Health Effects of Asbestos

Sacramento County Division of Public Health Promotion and Education
How Does Asbestos Cause Disease?

- Asbestos fibers are inhaled deep into the lungs.
- Size, length and shape of fibers is different from one kind of asbestos to another, but all types of asbestos cause disease.
- Inhaled fibers can stay in the lung, go to other parts of the body, or be cleared.
How Does Asbestos Cause Disease?

• In the lungs:
  – Fibers cause local inflammation
  – Fibers disrupt orderly cell division
  – Cigarette smoking and asbestos exposure together are worse than either one alone

• When swallowed:
  – Can be cleared
  – May migrate to lining
Lung Diseases from Asbestos Exposure

- Lung Cancer
- Mesothelioma
- Asbestosis
- Pleural plaques
- Pleural thickening
- Pleural effusions
Lung Cancer

• Malignant tumor that invades the lung
• Cigarette smoking adds to risk
Mesothelioma

- Cancer of the lining of the lungs or the abdomen
- Very rare
- Almost always related to asbestos exposure
Asbestosis

- Scarring of the lung due to inhalation of asbestos fibers
- Usually appears 10 to 20 years after first exposure
- Slowly progressive
- Hard to transfer oxygen in and carbon dioxide out
Other Pleural Abnormalities

- Plaques
- Thickening
- Calcification
Symptoms of Lung Disease

- Shortness of breath with exercise
- Cough
- Pain
- Shortness of breath at rest
Diagnosis of Asbestos Related Disease

- History and Physical Exam
- Chest X-Ray
- Pulmonary function tests
- CT scan
- Biopsy/bronchoscopy
Treatment of Asbestos Related Disease

• Asbestosis or other nonmalignant disease
  – Symptom relief
  – Oxygen
  – Tobacco cessation

• Mesothelioma or lung cancer
  – Resection
  – Chemotherapy
  – Radiation
Presence of Disease

- Related to number and type of fibers inhaled
- Duration of exposure
- Intensity of exposure
- Length of time since first exposure
Occupational Exposures

- Building industry
- Ship yards
- Household products
- Quarries
- Pipe insulation, automotive brakes, shingles, wallboard, and blown-in insulation with asbestos produced through 1970s, installed through 1980s
Non-industrial Exposures

• Living with a person who works with asbestos
• Living in communities with asbestos mines or factories
• Using tremolite asbestos to whitewash homes.
Naturally Occurring Asbestos

- Exposure anytime dust containing asbestos is inhaled.
- Unpaved roads, on shoes in house, playing in the dust, new construction, mowing, grading, gardening
- Intensity, duration and time since first exposure are important
Children

- Higher metabolism
- Growing lungs
- Lower to the ground
- More likely to engage in dust-producing activities
- Intense but short duration episodes
- Longer life expectancy
What we know

- Industrial exposure to asbestos inhalation causes serious lung disease.
- Living with asbestos workers, in the vicinity of asbestos mines and factories, or whitewash with asbestos in homes, increases rates of asbestos-related disease.
- The consequences of exposure can be seen as long as 30 years after exposure began.
What we don’t know

- Effects of short or variable length exposures of variable intensity
- Effects on children
- Dose/effect relationship for different types of asbestos