

UV Lamps Could Reduce Worker Sickness

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LONDON - Sickness among office workers in industrialized countries could be reduced by using ultraviolet lamps to kill germs in ventilation systems, new research indicates.

Ultraviolet germicidal irradiation, or UVGI, is sometimes used in hospital ventilation systems to disinfect the air but is rarely incorporated into office or other building ducts because there has been little evidence of a benefit.

About 70 percent of the work force in North America and Western Europe work indoors, and frequently have unexplained health problems such as irritation of the eyes, throat and nose, as well as respiratory illnesses.

In a study published this week in *The Lancet* medical journal, Canadian scientists found that the technique reduced overall worker sickness by about 20 percent, including a 40 percent drop in breathing problems.

"Installation of UVGI in most North American offices could resolve work-related symptoms in about 4 million employees, caused by (germ) contamination of heating, ventilation, and air conditioning systems," said the study's leader, Dr. Dick Menzies from the Montreal Chest Institute at McGill University in Montreal, Canada.

"The cost of UVGI installation could in the long run prove cost-effective compared with the yearly losses from absence because of building-related illness," he added. A total of 771 employees from three different office buildings in Montreal were involved with the study.

The ultraviolet lamps were aimed at the cooling coils and drip pans in the ventilation systems of the buildings. The lights were turned on for four weeks, then turned off for 12 weeks. The cycle was repeated three times for almost a year. The use of the lights resulted in a 99 percent reduction of the concentration of germs on irradiated surfaces within the ventilation systems.

Some weeks, use of the lamps resulted in a 20 percent overall reduction in all symptoms for some workers; a 40 percent reduction in respiratory symptoms and a 30 percent reduction in mucous problems. The benefits were greatest for workers with allergies and for people who had never smoked.

With the lights switched on, the frequency of muscle complaints among nonsmokers halved and the incidence of work-related breathing problems among them dropped by 60 percent.

Wladyslaw Jan Kowalski, an architectural engineer at Pennsylvania State University's Indoor Environment Center, said the study may be a landmark in proving that the technique could be cost-effective in commercial office buildings. Kowalski, who was not involved with the research, also said the approach could be useful in the broader effort to combat contagious diseases such as flu, SARS, tuberculosis and cold viruses.

"Theoretically, if a large number of schools, office buildings and residences were modified, a number of airborne respiratory diseases could be eradicated by interrupting the transmission cycle," Kowalski said. "Reducing the transmission rate sufficiently would ... halt epidemics in their path."

However, Roy Anderson, an infectious diseases expert at Imperial College in London, said disinfecting ventilation systems by itself would not stamp out outbreaks of contagious respiratory diseases.

"Transport is particularly important - buses, subways, trains and airplanes," said Anderson, who was not connected with study. Disease also spreads through personal contact.

"You've got multiple methods of transmission and for control, you need to address all of them. It's an interesting new approach worth pursuing, but it needs detailed investigation," Anderson said.