

a reduction in risk behavior by IV drug users. □

Frances Taylor, MD, MPH

Director, Bureau of Epidemiology and Disease Control, Department of Public Health, City and County of San Francisco, 101 Grove Street, San Francisco, CA 94102.

Reference

1. Guydish J, Abramowitz A, Woods W, Black D, Sorensen J: Changes in needle sharing behavior among intravenous drug users: San Francisco, 1986-88. *Am J Public Health* 1990; 80:995-997.

A Carbon Monoxide Mass Poisoning in an Ice Arena in Vermont

On December 7, 1989 the Vermont Department of Health (VDH) was contacted by an emergency room physician who had seen 25 people the previous evening with symptoms of carbon monoxide poisoning. All the patients had been playing in or watching a high school hockey game in a local indoor ice arena. The mean carboxyhemoglobin level among the patients was .09L (8.9 percent) (range .055-.132L).

A case was defined as a headache or nausea developing at any time the individual was in the arena or during the remainder of the evening. Forty cases were reported by the participants. From Team A, 13 (100.0%) of the cheerleaders, four

(100.0%) of the coaches, and 15 of the players (83.3%) met the case definition. From Team B, four (28.6%) of the players and none of the four coaches met the case definition. All three (100.0%) ambulance squad members standing by at the game and one referee (50.0%) also met the case definition. Only students from School A and the EMTs were seen in the emergency room. None of the Team B players complained of symptoms that evening, and none of them received medical care.

Subsequent inquiries and testing at the arena by the VDH revealed that the building's ventilation had been turned off during the game in question, that the propane-powered ice resurfacing machine generated an average of 47 ppm of carbon monoxide at mid-ice even with the ventilation on, and that there had been an ambulance idling in an alcove outside a garage door on the Team A side of the building during the game. Smoke tests revealed that there was a significant influx of air around and under this garage door.

We concluded that there was a definite contribution of carbon monoxide to the arena from the ice resurfacing machine, as has been reported frequently elsewhere.¹⁻³ However, the marked preponderance of cases among participants who spent the game on the Team A side of the arena suggests that some carbon monoxide may also have come from the idling ambulance. This additional localized con-

tribution may have been enough to raise the carboxyhemoglobin levels of School A participants into the symptomatic range.

Ice arenas should use mechanical ventilation capable of keeping the carbon monoxide level at a minimum. Twenty ppm has recently been suggested as an acceptable level.⁴ Monitoring of the air quality in arenas should be considered. Ambulances on standby outside buildings should not be left running or should be parked far enough away to ensure that their exhaust does not enter the building. □

Leonard J. Paulozzi, MD, MPH

Frederick Satink

Robert F. Spengler, ScD

From the Vermont Department of Health, P.O. Box 70, Burlington, VT 05402.

References

1. Anderson DE: Problems created for ice arenas by engine exhaust. *Am Ind Hyg Assoc J* 1971; 32:790-801
2. Andre D, Kasatsky T, Bonnier J: Intoxication au monoxyde de carbone dans les arenas: problematique et moyens d'intervention. *Can J Pub Health* 1988; 79:124-129.
3. Johnson CJ, Morn JC, Paine SC, Anderson HW, Breyse PA: Abatement of toxic levels of carbon monoxide in Seattle ice-skating rinks. *Am J Pub Health* 1975; 65:1087-1090.
4. Levesque B, Dequilly E, Lavoie R, Prud'Homme D, Allaire S: Carbon Monoxide in indoor ice skating rinks: evaluation of absorption by adult hockey players. *Am J Public Health* 1990; 80:594-598.

NIMH Funds New Research Project on Psychiatric Disorders

Victims of Alzheimer's disease, manic depression, schizophrenia and other psychiatric disorders will benefit from a new five-year research project announced by the National Institute of Mental Health in mid-December.

The National Cell Repository for psychiatric disorders is being established at Coriell Institute for Medical Research, Camden, New Jersey, with a \$5.7 million contract from NIMH. This award will finance the collection and storage of over 6,000 cell lines and DNA at Coriell Institute, already home to the largest cell banks in the world for the study of human diseases. The cell collected for the new project will come from patients and their families in ten mental health centers in the United States.

Working in conjunction with nine university research centers and the Clinical Neurogenetics Branch of the NIMH, the National Cell Repository for psychiatric disorders will facilitate research efforts to identify the genetic causes of these

devastating mental illnesses which affect as many as four million Americans each year.

In a cell repository, or cell bank, living cells are stored in vials submerged in liquid nitrogen which has a temperature of -300° F. When needed, the cells can be retrieved from storage, regrown in larger cultures, and shipped worldwide. Several components of this cell culture technique were first developed by Dr. Lewis Coriell, founder of the Institute. Since establishment of the first National Institutes of Health cell bank at Coriell in 1973, the Institute has shipped over 60,000 cell lines to scientists in 43 nations.

The Coriell Institute for Medical Research, located at 401 Haddon Avenue, Camden, NJ 08103, is an independent non-profit basic biomedical research center located on the campus of the University of Medicine & Dentistry of New Jersey. For further information, contact John Davenport, Director of Public Relations at Coriell Institute; (609) 757-4832.