Hospital Preparedness for Severe Acute Respiratory Syndrome in the United States: Views from a National Survey of Infectious Diseases Consultants

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(See the editorial commentary by McGreer on pages 275–7)

In this survey of infectious diseases consultants, 90% reported that their health care facilities have plans in place to address severe acute respiratory syndrome (SARS). Some plan elements exceed current recommendations, whereas others are less stringent. Resource issues associated with airborne isolation and respirators were reported. Sixty-one percent of the respondents expressed some concern about their facility’s preparation and capacity for managing patients with SARS. Recent draft guidance on SARS preparedness from the Centers for Disease Control and Prevention may help address some of these issues.

The recent outbreak of severe acute respiratory syndrome (SARS) had a significant impact on health care settings [1, 2]. SARS not only disrupted the delivery of patient care but also afflicted large numbers of health care workers (HCWs), who accounted for ~25% of SARS cases in Hong Kong and ~65% in Canada [3]. Although this feature of the outbreak received considerable attention, little is known about the response of hospitals in the United States to the threat of SARS. Did hospitals in the United States prepare to deal with SARS cases? If they did, what barriers did these hospitals encounter in their preparatory efforts? Because infectious diseases consultants (IDCs) often play an integral role in planning for and responding to infectious diseases emergencies, the Infectious Diseases Society of America Emerging Infections Network (EIN) surveyed its 865 members in June 2003 to assess the status of their hospitals’ planning for SARS and related issues.

Methods. The EIN and its survey methodology have been described elsewhere [4]. This survey sought information on plans, developed by hospitals where EIN members practice, for responding to SARS. It focused on management of patients with known or probable SARS, HCW and patient exposures to SARS, capacity to implement recommended airborne infection isolation precautions (AII), and concerns of EIN members about their hospitals’ plans. For the most part, the survey used questions in a yes/no format, but it also provided space for respondents to articulate their major concerns.

Results. Overall, 456 members (53%) responded. Although only 138 (30%) reported that their hospital or medical center had cared for ≥1 patient who met the Centers for Disease Control and Prevention (CDC) definition for a suspect or probable case of SARS, 410 respondents (90%) indicated that their facility had plans in place to address SARS. Table 1 summarizes responses to questions on the components of the plans. Almost all plans incorporated measures to screen patients with respiratory symptoms in the emergency department (ED). Of the 107 respondents in facilities with HCWs returning from areas where SARS was endemic, 33 (31%) reported plans to place these HCWs on leave for a 10-day period after exposure. With respect to issues associated with capacities for airborne isolation, 132 (29%) indicated that their ED had no negative-pressure rooms suitable for AII. Furthermore, 76 (17%) said that their hospitals had no rooms anywhere in the facility that were suitable for AII. With regard to respirator fit–testing, 382 (84%) of respondents indicated that fit testing was available in their facilities, and 322 (71%) reported having been fit tested for an N95 respirator in the past. However, only 85 (19%) had been fit tested in the previous 12 months, as recommended [5], and 75 (16%) reported using a respirator without ever having been fit tested. Of note, 115 respondents (25%) reported that their facility had experienced a shortage of respirators during the SARS outbreak.

More than one-half of IDCs (278 [61%] of 410) expressed specific concerns about their facilities’ preparation and capacity for managing SARS cases. Most commonly, they mentioned concerns about detection, diagnosis, and triage of SARS cases and screening of patients with suspected SARS (33%), concerns about availability of equipment and rooms for AII (30%), concerns about inadequacies of their facilities’ SARS preparedness...
Table 1. Specific components of severe acute respiratory syndrome (SARS) preparedness plans at institutions in the United States, July 2003.

<table>
<thead>
<tr>
<th>Plan component</th>
<th>Component in place, no. (%) of institutions</th>
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<tbody>
<tr>
<td>Screening of patients with respiratory symptoms in the emergency department</td>
<td>381 (93)</td>
</tr>
<tr>
<td>Masking of patients with respiratory symptoms in the emergency department</td>
<td>332 (81)</td>
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<tr>
<td>Use of airborne and contact precautions plus tight-fitting eye wear for treating patients with SARS</td>
<td>353 (86)</td>
</tr>
<tr>
<td>Follow-up surveillance of exposed health care workers</td>
<td>344 (84)</td>
</tr>
<tr>
<td>Follow-up surveillance of exposed patients and visitors</td>
<td>285 (70)</td>
</tr>
<tr>
<td>HCWs placed on administrative leave for 10 days after exposure</td>
<td>33 (31)*</td>
</tr>
<tr>
<td>Daily follow-up by employee health for 10 days after exposure</td>
<td>46 (43)*</td>
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</tbody>
</table>

NOTE. Data are no. (%) of 410 institutions with SARS preparedness plans in place, unless otherwise indicated. HCW, health care worker.

* Data are no. (%) of 107 institutions with SARS preparedness plans in place and HCWs returning from areas of SARS endemicity.

plans (26%), and concerns about HCW panic and compliance with preparedness plans (21%).

EIN members also indicated that the SARS outbreak had motivated some changes in their hospitals’ practices. In response to a specific question, 353 respondents (77%) noted that their facility had begun to screen patients in the ED for epidemiologic risk factors associated with SARS. Similarly, 30 (7%) and 71 (16%) indicated that their hospitals had implemented cohorting of febrile patients in the ED and HCW surveillance, respectively, in response to the SARS threat.

Discussion. Though limited, our survey indicates that facilities throughout the United States have developed plans to manage SARS cases and other problems raised by the SARS threat. In some instances, the plans were less restrictive than existing recommendations [6]. For example, 14% of respondents did not plan to use AII and contact precautions for SARS patients, and 16% and 30% had no plans for following-up exposed HCWs and patients, respectively. However, in other cases, the plans exceeded existing recommendations [6, 7]; 81% of respondents worked at facilities with plans to mask all patients with respiratory symptoms in the ED, and facilities of 31% had plans to furlough HCWs returning from areas of SARS endemicity.

Recently released draft guidance from the CDC for community-level preparedness and response to SARS continues to emphasize the importance of using AII and contact precautions in the care of patients with SARS, as well as the importance of following-up exposed patients and HCWs to identify potential cases as soon as possible [8]. Plans for furlough of HCWs returning from areas of SARS endemicity continue to exceed recommendations in the draft guidance, which suggests that HCWs with low-risk exposures to patients with SARS undergo symptom surveillance without work restrictions. The widespread plans to mask patients with respiratory symptoms reflect a perception that controlling source-patient secretions will help prevent transmission of SARS. This precaution would also seem to apply to other, much more common respiratory illnesses, such as influenza and pneumonia due to *Mycoplasma pneumoniae*, that are spread by respiratory droplets [9]. Masking of patients with respiratory illness is now being suggested in the CDC’s draft guidance as part of a respiratory hygiene/cough etiquette strategy. It should be noted that, although the SARS outbreak was the impetus for this recommendation, it is being suggested as a measure to reduce transmission of all respiratory pathogens. This policy may yield benefits even if SARS does not reemerge.

This survey also indicates that infrastructure issues may pose barriers to safe management of patients with SARS and that such issues will need to be addressed. A lack or paucity of negative-pressure rooms will make compliance with AII recommendations difficult or impossible in some settings. In recognition of this problem, the draft guidance does provide recommendations for the creation of a “SARS unit” that could be used to house patients with SARS when AII compliance is not possible. Though rooms on such a unit may not have negative air flow, they may focus SARS-related resources, patients, and staff in a single area. This approach proved to be effective in controlling the SARS outbreak in parts of Toronto.

Compliance with annual fit testing requirements and ensuring that respirators are available will likely pose a challenge, because 81% of IDCs—a group frequently involved in the care of patients requiring AII precautions—reported no annual respirator fit–test in the previous 12 months, and 25% of respondents reported respirator shortages, despite the limited number of SARS cases in the United States. CDC recently con-
vened a meeting with manufacturers of respirators to address production and supply challenges.

More-extensive surveys targeted at larger and broader audiences may help to better define national SARS preparedness. However, many IDCs in this focused survey expressed concerns about their facilities’ preparedness for SARS, indicating that further guidance may be useful. The CDC draft on public health guidance for community-level preparedness and response to SARS (http://www.cdc.gov/ncidod/sars/sarsprepplan.htm [8]) may prove to be helpful and contains a section that specifically addresses recommendations for health care facilities. This plan was developed with input from IDCs and was based on lessons learned from SARS outbreaks in other countries. In addition to providing specific guidance for preparedness and graded-response activities, this plan also addresses some of the unresolved planning and infrastructure issues identified in the SARS preparedness survey. Other sections of the plan address important issues in infection control, such as personal protective equipment, clinical findings, and exposure evaluation, and in community preparedness and response, such as surveillance, contact tracing, and quarantine issues.

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