

We will try to publish authors' responses in the same edition with readers' comments. Time constraints may prevent this in some cases. The problem is compounded in the case of a bimonthly journal where continuity of comment and redress is difficult to achieve. When the redress appears 2 months after the comment, 4 months will have passed since the original article was published. Therefore, we would suggest to our readers that their correspondence about published papers be submitted as soon as possible after the article appears.

Low-dose Intradermal Hepatitis B Vaccination

To the Editor: Hepatitis B virus (HBV) infection, a leading cause of mortality and morbidity worldwide, causes acute hepatitis and the sequelae of chronic HBV infection, cirrhosis, and hepatocellular cancer. The World Health Organization reports HBV as the ninth leading cause of death, and its worldwide carrier rate is 5 percent. In the United States, 500,000 to 1 million persons have been infected with HBV, and there are about 300,000 new cases reported annually. Adding HBV vaccine to the routine childhood immunization schedule is now being discussed. In the United States, the cost of a series of three intramuscular vaccinations exceeds \$70, whereas a series of three intradermal vaccinations costs \$7. The introduction of synthetic vaccine has not reduced the cost of immunization.

A prospective nonblinded study of adults and children was started December 1987 and completed June 1990 at the Caltex Rumbai/Duri Hospitals, Riau Province, Sumatra, Indonesia. More than 95 percent of the patients had blood samples checked for HBV antibodies at the Caltex Rumbai Hospital using Roche anti-HBs enzyme immunoassay. Only the antibody-negative patients were eligible for vaccination. A total of 139 subjects, 42 children (younger than 12 years) and 97 adults (aged 12 to 70 years), participated in the study. Fifty percent of the patients were white, and 50 percent were Asian or a combination of white and Asian.

The vaccination procedure was explained to all patients, and they were given a choice of an intradermal or intramuscular vaccination. Patients were asked, however, to choose the intradermal vaccination to help conserve vaccine and increase the numbers vaccinated. A series of three low-dose, 0.1-cc HBV vaccinations were given in the volar forearm: initially, at 1 month, and 6 months later. Subjects' blood samples were checked for antibodies 4 to 6 weeks after the last vaccination was administered, and positive levels were ten times greater than the standard 10 mIU.

Of the 42 children, 40 (95 percent) made antibodies after three intradermal injections; of the 97 adults, 69 (71 percent) made antibodies. The 2 children and 28 adults who were antibody negative after three intradermal vaccinations were offered an intradermal or intramuscular booster vaccination. Antibody conversion for this subgroup was less than 50 percent at 4 to 6 weeks after the booster. No cases of HBV infection were seen in any of the 139 patients.

Major side effects of itching and pigmentation secondary to the intradermal vaccine were treated with oral antihistamines and topical steroid cream. The 71 percent antibody response rate in adults was lower than that for intramuscular vaccination. The 95 percent response rate in children is comparable to that for intramuscular vaccination. Low-dose intradermal HBV vaccine appears to be cost effective and immunogenic in children. The intradermal technique is more difficult, and adults given intradermal vaccine need more careful follow-up of antibody response.

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Preemployment Evaluation

To the Editor: I appreciate the inclusion of the article, "Preemployment Evaluations: Dilemmas for the Family Physician," by Holleman and Matson¹ in the March-April issue of the *JABFP*. If the survey sample is representative, which I believe it is, 90 percent of family physicians, to a greater or lesser degree, perform some sort of preemployment evaluation for employers. Therefore, an area of extreme practical consideration not covered in this article is the impact of the Americans with Disabilities Act—1990 (ADA) on such future medical evaluations.

On a superficial level, it would appear this legislation pertains only to workers with a "disability." In fact, however, by the definition of disability rendered in the legislation, the concepts for preemployment evaluation are quite universal. The "preemployment examination" as we now know it will no longer be legal. Instead, preplacement evaluations, which must be job and task specific, will be done. The purposes of the preplacement examination are to (1) pair appropriately the applicant to the job, (2) discover and define required accommodations, (3) establish baseline health and disease data, (4) discover coexisting disease and pertinent family history, and (5) determine job suitability. Some old standards, such as preemployment back radiograph examinations, will not be applicable for hiring purposes. To determine job suitability, the evaluating physician will need to know the physical and emotional job requirements and to