acillin, but all *S. aureus* isolates were susceptible to vancomycin. The prevalences of resistance to other antimicrobials were as follows: penicillin, 97% of isolates; erythromycin, 9.5%; gentamicin, 9%; tetracycline, 40%; clindamycin, 5%; trimethoprim-sulfamethoxazole, 17.5%; chloramphenicol, 11%; and ciprofloxacin, 1%. Among *K. pneumoniae* isolates, 24% were resistant to ciprofloxacin, but all isolates were resistant to ampicillin. All isolates of *Acinetobacter* species were resistant to ceftazidime, cefixime, and cefazolin. However, all isolates were susceptible to imipenem. The prevalences of resistance to other agents were as follows: ciprofloxacin, 65% of isolates; gentamicin, 76.5%; amikacin, 82.5%; trimethoprim-sulfamethoxazole, 85.7%; and ofloxacin, 87.5%. Thirty percent of *P. aeruginosa* isolates were resistant to imipenem, and 60% were resistant to ciprofloxacin and gentamicin. All isolates of *K. pneumoniae* were resistant to ampicillin, amikacin, ceftriaxone, and ceftazidime; 29% were resistant to imipenem, 73% were resistant to ciprofloxacin, and 83% were resistant to gentamicin.

In our study, gram-negative bacilli, including *K. pneumoniae, Acinetobacter* species, and *P. aeruginosa,* were the colonizing organisms most frequently detected in tracheal tube aspirates, and accounted for 20%, 18.5%, and 17.9% of all isolates, respectively. *S. aureus,* which accounted for 15.5% of all isolates, was the predominant gram-positive organism.

Only a few studies from the Middle East have examined methods of detecting VAP. In a study by Kanafani et al.[6] from a medical center in Beirut, Lebanon, the incidence of VAP was 47%. Gram-negative bacilli accounted for more than 83% of all isolates. In our study, gram-negative bacilli accounted for more than 72% of colonizing isolates recovered from tracheal tube aspirates. In another study by Albert et al.[7] from Germany, gram-negative bacilli accounted for 85% of isolates. The investigators used a cutoff value of 10^5 cfu/mL for differentiate between tracheobronchial colonization and infection. In contrast to these studies, a US study by Babcock et al.[8] found that *S. aureus* (28.4% of isolates) was the predominant organism, followed by *P. aeruginosa.* It is believed that the differences in the etiologic agents of VAP found in different studies are the result of differences in the population of intensive care unit patients, duration of hospital stay, and prior antimicrobial therapy.[2,9] We conclude that gram-negative bacilli are the predominant colonizing microorganisms in tracheal tubes of hospitalized patients in our region. In addition, many of the isolated strains were resistant to commonly used antibiotics.

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Infection Control for Emerging Infectious Diseases in Developing Countries and Resource-Limited Settings

TO THE EDITOR—The articles by Srinivasan et al.[1] and Fung et al.[2] published in the journal provide preparedness and response plans for severe acute respiratory syndrome (SARS) and other emerging infectious diseases in healthcare facilities. We outline 4 practical issues relevant to the adoption and modification of these well-outlined recommendations for groups and institutions in developing countries and resource-limited settings.

Healthcare administration support. The protection of healthcare workers (HCWs) in developing countries is largely neglected in the establishment of national healthcare priorities. However, these countries should not delay the implementation of effective infection control strategies while we await more evidence-based data from such settings. Given the global experience with the SARS outbreaks that occurred both in designated "SARS" hospitals and in "non-SARS" hospitals,[3-5] hospital administrators should be informed about the urgent need to support HCWs by providing appropriate infection control expertise, protective equipment, space, and fiscal resources for the prevention of emerging infectious diseases. These expenditures should not be viewed as an increase in the cost of hospital care but as preventive health and safety measures that ensure protection to HCWs with an anticipated return on investment to the institution.

Involvement of specialists. As in developed countries, HCWs with the least experience are often the first responders to evaluate patients with unrecognized emerging infectious diseases. Such clinical scenarios may lead to a delayed recognition of disease and missed opportunities to interrupt disease transmission.[6,7] Several reports emphasize the added value of specialists (infectious diseases, pulmonary, and emergency medicine specialists) in screening for suspected cases of emerging infectious diseases and the early recognition of atypical cases in acute care and ambulatory care settings.[4,8-10] Although the value of infection control expertise has been formally recognized in the United States and Canada,[11,12] this recognition of the need for interdisciplinary expertise has not yet been incorporated into most acute care institutions in developing countries and resource-limited settings.

Creation of a temporary isolation ward during an epidemic. Rapid creation of a temporary isolation ward in an existing functional hospital unit is a procedure readily applicable to clinical settings in developing countries and resource-limited regions. Such a unit should be divided into a "clean zone," for changing into and out of street clothes, an "intermediate zone," for removing the inner layer of personal protective equipment, and a "contaminated zone" at the entrance to isolation areas. Exhaust fans could be installed above windows in each room, if access to airborne infection isolation rooms is impossible. The distance between beds could be kept to at least 1 m (3 feet) to reduce the risk of cross-transmission between patients

Improve suboptimal and inconsistent infection control practices. As in all settings, in resource-limited settings it may be difficult to coordinate infection control practices without effective communication that clearly outlines the objectives for these practices. This issue was emphasized by Yap et al.[13] in a report of increased methicillin-resistant *Staphylococcus aureus* acquisition rates in Hong Kong intensive care units. Their data suggested increased transmission of this pathogen if HCWs wore gloves and gowns all the time. Several infection control practices, such as proper hand hygiene and instruction in how to use personal protective equipment correctly, may need to be monitored continuously, with timely feedback to HCWs, to optimize appropriate infection control practices and to reduce the transmission of pathogens.

In the wake of the global experience with SARS, and especially now that there are reports of possible human-to-human transmission of avian influenza,[14] the lessons learned from the SARS outbreaks and outlined by Srinivasan et al.[1] will help us prepare for future outbreaks of other emerging infectious diseases. Additional planning for effective infection control interventions, modified to suit the circumstances in developing countries and resource-limited settings, will be an essential part of current and future global prevention and control strategies.

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Prevalence of Hepatitis B and C Among Brazilian Dentists

TO THE EDITOR—There is great concern about transmission of bloodborne pathogens in dentistry[1-2] because dentists work with limited access and restricted visibility and frequently use aerosol-forming equipment and sharp devices.[3] Accordingly, we conducted a serologic survey of hepatitis B and C status among dentists working in a town in the state of São Paulo in Brazil from August 2001 to April 2002. All dentists currently working in the city of Sertãozinho were contacted by telephone, always by the same investigator, who scheduled an individual meeting for a personal interview and collection of a blood sample. Of the 147 dentists contacted, 12 refused to participate in the study because it involved blood collection, resulting in a study population of 135 dentists.

Dentists were asked about previous hepatitis B vaccination, whether their main affiliation was a public or a private service, and the duration of their professional practice. A 10-mL blood sample was collected from each participant. Enzyme-linked immunosorbent assay testing was done in according to manufacturer instructions. We tested serum samples for the presence of hepatitis B surface antigen (HBsAg), antibody to hepatitis B surface antigen (anti-HBsAg), antibody to hepatitis B core antigen (anti-HBcAg) immunoglobulin G (with the Hepatonostika test; Organon Teknika), and antibody to hepatitis C virus (anti-HCV; with the Ortho HCV 3.0 ELISA; Organon Teknika). Serum samples that tested positive for HBsAg were further evaluated for the presence of hepatitis B e antigen (HBeAg), and anti-HBeAg (Abbott) and samples positive for anti-HCV were also tested for the presence of HCV RNA by polymerase chain reaction (PCR) (Amplicor; Roche Diagnostics).

Mean age of the study population was 34.5 years (range, 22-56 years), and the sex distribution showed a slight predominance of women (63.0% female). Most of the dentists (77.0%) had a private practice as their main professional occupation, and the other 23.0% had a public service as their main affiliation. Among the dentists enrolled, 70.4% had been practicing dentistry for 14 years or less, and 5.2% had been working for more than 25 years.

One dentist (0.7%) tested positive for HBsAg. The same dentist tested positive for anti-HBeAg and tested negative for HBeAg. Anti-HBsAg and anti-HBcAg antibodies were detected in serum samples from 11 (8.1%) of the dentists, and 99 (73.3%) tested positive only for anti-HBsAg. The other 24 dentists (17.9%) showed no positive serologic markers for HBV. Table 1 summarizes the distribution of HBV serologic markers according to age and length of professional practice.

TABLE. Prevalence of Serologic Markers for Hepatitis B Virus Among the 135 Dentists in the Study, According to Age and Duration of Professional Practice

	Proportion (%) of participants		
Variable	Positive for HBsAg	Positive for anti-HBcAg	Positive for anti-HBsAg
Age range in years			
20-29	0	0	37/39 (94.9)
30-39	0	3/61 (4.9)	50/61 (82.0)
40-49	1/28 (3.6)	6/28 (21.4)	19/28 (67.9)
50-59	0	3/7 (42.9)	4/7 (57.1)
Duration of practice in years			
0-4	0	0	29/30 (96.7)
5-9	0	1/36 (2.8)	28/36 (77.8)
10-14	0	3/29 (10.3)	25/29 (86.2)
15-19	0	0	13/16 (81.3)
20-24	1/17 (5.9)	4/17 (23.5)	10/17 (58.8)
25-30	0	4/7 (57.1)	5/7 (71.4)

NOTE. Each subject provided a single serum sample for testing. Anti-HbcAg, antibody to hepatitis B core antigen; anti-HbsAg, antibody to hepatitis B surface antigen; HbsAg, hepatitis B surface antigen.

Only 1 dentist (0.7%) tested positive for anti-HCV antibody. HCV infection was further confirmed by testing the same serum sample with PCR for HCV RNA, which also gave a positive result. This dentist also tested positive for anti-HBcAg and anti-HBsAg.

When asked about receiving any dose of HBV vaccine, 133 (98.5%) of the 135 dentists enrolled reported that they had received at least 1 dose of the vaccine. Most of those exposed to the HBV vaccine had been offered the vaccine by the local public health system (50.4%) or by their dental school (31.6%). Only 18.0% of participants had spontaneously sought vaccination at private clinics. Among those vaccinated with at least 1 dose, only 17 (12.8%) of 133 reported that they had undergone a postvaccination anti-HBsAg test to confirm immunization against HBV. The rates of seroconversion to anti-HBsAg among vaccinated dentists, excluding those with evidence of natural immunization (ie, those who were anti-HBcAg positive) were as follows: 2 (50.0%) of 4 participants who reported receiving 1 dose of vaccine, 7 (100.0%) of 7 participants who reported receiving 2 doses, and 90 (81.1%) of 111 participants who reported receiving 3 or more doses.

The serologic test results were personally delivered by the investigator to the participating dentists, with a letter of orientation about hepatitis B and C, occupational risk, and measures to prevent acquisition of pathogens during professional practice. Those with evidence of active hepatitis B or C infection were asked to attend a medical consultation at a reference university hospital.

Before the vaccine against HBV became available in the 1980s, the seroprevalence of HBV was higher among dentists than in the general population.[4] In view of the importance