

## Medical News

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### Hospital Estimates \$18,000 per year for HEPA Respirators to Prevent One TB Case

The US Occupational Safety and Health Administration (OSHA) currently requires the use of HEPA respirators as part of a complete respiratory protection program that includes medical evaluation, training, and fit testing. Dr. Karim Adal and colleagues from the University of Virginia Health Science Center recently evaluated the cost-effectiveness of a respiratory protection program, including the use of the HEPA respirator in protecting healthcare workers (HCWs) from occupational exposure to tuberculosis (TB).<sup>1</sup> They used data from the University of Virginia Hospital on exposure to patients with TB and rates at which the tuberculin skin test (TST) became positive. The costs of the respiratory protection program were based on those of an existing program for workers dealing with hazardous substances.

During 1992, 11 patients with documented TB were admitted to the hospital. Eight of 3852 HCWs (0.2%) had TST conversions. Five were believed to be related to the booster phenomenon; one followed an unprotected exposure to a patient not yet in isolation; the other two occurred in workers who had never entered a TB isolation room. The authors explained that these data suggest that it would take more than one year for the use of HEPA respirators to prevent a single TST conversion in a HCW. Assuming that one conversion is prevented per year, it would take 41 years at this hospital to prevent one case of occupationally acquired TB, at a cost of \$1.3 million to \$18.5 million, depending on the type of HEPA respirator used (disposable or reusable) and the extent of the medical evaluation.

In a separate cost evaluation conducted by Dr. Mary Neffleman and colleagues at the Iowa City Veterans Affairs Medical Center and the University of Iowa College of Medicine, the use of HEPA respirators was estimated to cost \$7 million per case of TB prevented and \$100 million per life saved.<sup>2</sup> Suggestions for reducing the cost included reuse of disposable masks and restricting the number of HCWs allowed to have contact with potentially infectious patients.

#### REFERENCES

1. Adal KA, Anglim AM, Palumbo CL, et al. The use of HEPA

respirators to protect hospital workers from tuberculosis: a cost effective analysis. *N Engl J Med* 1994;331:169-173.

2. Nettleman MD, Fredrickson M, Good NL, Hunter SA. Tuberculosis control strategies: the cost of particulate respirators. *Ann Intern Med* 1994;121:37-40.

### Yale Halts Research of Rare Virus After Laboratory Exposure

At the request of federal officials, Yale University has temporarily halted research of the Sabia virus after a laboratory scientist became infected following a laboratory accident. Health officials also have imposed surveillance measures on those people with whom the scientist had recent, close contact. The Sabia virus is related to a group of hemorrhagic fever viruses that includes the agent of Lassa fever. This is only the third human case since the first known infection occurred in 1990 in the Brazilian city of Sabia. The virus has an incubation period of about 12 days and, under unusual circumstances, might be transmitted from person to person through coughing or sneezing.

In the laboratory accident, a test tube that the researcher was handling shattered and sprayed the room with virus. Yale University officials have said that the scientist violated university rules that require workers to notify officials of any potential breaches in laboratory safety procedures. The researcher also failed to recognize the danger to which he had exposed himself. If the researcher had reported the exposure, he would have been placed under surveillance.

Each year, researchers work with about 125 other viruses in the Yale Arbovirus Research Unit, which is supported in part by the World Health Organization. The research with other viruses continues, according to Dr. Robert E. Shope, head of the laboratory. The laboratory has been studying dangerous viruses since at least World War II.

The researcher has recovered from the illness after a 10-day course of ribavirin. To date, no secondary cases have developed among the people with whom he had close contact nor in the 75 hospital and laboratory people who examined him or handled his specimens.

FROM: Altman L. Researcher's infection raises concern for laboratory safety. *New York Times* August 23, 1994:B6.