

ENVIRONMENT

Radon–lung cancer risk high for smokers

For 2 decades, scientists have been homing in on the lung cancer risks posed by chronic exposure to radon, a radioactive gas emitted by rocks and soil. Now, a blue-ribbon panel convened by the National Research Council in Washington, D.C., to review the most recent studies of radon's effects on health has confirmed earlier estimates.

In the United States alone, residential exposure to this ubiquitous gas causes between 15,000 and 22,000 lung cancers annually—or 12 percent of all such malignancies. Indeed, radon is second only to smoking as a source of lung cancer, the NRC stated in its report, released Feb. 19.

Cancer risk climbs with lifetime exposure to radon's toxic decay products, which are themselves radioactive. In the absence of any confounding risk factors, a doubling of exposure will double risk, the report says. However, cigarette smoking greatly magnifies any such risk. In fact, the new analysis finds that all but about 2,000 to 3,000 radon-related cancers in the United States each year occur among current or former smokers.

This suggests that “radon reduction may benefit smokers more than nonsmokers because of the strong combined effects of smoking and radon,” observes Jonathan M. Samet, an epidemiologist at Johns Hopkins University in Baltimore and head of the NRC review.

Radon tends to build up in confined spaces, such as caves, mines, and houses. The Environmental Protection Agency has set 4 picocuries of radon per liter (pCi/l) of air as the concentration at which homeowners should consider installing special ventilation equipment to flush out the gas. The new analysis finds that 30 percent of all radon-related lung cancers occur among people living in homes that exceed that concentration—and another 40 percent occur in dwellings where radon averages only 1.25 to 4 pCi/l.

While there are uncertainties about whether radon poses additional hazards—such as the development of fibrous tissue in the lung—the NRC concludes that radon's carcinogenicity has been “convincingly documented.”

—J.R.