

Letters to the Editor

Personalized Education Improves Hepatitis B Vaccination Rate Among Physicians in Saudi Arabia

To the Editor:

Hepatitis B virus (HBV) and other bloodborne pathogens are occupational hazards for healthcare workers (HCWs) who are exposed to blood and body fluids in occupational settings.^{1,2} The Centers for Disease Control and Prevention had estimated that 6,800 HCWs whose jobs entail exposure to blood become infected with HBV each year.³ The hazards can be reduced by use of Universal Precautions and HBV immunization.

Saudi Arabia is an endemic area for HBV; previous studies have shown an average prevalence of hepatitis B surface antigen of approximately 10%, with males usually having higher rates than females.^{4,5} This suggests that HCWs in Saudi Arabia who regularly come in contact with blood and body fluids are at substantial risk of HBV infection. This study was designed to estimate the proportion of nursing staff and physicians at the Security Forces Hospital in Riyadh who were immune to HBV and also to assess what impact a personalized, educational awareness campaign may have on improving the rate of hepatitis B vaccination among HCWs.

We conducted a two-round survey. In the first round, an anonymous self-administered questionnaire was sent to all HCWs who worked in hospital departments known to involve risk of exposure to blood and body fluids. The questionnaire covered the current hepatitis B immunization status of the workers; if the worker claimed to have been immunized, whether post-immunization antibody was evaluated; whether and when booster doses were given; and whether there had been earlier hepatitis B infection and treatment.

For 6 months following the initial survey, an intensive educational awareness campaign was conducted (directed especially at physicians, who scored low on hepatitis B immunity prevalence during the first sur-

TABLE

TEST OF DIFFERENCE IN THE HEPATITIS B IMMUNITY PREVALENCE OF PHYSICIANS BEFORE AND AFTER EDUCATIONAL AWARENESS CAMPAIGN

	Immunized		Total
	Yes	No	
Before educational awareness campaign	141	94	235
After educational awareness campaign	157	69	226
Total	298	163	461

$\chi^2=4.52$, $P=.03$.

vey). Each physician was sent a personalized letter, emphasizing the need to be vaccinated or to complete the vaccination series.

At the end of the educational campaign, a similar questionnaire again was distributed to the physicians. The immunity rate among the physicians was estimated and compared with the rate at the first survey. The difference in the rates was tested for significance using a chi-square statistic.

Questionnaires were distributed to 665 nursing staff and 276 physicians during the first round; 469 nurses (70.5%) and 235 physicians (85.5%) responded. Of the 469 nurses, 422 (90%) were found to be immune. Only 141 (60%) of the physicians were immune.

A total of 256 physicians received the questionnaire in the second-round survey; of these, 226 (88.3%) responded. Of the 226 respondents, 157 (69.5%) were immune.

A chi-square analysis (Table) indicated that the increase in the immunity rate was statistically significant ($P=.03$).

We found a relatively low prevalence rate of HBV immunity among physicians at the Security Forces Hospital. Although the initial survey found 90% immunity among the nursing staff, only 60% of the physicians were immune. However, a 6-month personalized, educational awareness campaign produced a significant increase of approximately 10% in the immunity rate among the physicians. In a United States survey, only 56% of physicians had received at least one HBV vaccination, and of these only 45% were immune.³ There is the

need, therefore, to devise strategies to minimize the risk of HBV among HCWs. Personalized, educational awareness campaigns, could be an important strategy to achieve this objective.

In our facility, HCWs not only were given necessary information on the risk of exposure to bloodborne pathogens but hepatitis B vaccine is made available to HCWs free, and compliance to the recommended strategies is monitored. We now check the HBV immune status of all new employees working in patient-care areas before initial assignment, and hepatitis B vaccine is given as appropriate, depending on antibody status.

In conclusion, hepatitis B remains a preventable occupational risk to HCWs, and implementation of strategies to reduce risk, including immunization, should be encouraged. Personalized education can improve awareness and increase vaccination rates among HCWs.

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The Infection Control Practices of General Dental Practitioners

To the Editor:

In their recent article, "The Infection Control Practices of General Dental Practitioners" (*Infect Control Hosp Epidemiol* 1997;18:699-703), McCarthy and MacDonald have assumed that the wearing of gloves and masks indicates compliance with universal and effective dental infection control procedures. This simplistic conclusion ignores a number of confounding variables.

1. Hand washing is an integral and essential aspect of all clinical infection control practices. The study failed to determine if, how, and when hand washing was performed.

2. The abuse of glove use does exist. Gloved hands are used to handle charts, answer telephones, and greet patients. The authors did not assess the degree of this abuse.

3. The techniques used to place and remove masks are critical if the circle of protection is to remain intact. This variable was not determined.

4. All gloves and masks are not equally effective. The investigators did not ascertain which brands were used or if their efficacy had been tested against a gold standard.

Without attention being given to these variables, it is impossible to determine from the paper any meaningful or insightful information on the infection control procedures of general dental practitioners. Crude studies of this type served a purpose in the early to mid-1980s as initial data were collected in response to the hysteria associated with acquired immunodeficiency syndrome. However, for some time, it has been known that compli-

ance with Universal Precautions was not total and that the costs and restrictions imposed by mandatory recommendations have been of concern to practitioners and administrators of healthcare facilities. In recent months, the Canadian Dental Association and the Canadian Medical Association have adopted the policy that public health issues, such as infection control procedures, should be based on substantive evidence that a public health threat exists and that measures to reduce the threat (if it is present) are effective. The policy emphasizes that changes to established procedures are not justified by public perception of a threat.

Rather than conduct meaningless surveys, investigators such as McCarthy and MacDonald would be advised to do the following:

1. Definitively identify which diseases have been transmitted by dental procedures;

2. Establish the risks and cofactors associated with these transmissions;

3. Using the principles of evidence-based care, prove that recommended preventive techniques are effective, safe, and economical.

Such important data will permit dentists to make informed decisions on infection control procedures and allow rational monitoring of nosocomial infection rates in dental practice. Surely these goals will be more influential than discovering the percentage of dentists who always, sometimes, or never wear gloves.

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The authors reply.

We would like to thank Dr. Hardie for his interest in our recent paper "The Infection Control Practices of General Dental Practitioners." His response is puzzling: We did not conclude or assume that wearing gloves and masks indicated compliance with universal and effective infection control procedures. Our conclusion was that additional education was required to promote a more realistic perception of risk of human immunodeficiency virus (HIV) transmission in the dental office and the use of rec-

ommended infection control practices, including Universal Precautions.

We share Dr. Hardie's concern related to hand washing. The questionnaire used in this study included items on sociodemographics, infection control practices, and attitudes and knowledge related to HIV. The number of infection control items was limited because of concerns that a larger number would compromise the response rate. Follow-up data (including data on hand washing) originally were included but were omitted from the final manuscript to aid brevity and clarity. We noted in the "Discussion" section of our article that more comprehensive data were required and that we had completed a national survey of infection control practices of dentists in Canada to achieve this. Of the respondents in the national study, 76% reported routine hand washing before treating patients, and 63% reported always washing their hands after removing gloves.¹ Interestingly, of those who did not report routine use of gloves, 100% reported hand washing between patients.

Dr. Hardie states that crude studies of this type served a purpose in the early to mid-1980s. Although studies using convenience populations or with very low response rates can be described as crude, we believe that our surveys do not fall into this category. Our questionnaires were developed using test-retest procedures to test the reliability of items; survey administration was investigated using telephone, confidential mail, and anonymous surveys; and Dillman's guidelines for mailed surveys were used to achieve good response rates. Although our response rates for the provincial (N>5,000) and national (N>6,000) surveys were 70% and 66%, respectively, we also investigated late response and nonresponse bias.

The goals listed by Dr. Hardie for future endeavors have some merit but are not without problems. First, the identification of infections transmitted by healthcare workers (HCWs), including dentists, is difficult because of subclinical infections, the difficulty of linking isolated sporadic cases with a specific HCW, costs of look-back and trace-back investigations, poor compliance by patients with look-back studies, and the fact that there frequently are multiple opportunities for transmission of some pathogens in social, as well as healthcare, settings. Despite the difficulties inherent in epidemiological