Letters to the Editor

A Novel Staff Vaccination Strategy

To the Editor:

Box Hill Hospital is a 347-bed hospital within Eastern Health Service in Melbourne, Australia. Due to the hospital being located in the southern hemisphere, its annual influenza vaccination program is conducted in March. Influenza vaccine is recommended for all hospital staff and is provided free of charge both in the staff clinic and via a "Needles on Wheels" program. This program is actively promoted.

Mobile immunization teams have reported success in achieving overall immunization compliance, particularly for influenza vaccination in a military setting.[1] Before the introduction of this concept at our facility in 1996, the number of influenza vaccinations administered to staff was 113 (8.3% of all staff). In 2000, the number of vaccinations had reached 757 (49% of all staff). To commence the program in March 2000, a flyer containing information on influenza vaccination was distributed to all departments in the hospital.

The Needles on Wheels program had 16 different locations on varying days and times nominated for mobile clinics. Times were allocated to involve as many clinical staff as possible (eg, when nurses were changing shifts in clinical areas). Early morning and evening sessions were also conducted to provide access for night staff. Both clinical and nonclinical locations were included because it was believed that staff who did not have contact with patients could readily transmit influenza to staff who had contact with patients if affected. Immunization of all staff is the most feasible method for preventing influenza, but healthcare workers are particularly encouraged to be immunized because they are susceptible to transmitting the virus to high-risk individuals.[2,3]

The program minimized disruption of ward practice by taking place at convenient times. Other studies have shown that staff time can be a factor in the decision to receive influenza vaccination.[4] The vaccination was also provided free of charge, thereby encouraging participation in the program.[2] Staff were required to complete and sign a short questionnaire. Vaccination took less than 2 minutes to perform, including completion of the questionnaire, and less than 5 minutes away from work. The night duty and out-of-hours nursing coordinators were instrumental in vaccinating staff during the night and coordinated this during weekends and weekdays after-hours.

Information about the influenza vaccine, including adverse reactions, was provided by vaccinating staff to alleviate common misconceptions about contracting influenza from the vaccine and to encourage vaccine uptake. A multidisciplinary team consisting of clinical nurse consultants for infection control, infectious diseases consultants, and the registrar and hospital medical officer helped to encourage peers from all disciplines to be vaccinated and to reassure staff that participation was of benefit. During a 3-week period including weekends and evenings, the program moved to multiple locations (eg, wards, emergency department, allied health, administration, and perioperative services). Seven hundred thirteen (81%) of 880 staff who had contact with patients were vaccinated. This program was funded by the Department of Human Services (DHS), Victoria.

For the year 2000 program, there were a number of staff receiving influenza vaccination for the first time. Of the total number of staff vaccinated, 28.2% had not been vaccinated in 1999. Other studies have found that vaccination the previous year and the belief that vaccination is effective have enhanced the uptake of influenza vaccination by healthcare workers.[4,5] This is consistent with our experience of 71.8% of vaccinated staff indicating that they had been vaccinated the previous year. Favorable outcomes from the previous vaccination such as minimal discomfort at the time of injection, absence of influenza, reduced sick leave required to be taken, and confidence in the vaccinating staff contributed to the vaccination uptake.[4,5]

Frequently, staff incorrectly believed they could develop influenza from the vaccine. At the time of vaccination, staff asked for clarification regarding the possibility of developing influenza following vaccination. Continued verbal reinforcement by vaccinating staff and the educational brochure promoted the uptake of the influenza vaccine in a positive manner. This has been demonstrated previously.[5]

Offering influenza vaccination to all staff has the advantage of avoiding confusion about eligibility. When only high-risk staff are vaccinated, others can erroneously believe that they are not in a high-risk category and so do not participate in the vaccination program.[4] Offering vaccination to all staff can reduce the risk of staff who do not have contact with patients transmitting the influenza virus to staff who do have contact with patients while at work, in both clinical settings and dining room facilities.[4]

Previously, the program was implemented primarily by the clinical nurse consultant for infection control, with assistance from the night duty coordinators and staff clinic. Due to increased funding from the DHS, increased numbers of staff provided influenza vaccination. This improved access to vaccination for both medical and nursing staff. Coordination of the program was maintained by the clinical nurse consultant for infection control. The cost of vaccination per person was $12.23 (Australian), with $11.00 (Australian) attributed to the cost of the vaccine.

Accessibility is an essential component of any successful vaccination strategy. The Needles on Wheels program provides easy accessibility of vaccine, in terms of both location and time, at no cost to staff or departments. Staff awareness of the annual influenza Needles on Wheels program has also enhanced uptake. We commenced the program a month earlier in 2001 (in February), with similar results to those from 2000. This strategy can be simply, economically, and effectively adapted by other healthcare institutions to increase influenza vaccination rates.

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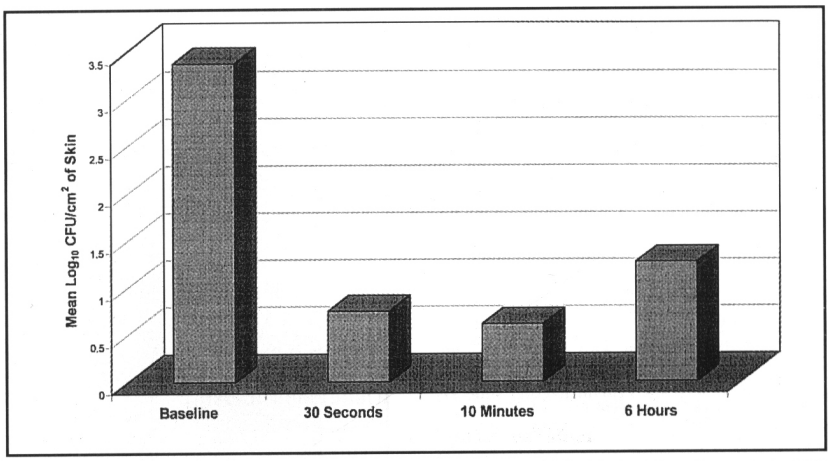

FIGURE. Decrease in colony-forming units (CFU) after application of 2% chlorhexidine gluconate in 70% isopropyl alcohol on the abdomen.

Administration of 2% Chlorhexidine Gluconate in 70% Isopropyl Alcohol Is Effective in 30 Seconds

To the Editor:

A randomized, blinded clinical trial was conducted to determine the immediate and persistent antimicrobial activity of 2% chlorhexidine gluconate in 70% isopropyl alcohol (CHG+IPA; ChloraPrep, Medi-Flex Hospital Products, Inc., Overland Park, KS). Healthy subjects meeting the inclusion and exclusion criteria who were between 18 and 70 years of age with no evidence of dermatoses, dermatitis, inflammation, or injuries to the drug-application sites on the abdomen were eligible for the study. They were included if they had 2.2 $\log_{10}$ or more colony-forming units (CFU) of bacteria per square centimeter of skin on the abdomen when they were screened and at baseline (zero time).

The trial was divided into pretest, screening, and test periods. In the 14-day pretest period of the study, subjects were required to avoid the use of medicated soaps, lotions, shampoos, and deodorants, as well as skin contact with solvents, acids, and bases. Subjects also avoided using ultraviolet tanning beds or bathing in antimicrobial-treated pools or hot tubs. They were given personal hygiene kits that contained no antimicrobial ingredients. Subjects were not allowed to shave the treatment areas for 5 days before sampling or to bathe for 24 hours before microbial samples were taken. The screening period consisted of the week following the 14-day pretest period. The week following the screening period was the test period of the study. On test day 1, the subjects were scored for irritation and sampled for baseline microbial counts randomly on the right or left abdomen and groin using a cylinder sampling technique.[1]

If the treatment area passed the screening test, a single dose of CHG+IPA was applied for 30 seconds to a 42-cm^2 area on the right or left abdomen and allowed to dry for 30 seconds. All of the sampling sites were scored for irritation before any microbial samples were taken. All sampling sites were randomized within treatment areas on the abdomen using a computer-generated randomization schedule. Treatment areas were sampled for bacteria on the abdomen 30 seconds and 10 minutes after CHG+IPA application. After the 10-minute sample was taken, all treatment areas were covered with a gauze and fenestration bandage (Tegaderm, 6 × 7 cm, 3M Co., Minneapolis, MN) to prevent microbial contamination of the treatment areas.

Six hours after CHG+IPA application, sites on the abdomen were sampled for bacteria using the cylinder sampling technique. The numbers of CFU on duplicate pour plates were averaged to determine the number of CFU per dilution and a formula was used to convert the number of CFU in the sample into the number of CFU per square centimeter of skin.[2] Antimicrobial efficacy was measured by determining the mean number of CFU per square centimeter of skin on the abdominal treatment site 30 seconds, 10 minutes, and 6 hours after CHG+IPA application. Effective antimicrobial activity was defined as a 2.0-$\log_{10}$ or greater decrease in the mean density of bacteria in 10 minutes. In addition, the mean number of CFU per square centimeter of skin must remain below baseline 6 hours after CHG+IPA application. Effective antimicrobial activity was also defined as a 1.0-$\log_{10}$ or greater decrease in the mean number of CFU per square centimeter of skin on the abdomen 30 seconds after CHG+IPA application.

The safety of CHG+IPA was evaluated by monitoring adverse events and skin irritation of the treatment sites at baseline and at 30 seconds, 10 minutes, and 6 hours after CHG+IPA application. There were no adverse events or skin irritation reported during the study.

Sixty-three subjects were recruited into the study and 45 were screened. Thirty-three of the 45 subjects passed the screen and were treated with CHG+IPA. Twenty-six of these met the baseline inclusion criteria and completed the study. The mean $\log_{10}$ CFU/cm^2 of skin on the abdomen at baseline, 30 seconds, 10 minutes, and 6 hours after application of CHG+IPA are presented in the figure. The mean $\log_{10}$ CFU/cm^2 of skin on the abdomen at baseline was 3.38, or approximately 2,400 CFU/cm^2 of skin. Thirty seconds after the application of CHG+IPA, the mean number of CFU/cm^2 on the