may have benefits that extend to situations beyond SARS outbreaks, it is also true that isolation may have risks, as recently demonstrated by Redelmeier et al. [21]. As life returns to a “new normal” after SARS, we urgently need a better understanding of how to minimize the risk of transmission of viral respiratory diseases without creating adverse events associated with additional infection-control precautions.

References

6. SARS Team and Executive Committee, Coun-


