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Preventive strategies to keep Saudi Arabia SARS-free

To the Editor:

Saudi Arabia is unique among all other countries for having to receive hundreds of thousands of pilgrims to the holy cities of Makkah and Al-Madina throughout the year. In addition, 2 to 3 million pilgrims congregate every year in Makkah to perform Hajj, the fifth pillar of Islam. Introduction of even a single case of severe acute respiratory syndrome (SARS) in such an overcrowded environment could ignite a massive epidemic of the disease in these holy places and lead to further spread of the disease internationally by the returning pilgrims. Saudi Arabia, therefore, has adopted very strict strategies to prevent introduction of SARS into these holy places and into Saudi Arabia at large. This article describes these preventive strategies and the measures implemented by the Saudi government to hopefully keep Saudi Arabia free of SARS.

After the release of the World Health Organization global health alert about SARS on March 12, 2003, health authorities in Saudi Arabia formed a scientific task force to design strategies to prevent introduction of the disease into Saudi Arabia.¹ This scientific task force, chaired by the author, is composed of consultants in clinical infectious diseases from the Ministry of Health, National Guard Hospital, Armed Forces Hospital, Security Force Hospital, King Faisal Specialist Hospital, and the universities. An executive committee chaired by the executive deputy minister and composed of 4 deputy minister assistants and other high officials from the Ministry of Health was also formed to implement the preventive strategies. In addition, there was strong commitment from the highest authorities in the government to implement and support all preventive measures. The main preventive strategies implemented by the government can be summarized as follows.

1. A ban is applied to countries with reported local transmission of SARS (epidemic countries), whereby

people from these countries are not allowed to enter Saudi Arabia unless 10 days (the maximum incubation period) have elapsed since departure. Saudi citizens and legal residents of Saudi Arabia traveling to or residing in the epidemic countries are exempted from this ban and are allowed to enter Saudi Arabia but they are to be subjected to clinical assessment on entry and home quarantine for 10 days with daily follow-up by the nearest primary health care facility. They are asked to sign a form confirming that they will remain indoors, allow no visitors into their residence, fully cooperate with the health care personnel who will be contacting them on a daily basis for 10 days, and notify the nearest Ministry of Health facility of any respiratory symptoms developing during the 10 days of home quarantine. Those with any respiratory symptoms or signs are to be immediately hospitalized and isolated until the acute illness has completely resolved regardless of the results of the SARS confirmatory laboratory tests, which have limited sensitivity. To facilitate detection of patients who are febrile, infrared thermal cameras have been installed in Al-Madina, Riyadh, Jeddah, and Dammam international airports to screen the exempted passengers allowed entry from epidemic countries. The ban on countries with local transmission of SARS will be lifted only after more than 20 days (twice the maximum incubation period) have elapsed since the last locally acquired SARS case.

2. All travelers to Saudi Arabia, including those coming from countries that reported only imported cases of SARS, are allowed to enter Saudi Arabia after signing a statement confirming that in the preceding 10 days they have not been to any country with locally transmitted SARS and that they will bear full responsibility if this information is proven to be incorrect.
3. Travelers who transited in a country with locally transmitted SARS are allowed to enter Saudi Arabia but are subjected to clinical assessment on entry and they are to be home quarantined for 10 days with daily follow-up by the nearest primary health care facility.
4. Confirmatory laboratory tests for the SARS virus were made available at the central laboratory in Riyadh, the capital of Saudi Arabia. Both polymerase chain reaction tests to detect SARS virus genome and

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immunofluorescence assays to detect antibodies against the SARS virus are used to confirm SARS cases. However, the currently available confirmatory tests have some limitations.² The polymerase chain reaction test has a limited sensitivity; negative results, therefore, can not exclude SARS. The limitation of the immunofluorescent test is that it can detect antibodies only after the 10th day of onset of illness.

5. Education of health care personnel on the different aspects of SARS including case definition, epidemiology, mode of transmission, clinical features, diagnostic tests, management, hospital infection control measures, and preventive strategies is undertaken using formal lectures and provision of educational material. Health education of the public has also been intensive using newspapers, radio, television, brochures, posters, and the Ministry of Health World Wide Web site on the Internet. Digital screens of football stadiums were also used to display short health educational messages.

Knowing that SARS is readily transmitted from one person to another through droplet, contact, and perhaps airborne routes, and given the massive international air travel, it is possible that the SARS disease will become an established disease in the world despite all current efforts to eradicate it. The recent identification of various animal species as possible sources of the SARS virus makes SARS eradication even more difficult or virtually impossible.³ The severity of the disease may, however, diminish as the SARS virus continues to spread. Despite the great challenge the world is facing, control and preventive measures including early case finding, isolation, contact tracing and quarantine, and strict hospital infection control practices should continue in hopes of nipping the SARS epidemic in the bud to prevent endemicity of the disease in the world.

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Skin health is an overlooked element of infection control

To the Editor:

We wholeheartedly agree with Beltrami et al¹ that prevention of blood exposures is the "primary way to prevent occupational HIV and HCV infection." In the case described, several essential elements of prevention were apparently absent or insufficient, such as barrier precautions and education about appropriate infection control practices. However, another missing critical component was eluded to, but overlooked in the final analysis: appropriate skin care. Gloves and other barriers are intended to supplement but not supplant healthy skin. Ultimately, it was the health care worker's (HCW's) broken skin barrier that failed to prevent viral transmission.

This situation is not entirely unique. There are many other examples of pathogen transmission resulting from poor skin care, irrespective of the use of barrier precautions. For example, McNeil et al² reported *Pseudomonas aeruginosa* transmission from a nurse with infected fingernails. Larson et al³ noted that nurses with damaged skin on their hands were more likely to harbor transient microbes such as *Staphylococcus aureus*, enterococci spp. and *Candida*.³

Occupational skin disease in HCWs often remains undiagnosed and unresolved for many years.^{4,5} This is unfortunate, because most hand dermatoses can be effectively managed with appropriate diagnosis and treatment. We noted that the skin symptoms described in this case (eg, cracks and lacerations) are similar to those of a contact allergy. HCWs are at increased risk for the development of contact allergies to the rubber chemicals in natural and synthetic rubber gloves, particularly thiurams and carbamates.^{6,7} Kiec-Swierczynska⁸ reported that 64% of HCWs with occupational dermatitis tested positive for thiuram or carbamate allergies. These 2 chemicals are also found in herbicides and pesticides. Therefore, we found it interesting that the HCW attributed her skin condition to landscaping work.

This case detailed by Beltrami et al¹ emphasizes the fact that HCWs must be educated about the importance of skin health and how to recognize the symptoms of skin disease and seek help. Instruction about basic skin biology, proper hand washing, and appropriate use of hand care products is a quintessential part of infection control. Consistent with Centers for Disease Control and Prevention guidelines for infection control in health care personnel, health care organizations should institute policies that encourage