

## Scientist Discusses Radon Risk in Housing

By Lisa Datta

Where would you rather live? Next to a nuclear power plant or on top of a geographic formation emitting radon? In all likelihood you would find both situations undesirable. But while a nuclear power plant next door is an obvious threat, few people know what lies beneath the foundations of their homes. This is one situation where what you don't know *can* harm you.

Exposure to ionizing radiation is known to increase the risk of developing some cancers, including leukemia and lung cancer. The Environmental Protection Agency estimates that between 5,000 and 30,000 lung cancer deaths each year are caused by exposure to radon, a radioactive gas emitted from granite and shale that is a product of the decay of uranium.

According to Dr. Zdenek Hrubec, a scientist at the National Cancer Institute, it is not radon itself that causes harm but decay products of radon called radon daughters, or progeny. These decay products emit alpha radiation, a type that is especially harmful because the biological effect is thought to be 20 times greater than the physical dose.

Hrubec spoke recently on the subject of radon exposure in housing. The number of homes contaminated with radon depends on who you ask. According to EPA estimates, 8 million homes in the U.S. contain levels of radon in excess of the safety guideline set by the EPA. But according to the National Commission on Radiation Protection, the number of homes affected is 1 million. The only conclusion that can be drawn, says Hrubec, is that we have only a rough idea of the extent of radon exposure in housing.

While the extent of the problem is only approximately known, it is clear how radon enters a home. Radon is transmitted from the soil and water. It enters through cracks in foundation slabs, crawl spaces and pipes that carry water or gas into the house. Houses act like chimneys, says Hrubec. Because of the lower air pressure on the inside of most contaminated homes, radon is sucked into a home like smoke into a chimney.

One reason that radon contamination in housing is more of a problem today is the increasing energy efficiency of homes. Houses today are not as drafty as they used to be. While the air-tight home saves on energy bills, it may also cause radon to build up to unhealthy levels.

For the anxious homeowner concerned that his or her home environment is increasing the

## AIDS Threat to Workers Seems Slight

By Lisa Datta

The chances of getting AIDS from casual contact are practically nonexistent. Therefore, health-care workers who treat AIDS patients have nothing to fear (as long as they take proper precautions), and employees who work with infected coworkers have no rational basis for alarm. This, in a nutshell, was the message presented to a capacity crowd attending "AIDS in the Workplace," a program sponsored by the Division of Safety that addressed the concerns and fears that have grown as the AIDS epidemic continues to spread.

The reason AIDS is such an alarming disease is that there is currently no hope of recovery. Dr. Anthony Fauci, director, NIAID, underscored this fact in his presentation. According to Fauci, 58 percent of recently diagnosed patients have died and it is expected that all of them will eventually succumb to the disease.

It may be of some comfort to know that there are only two ways that someone who is not born with AIDS can become infected: through sexual contact with an HIV-infected person and through exposure to the blood of an infected person. Children who are born with the disease contract it from their mothers during birth or through the placenta.

Although the chances of getting AIDS by handling the blood samples of HIV-infected persons is very small, Dr. David Henderson, chief of the Hospital Epidemiology Service, Clinical Center, encourages all health-care workers "to consider blood samples as harboring pathogens." He says that "all of us who handle blood should minimize the risk (of transmission)."

According to Henderson, a vast amount of data suggests that AIDS is not spread through casual contact. If it were, he says, the disease would have a much different epidemiology. Studies of health-care workers and roommates of AIDS patients give no indication of transmission through casual contact. Family studies

provide, perhaps, the most convincing evidence that AIDS is not spread through casual contact. No one has been infected with AIDS from another family member with the disease except through sexual contact or maternal-fetal transmission.

Dr. John Fletcher, chief of the Bioethics Program at the CC, discussed some of the ethical issues that have arisen as a result of the AIDS epidemic. Specifically, he dealt with the rights of persons who are infected. Because there is no evidence to suggest that the casual contact that occurs in the workplace can transmit AIDS, HIV-infected persons should not be discriminated against. Quoting current guidelines, Fletcher said, "infected persons should not be restricted from using telephones, office equipment, toilets, showers, eating facilities and water fountains."

Fletcher also asserts that an HIV-infected person has no ethical duty to disclose his or her medical condition to supervisors or coworkers. The only people who have a right to know are the physician treating the individual or a sexual partner.

The recommendations and guidelines in effect today are based on the current state of knowledge on AIDS. If it became evident at some future date that AIDS can be spread through some other mode, making the HIV-infected person a threat to the health of others, then the current guidelines should, of course, be modified. Infected persons could then justifiably be restricted in the workplace.

Copies of the videotape "AIDS and the Workplace" are available from the Division of Safety, Bldg. 31, Rm. 1C02, 496-2801. For further information about the Clinical Center's Hospital Epidemiology Service, call 496-2209. To report an adverse exposure such as a needle stick or mucosal splash, contact the Occupational Medical Service, 496-4411. □

risk of cancer, Hrubec offered advice on how to determine the radon level in one's home and what to do if this level is high.

According to Hrubec, it is difficult to ascertain the radon level by taking "grab sample" measurements since the amount of radon in the atmosphere fluctuates over time. Therefore, any measurement device should be placed in the home for at least a week, ideally for several months. In addition, measurements should be

taken when the home is closed up such as in the winter.

Once a house has been found to contain unhealthy concentrations of radon, the EPA suggests covering up floors, walls, sump-pumps and other areas from which radon emanates. Increasing ventilation also helps since it dilutes the concentration of radon in the air and reduces the negative pressure on the inside of a home. □