Exposure to North Dakota road material may increase risk of lung cancer

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New data shows that people exposed to the mineral erionite found in the gravel of road materials in North Dakota may be at significantly increased risk of developing mesothelioma, a type of lung cancer most often associated with asbestos exposure, according to research presented at the 2010 Chicago Multidisciplinary Symposium in Thoracic Oncology. This symposium is sponsored by the American Society for Radiation Oncology (ASTRO), the American Society of Clinical Oncology (ASCO), the International Association for the Study of Lung Cancer (ISLAC) and The University of Chicago.

Erionite is a mineral that occurs naturally and is often found in volcanic ash that has been altered by weathering and ground water. Erionite forms brittle, wool-like fibrous masses in the hollows of rock formations. Its color varies from white to clear, and it looks like transparent, glass-like fibers.

With similar properties to asbestos, erionite may pose health risks to those who breathe in the fibers. Erionite exposure has been associated with an unprecedented mesothelioma incidence in some Turkish villages in Cappadocia, and it has been widely believed that exposure to erionite was limited to that part of the world.

Erionite deposits are present in several parts of the U.S., including California, Oregon, North Dakota, South Dakota, Arizona and Nevada. In North Dakota in particular, researchers have found that more than 300 miles of roads were paved with erionite-contaminated gravel over

the last 30 years.

In this study, funded through NCI PO-1 "Pathogenesis of Mesothelioma" and a AACR Landon Innovator Award for International Cancer Research, international researchers from the U.S., Italy and Turkey sought to examine the potential health risks for those exposed to erionite by comparing air samples, microchemistry, tissue samples and other data from North Dakota with those found in affected parts of Turkey.

"Based on the results of our study and considering the known latency period for lung disease, there is concern for increased risk of mesothelioma for exposed residents in North Dakota," Michele Carbone, M.D., Ph.D., lead author of the study and director of thoracic oncology at the University of Hawaii Cancer Center in Honolulu, said. "Precautionary measures should be undertaken to reduce exposure of erionite that is occurring in North Dakota and may be occurring in other areas of the U.S. where large deposits of erionite are present if disturbed. Our findings provide an opportunity to implement novel preventive and early detection programs in the U.S., similar to what has been done in Turkey."

Provided by American Society for Radiation Oncology