Researchers assessing health impacts of one of the nation's largest environmental disasters

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Over nearly a century, thousands of residents and workers in Libby, MT, have been exposed to asbestos-contaminated vermiculite ore, leading to markedly higher rates of lung disease and autoimmune disorders, and causing to Libby in 2002 to be added to the federal Environmental Protection Agency's "National Priorities List."

Researchers at Mount Sinai School of Medicine, leading a team of investigators from four institutions, are now launching three investigations into disease pathology in the town and to determine recommended cleanup efforts.

The Principal Investigator of the project is Stephen Levin, MD, Associate Professor of Preventive Medicine at Mount Sinai School of Medicine and a nationally known expert in occupational medicine and asbestos-related diseases who has also served as PI of the nationwide World Trade Center Medical Monitoring & Treatment Program, coordinated by Mount Sinai since 2002.

"The asbestos-related disease in Libby is far more aggressive and rapidly progressive than what's seen in most asbestos-exposed workers, with high rates of cancers and severe effects on respiratory function," said Dr. Levin. "For that reason alone, the health problems in Libby are important to study and understand."

The first of the three programs will focus on particular risks of exposure to Libby asbestos during childhood, when lungs are still developing and maturing. This research may determine the level of environmental cleanup necessary in Libby to protect children, who are a particularly sensitive target population.

A second study will compare lung scarring among Libby residents who were exposed to asbestos only in their environment (and not at their place of employment) with lung scarring seen in workers with historically long-term, heavy exposure to common commercial forms of asbestos. Researchers hope to discover why Libby residents have advanced rates of lung scarring. They will also investigate the mechanism for asbestos-related scar formation and approaches to preventing scar formation after exposure has already occurred.

The third investigation will examine the relationships between autoimmune disorders, autoimmune antibody abnormalities, and CT-scan evidence of scarring lung disease in the context of exposure to Libby asbestos. Auto-immune disorders such as rheumatoid arthritis and lupus have been found to occur more frequently in Libby, and antibody levels to the body's own tissues are found in Libby residents more frequently and at higher concentrations.

Mount Sinai researchers will collaborate on the research effort, to be known as the Libby Epidemiology Research Program, with Libby's Center for Asbestos Related Disease (CARD), investigators from the University of Montana and Idaho State University, and a national scientific advisory group. The research will be supported by a grant of over $4.8 million from the Agency for Toxic Substances and Disease Registry (ATSDR) of the federal Center for Disease Control and Prevention.

The crisis in Libby, a mining town whose history has been shaped by

vermiculite-producing corporations since the 1920s, is the result of community-wide occupational and environmental exposure to Libby's naturally occurring vermiculite, contaminated with asbestos and asbestos-like silicate fibers up to 26% by weight.

Health effects have been detected not just in mine and processing plant workers, area lumber mill workers and loggers (from asbestos dusting of forests) and their families, but also among other Libby residents and their children. Many were exposed through ambient air or to mine tailings and other contaminated materials provided to the town by mining companies for the construction of ball fields, school running tracks, playgrounds, public buildings and facilities, as well as for private gardens and house and business insulation.

There is evidence that even relatively low-level exposures to Libby asbestos can cause serious scarring lung diseases, which markedly impair respiratory function, as well as asbestos-related cancers like lung cancer and mesothelioma, which occur at higher rates among the Libby population than elsewhere in the United States.

The health crisis potentially extends far beyond the borders of Libby, since millions of homes and businesses in North America have used vermiculite from Libby as attic insulation, fireproofing and soil conditioner. The ore from Libby was shipped by rail to 49 plant locations throughout North America and the Caribbean for processing, exposing many more workers and communities to the hazardous dust.

CARD Director Brad Black, MD, said, "The pattern of asbestos disease caused by exposure to Libby amphibole asbestos has led to excessive morbidity and mortality for the Libby population, and has been exceedingly challenging for the medical community. The severity of nonmalignant pulmonary disease in non-occupational exposure has been very unusual, raising question as to the potency of the unique amphibole

mixture. We look forward to working with Dr. Levin and Mount Sinai to find some of these answers."

Source: Mount Sinai School of Medicine