

- conservation. In: Zenz C, ed. *Occupational Medicine: Principles and Practical Applications*. Chicago, IL: Yearbook Medical Publishers; 1988.
21. Owens-Schwab E, Fraser VJ. Needleless and needle protection devices: a second look at efficacy and selection. *Infect Control Hosp Epidemiol* 1993;14:657-660.
 22. Whitby M, Stead P, Najman JM. Needlestick injury: impact of a recapping device and an associated education program. *Infect Control Hosp Epidemiol* 1991;12:220-225.
 23. Becker MH, Janz NK, Band J, et al. Noncompliance with Universal Precautions policy: why do physicians and nurses recap needles? *Am J Infect Control* 1990;18:232-239.
 24. Koopman PAR. Confidence interval for the ratio of two binomial proportions. *Biometrics* 1984;40:513-517.
 25. Aday LA. *Designing and Conducting Health Surveys*. San Francisco, CA: Jossey-Bass Publishers; 1989:97.
 26. Short L, Chamberland M, Culver D, et al. Underreporting of needlestick injuries among health-care workers. *Infect Control Hosp Epidemiol* 1994;15(suppl):20. Abstract.
 27. Hamory BH. Underreporting of needlestick injuries in a university hospital. *Am J Infect Control* 1983;11:174-177.
 28. Murphy CA. Increasing the response rate of reluctant professionals to mail surveys. *Appl Nurs Res* 1993;6:137-141.
 29. Beacon R, Bourguignon J, Fowler D, Gardner C. Evaluation of a needle-free intravenous access system. *J Intraven Nurs* 1992; 15:11-16.
 30. Wolfrum J. A follow-up evaluation to a needle-free IV system. *Nurs Manage* 1994;25:33-35.

Influenza Vaccination of Workers Reduces Mortality in Elderly Patients

Gina Pugliese, RN, MS
Martin S. Favero, PhD

The CDC and the departments of health in the United Kingdom strongly recommend influenza vaccination for elderly people who have chronic diseases or who are residents in long-term-care institutions. In spite of the reported success of this type of strategy in reducing the risk of illness and death from influenza and influenza-associated pneumonia, there is a good deal of skepticism among geriatric specialists on the value of routine influenza vaccination. It is believed by some that influenza vaccination in this group may not be effective because institutionalized elderly people often have severe and debilitating chronic disease, as well as impaired immune function that may affect the development of adequate protective circulating antibodies after immunization.

Vaccination of healthcare workers (HCWs) has been suggested as an additional strategy to reduce car-

riage and transmission of influenza among elderly patients in long-term care; however, there have been no controlled studies to show its efficacy.

Researchers from Glasgow, England, recently demonstrated the efficacy of this strategy of immunizing HCWs in long-term-care hospitals in reducing infection and mortality due to influenza. During winter 1994-1995, 1,059 patients in 12 geriatric medical long-term-care sites, randomized for vaccination of HCWs, were studied. In hospitals where HCWs were offered vaccination, 61% of 1,078 workers were vaccinated. Vaccination of HCWs was associated with reductions in total patient mortality from 17% to 10% and a reduction in influenza-like illness. A policy of vaccination of elderly patients in the long-term-care settings was not associated with any significant beneficial effect on mortality rate, but there were fewer reported influenza-like illnesses. Although no attempts were made to vaccinate voluntary workers or patients' relatives or friends, the

study results suggest that, by concentrating on the paid ward staff, benefits were realized for the patients. The authors believe that ward nurses, who are the most intimate contacts of the patients, may be the most likely to transmit infection to patients.

The authors conclude that vaccination of HCWs against influenza was associated with reduced rates of mortality and influenza-like illness in geriatric medical long-term-care patients. These findings support the recommendations of the CDC for vaccination of HCWs in contact with at-risk groups. The authors also note that it is possible that vaccination of HCWs may have additional benefits in reducing their incidence of clinical influenza and thus decreasing work time lost due to illness.

FROM: Potter J, Stott D, Roberts M, et al. Influenza vaccination of health care workers in long-term-care hospitals reduces the mortality of elderly patients. *J Infect Dis* 1997;175:1-6.