Letters to the Editor

Use of Heptavax® in Salt Lake County Hospitals

To the Editor:

The Rocky Mountain Infection Control Association (RMICA) recently surveyed the nine hospitals in Salt Lake County, Utah, in order to determine their responses to the marketing of hepatitis B vaccine and to characterize the programs administering the vaccine. This survey was conducted for the benefit of the hospitals in our seven state organizations still without programs.

The survey was intended to: 1) establish the effectiveness of programs, ie, the proportion of susceptibles vaccinated, 2) learn how programs were financed, 3) determine the use of screening for immunity, 4) learn of adverse reactions, their frequency, types of sequelae and 5) determine if seroconversion was being documented by use of follow-up tests.

Each survey was performed in December 1983 by that hospital's infection control practitioner. Data were sought concerning the numbers of employees vaccinated, strategies for financing programs, presence of antibody to hepatitis B in unvaccinated high-risk employees, adverse reactions to the vaccine, and antibody response to the vaccine.

Vaccine Use—Five of the nine hospitals (66%) had active programs for encouraging the use of Heptavax by their employees. The five programs together represented 1,756 hospital beds and 8,900 employees. Of these employees, 653 (7.3%) had received at least one dose of the vaccine at the time of this survey. Overall, approximately 25% of these employees were considered to be at high-risk of acquiring hepatitis B infection, according to the definitions provided by the Centers for Disease Control.[1] Almost all of the vaccine has been given to high-risk employees; therefore the rate of vaccination among the high-risk group was nearly 30%.

Vaccine Charges—Three of the five programs provided the vaccine at no charge to high-risk employees. Two of these three programs provided part (30% and 50%) of the vaccine cost for employees not considered to be at high-risk. Nevertheless, very few of the employees not considered to be at high-risk of acquiring the disease elected to take the vaccine. The remaining two programs offered the vaccine at cost (about $100) to all employees and encouraged its use in the high-risk groups.

Whether or not employees sought the vaccine seemed to be related to the high cost of the vaccine. At the three hospitals providing free vaccine for certain employees, 584 of 5,900 employees were vaccinated (9.9%). At the two hospitals charging employees the full cost of the vaccine, 69 of 3,000 were vaccinated (2.3%, $p<0.05$).

Presence of Antibody to Hepatitis B in High-Risk Employees—A total of 557 high-risk employees were tested for antibody to hepatitis B, and 51 (9.9%) were positive. Those tested were not necessarily those who were subsequently vaccinated. Only two hospitals routinely screened for the presence of antibody to hepatitis B antigen before administering the vaccine. Various high-risk groups were screened at these five hospitals before instituting their programs.

The prevalence of serologic markers of HBV infection in health care workers with frequent blood contact is reported to range between 15% and 30%.[1] In one small group of surgeons (35) at a Salt Lake County hospital, 23% were positive for antibody.

Side Effects (other than site tenderness)—Although reporting of side effects had not been done in any systematic manner, all employees receiving the vaccine at all five hospitals had been asked to return for evaluation if any occurred. Eleven of 653 (2.0%) employees reported a variety of complaints following vaccination. These complaints included: myalgias, arthralgias, diarrhea and fatigue (3), nausea, vomiting, headache and myalgia (1), arthralgias (3), rash (1), shingles eruption (1), and fever (3). Symptoms persisted from 1 day to several months (with arthralgia). All appeared to be self-limiting.

Antibody Response to Vaccine—None of the programs providing vaccine routinely tested for the presence of antibody following vaccination; however, three persons were known to have had no antibody response to the vaccine. The tests were done in response to a personal interest on the

part of the vaccinated employee. Two of these cases included a physician and a nurse of a dialysis unit. The reason they did not develop antibody was unknown. The third instance involved a pathologist who did not refrigerate the vaccine between doses. (The vaccine should be kept refrigerated and is sensitive to freezing and room temperatures.)

In summary, most hospitals in Salt Lake County have established programs that offer Heptavax to high-risk employees. Since we surveyed the hospitals in December 1983, two additional hospitals have begun programs. The vaccine is provided free for those at high-risk by five of nine established programs. As of December 1983, approximately 30% of employees thought to be at high-risk received the vaccine through these programs. Observed side effects have been few (2.0%) and self-limiting.

Hospitals offering vaccine at no charge to high-risk employees have not convinced even the majority of those employees to accept the vaccine. Because of limited acceptance of the vaccine, the costs of offering free vaccine may be rather modest.

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Risk of Hepatitis B Acquisition Among Hospital Staff

To the Editor:

As Hadler et al have reported,[1] risk of hepatitis B acquisition by staff may not be uniform among all hospitals. Vaccination of occupationally-defined risk groups may not be a cost-effective nor even a necessary measure in centers with very low levels of inherent risk. Personnel practices minimizing exposure potential, provision of low-risk services and/or procedures, serving a low-risk patient population, and/or other factors may produce a low level of inherent risk attributed to some community hospitals in comparison with metropolitan centers.

One strategy to measure risk of hepatitis B acquisition that may be readily applied in any hospital relies upon data produced routinely by employee health services.[2] Serologic profiles on over 40 of our staff have been acquired in determining their eligibility for treatment following needlestick-type exposures. Knowing their duration of employment exposure prior to their exposure incident, this can be compared to expected serologic marker prevalence for various rates of conversion incidence. Having allowed our "high-risk" staff to sample itself in this manner, our results do not suggest a need for changing from a strategy stressing hygienic precautions augmented by treatment after exposure incidents. Vaccination is neither cost-effective nor necessary based upon our own experience. While this conclusion may not apply to other community hospitals, this study approach may be helpful in reaching a decision. Hygienic precautions to block transmission of hepatitis B, AIDS, and other infections are fundamentally important. The cost-effectiveness of active immunization of "high-risk" groups should be considered carefully, especially in institutions with a low incidence of hepatitis B among staff and low rates of staff turnover.

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https://doi.org/10.1017/S0195941700061695 Published online by Cambridge University Press