



## **The Risk from Naturally Occurring Asbestos**

---



By Don Lyman, MD

WHAT IS THE RISK from naturally occurring asbestos (NOA) in the soils of our region to you and your patients? Does NOA underfoot require precautions to protect school children, pedestrians, users of leaf blowers and lawnmowers, or people who walk down dusty streets?

Just as with environmental chemical exposures, we have moved from concern with occupational exposures to worries about small amounts around ordinary citizens for long periods of time.

Our risk from naturally occurring asbestos occurs mostly in the foothills region of the Sierra Nevada Mountains. A seam of asbestos-bearing serpentine rock stretches from Grass Valley in the north to Mariposa in the south.

We have seen great public concern with El Dorado County schools where earth has been moved to build sports fields. More importantly, where is this rock, how bad is the "dust" which comes from it, who is "at risk" and how can we minimize any dangers we identify?

### **Background on Asbestos**

Asbestos is magnesium silicate formed into a variety of small fibers in serpentine rock. Geologists define these filaments by length, diameter and other characteristics. When extracted, purified (sifted out of the rock) and compressed, these fibers are highly resistant to heat and have other attractive industrial properties. Asbestos was used mostly for insulation purposes.

A high rate of the rare cancer mesothelioma was found among shipbuilders exposed to asbestos in San Francisco Bay Area shipyards during World War II. These workers handled industrial-grade, highly concentrated asbestos. The connection was definitive and asbestos was labeled as an occupational risk from inhalation for both mesothelioma and other pulmonary conditions.

Subsequent investigations found no evidence of serious harm from ingestion of asbestos in drinking water.

Today, industrial use of asbestos is banned but there is concern about naturally occurring asbestos exposures in places like the Sierra foothills.

### **El Dorado County**

Since 1999, there has been public anxiety about exposures to NOA dust from the soils in some areas of El Dorado County. The issue eventually focused on plans for two new soccer fields at Oak Ridge High School. Ultimately, the U.S. Environmental Protection Agency (USEPA) assumed regulatory authority over the matter.

As the high school projects matured, the issue blossomed into concerns about more global exposures to asbestos in the county and the impact of housing construction, leaf blowers, dirt roads, and so on.

Public concern increased and a variety of agencies became involved. The Sierra Sacramento Valley Medical Society is an invited member of the Local Agencies Work Group (LAWG) convened by El Dorado County, to provide medical and technical advice. The work group sees itself as the one-stop-shop for communications into and out of the county — or at least an information exchange locus where all "players" know who is doing and saying what.

The LAWG joined the Sacramento area "Cap-to-Cap" yearly trip to Washington, D.C., and used that opportunity to meet with congressional and administrative officials to request better coordination. In reply, Congressman Doolittle and others took actions to assure that the federal Administration spoke with one voice.

The LAWG concerns include protecting the citizens of El Dorado County from NOA-related illnesses, and providing a "level playing field" for the region and nation. The working group stresses the needs for: consistency in risk assessment and risk management (RM) procedures; for a focused locus of authority in regulatory and mitigation efforts; and for defining the fiscal implications of naturally occurring asbestos for all those affected by it.

### **The View of our SSVMS Committee**

Is asbestos really a risk to the general public in the Sierra foothills? The answer is, yes.

However, the real and unanswered question is, how much risk?

We employ a process called risk assessment (RA) to seek an answer. It begins with a standardized measure of the substance in question, then moves to standardized studies of toxicity (test tube and petri dish studies, animal models, epidemiologic studies), and then bases risk management regulatory strategies on those data.

In this case, the substance is not the usual chemical but a form of mineral fiber. Geologists measure asbestos in various ways - but without the precision expected for pure organic chemicals. Because of the measurement problem, only a few studies adequately evaluate human risk from low-level and long-term NOA exposures. One result is uncertainty of RM recommendations based on variable environmental measures and cautious interpretations of risk.

This uncertainty leads school officials to be quite anxious about exposures and it leads others to dismiss the data as insufficient. Between these two perspectives, the USEPA has elected to implement mitigation standards which we view as *de minimus* in nature. That is, this is the least we must do at this time to assure safety; this is the floor, not the ceiling, for our efforts.

Clearly the need is for standardization of measurements, a universal standard protocol to translate those data into risk assessment, and then a menu of risk management options to protect citizens in all circumstances.

### **Future Plans**

So where is this matter going? The bad news is that we have an identified environmental risk for the people in El Dorado County exposed to NOA. The good news is that we are aware of the risk, have engaged national experts to address that risk here first — rather than elsewhere in other locales with NOA — and have begun mitigation efforts to reduce exposures and potential health effects to minimal levels.

In the near term, we will:

- work to reduce any miscommunications among the various agencies;
- participate in educational efforts to provide sound advice on how to minimize risk now;
- encourage further applied research to find reliable and consistent measures of NOA;
- insist that a universally applicable risk assessment methodology be developed to

address problems of naturally occurring asbestos;

- insist that *de minimus* mitigation efforts be executed where necessary to protect us all.

In the long term we will:

- continue to supply medical and technical backup to the County Health Officer;
- work with the LAWG to urge a mapping process to identify NOA danger areas;
- agree this is a national problem and not peculiar to El Dorado County;
- continue to support state and federal agencies to craft risk management strategies based on optimal health protection.

dlyman@dhs.ca.gov

Sierra Sacramento Valley Medical Society  
5380 Elvas Avenue #100 • Sacramento, CA 95819  
916.452.2671 PH • 916.452.2690 FX • Email: info@ssvms.org

Copyright © 2000-2008 Sierra Sacramento Valley Medical Society - All Right's Reserved