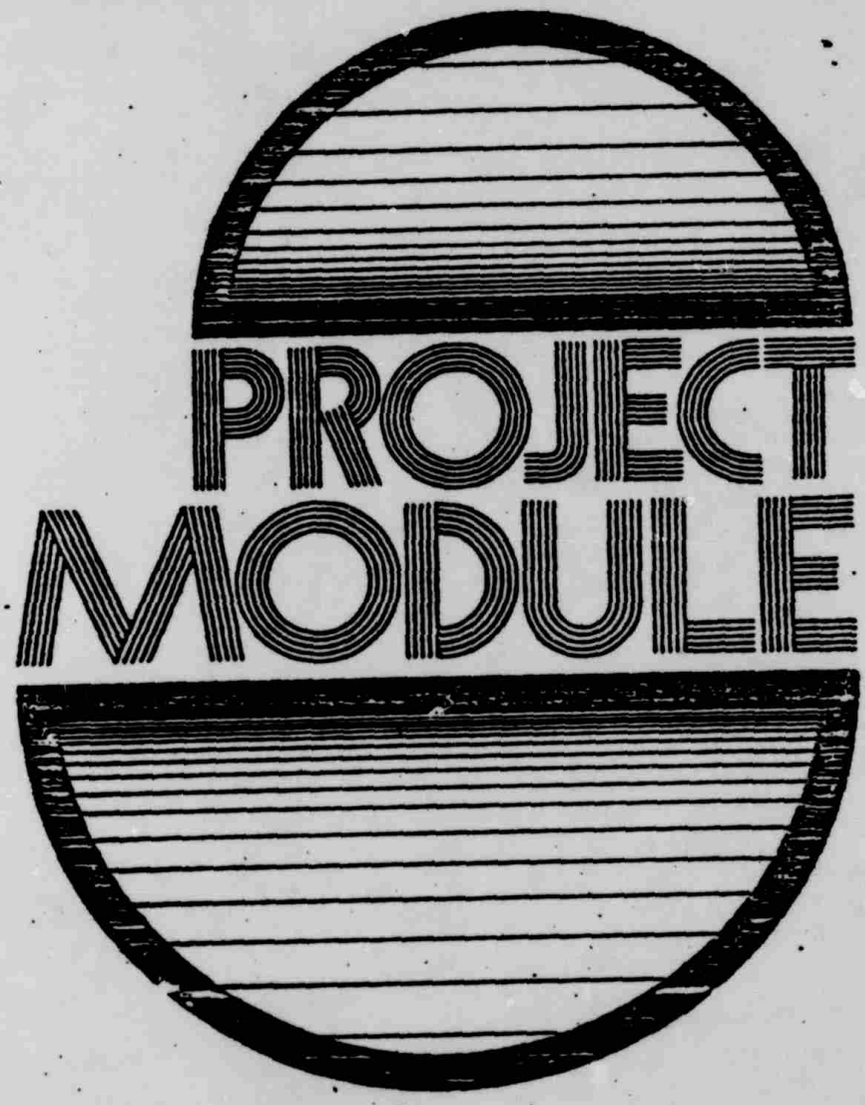
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ARIZONA CENTER FOR OCCUPATIONAL SAFETY AND HEALTH



DRAFT

January 15, 1980

Instructor's guide

Asbestos

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Instructor's Guide

Asbestos: Expedience, Exposure, and Human Experience

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RATIONALE

Asbestos is a remarkably ubiquitous material. It is used in many different industries, as well as in building construction, brake linings, and tires. A recent statement from the Department of Health, Education and Welfare (HEW) indicates that between eight and eleven million workers have been exposed to asbestos since World War II; of these and others, as many as 5.6 million people may die of cancer or other asbestos-related diseases.

Between 1967 and 1969 in the U.S., deaths due to cancer among asbestos insulation workers were three times that expected for a comparable unexposed population. Eight to nine percent of these deaths were due to otherwise rare mesotheliomas. The prevalence of asbestos-related disease among exposed workers and members of the community can only be grossly estimated because exposure is common, widespread, and often not visible, as in uncontrollable environments such as the home. The many years between exposure to asbestos and the onset of disease further obscure the identification of asbestos as the etiologic agent.

Because of the ubiquitous nature of this problem and the high mortality rates associated with asbestos exposure, it is urgent that you, the primary care physician, be able to recognize the various sources of exposure, appropriately screen patients to identify presence of asbestos-related diseases, and institute effective preventive as well as therapeutic management, or make appropriate referrals for specialized care.

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LEARNING OBJECTIVES

When finished with this module, you should be able to:

1. Discuss the different groups of people exposed to asbestos historically, occupationally, and environmentally. Differentiate between the exposure of workers in asbestos mines, asbestos product manufacturing, and asbestos use. Pages 3-4 and slide-tape.

2. Identify the different industries in which workers are exposed to asbestos with specific reference to types of jobs. Pages 2-3.

3. Identify environmental sources of asbestos. Pages 1-2.

4. Define the chemical structure and at least four different fiber types of asbestos. Page 2.

5. Describe major uses of asbestos and define the populations at risk. Pages 2-4.

6. Explain the toxicology of asbestos. Page 6.

7. Describe the history of the medical discovery of each asbestos-related disease. Pages 4-6.

8. Describe the pathophysiology, clinical manifestations, clinical course, and prognosis of:

   a. Pleural plaques and asbestos bodies
   b. Asbestos-induced pulmonary fibrosis
   c. Adenocarcinoma of the lung resulting from asbestos exposure
   d. Mesothelioma
   e. Subcutaneous granulomatosis from asbestos Slide-tape and Pages 10-13.

9. Describe the social and economic impact of asbestos exposure on the population, with citation of statistics on morbidity, mortality, and disability from asbestos-related diseases. Slide-tape and pages 1-4.

10. Correlate the risk of asbestos-related lung disease and cancer with other epidemiologic factors such as cigarette smoking, type of work, and environmental dust concentrations. Pages 9-10.

11. Elicit an appropriately tailored history and physical assessment of patients exposed to asbestos, including questions and examination techniques which will identify each of the possible consequences of asbestos exposure. Describe all possible abnormalities which might be found. Clinical Application, pages 15-21.

12. Select appropriate X-rays which will screen for, verify, or assess severity of asbestosis or asbestos-induced cancer. Slide-tape.

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13. Select specific components of pulmonary function tests which will assist in the diagnosis of asbestosis; describe the expected abnormality for each relevant function. Slide-tape.

14. Identify asbestos fibers or bodies through sputum examinations. Slide-tape.

15. Present a differential diagnosis of asbestosis and design an appropriate sequence of examination procedures which will exclude other disease possibilities.

16. State the criteria required to confirm a diagnosis of: 1) occupationally-caused asbestosis, 2) occupationally-caused mesothelioma, and 3) occupationally-caused bronchogenic lung cancer. Slide-tape.

17. Outline an approach to management of each of the asbestos-induced diseases. Slide-tape.

18. Design or outline a plan for management of or control of asbestos exposure 1) in the workplace and 2) in the environment. Slide-tape.

19. Outline the present OSHA standards and describe their shortcomings regarding prevention of future asbestos-related diseases. Pages 13-14.

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RESOURCES

Site visits:

Tours to sites of industry in which asbestos is used and visits to the Environmental Protection Agency, OSHA, and NIOSH offices will enhance the educational impact of this unit.

Clinical experiences:

Patients with asbestos-related diseases may be identified in out-patient oncology, pulmonary, and dermatology clinics. In-patients may also occasionally be found. Awareness of the need to find such patients throughout the year will help to increase student exposure to such clinical problems.

A visit to the Employee Health Service of an asbestos mine or other asbestos plants might also help identify patients.

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CLINICAL APPLICATION

Plan for patient care

1. Preventive

The trainee, upon completion of the didactic portion of this module, should then:

a. Review a worksite evaluation done by an industrial hygienist to determine adequacy of protective measures against exposure to asbestos particles.

b. Review the NIOSH Revised Recommended Asbestos Standard to develop a familiarity with levels of airborne asbestos particles which become hazardous.

c. Outline optimal measures for prevention of exposure to asbestos in all industrial and environmental settings.

d. Become familiar with investigation procedures which can be initiated through OSHA or EPA when a violation of safety regulations is suspected.

e. Plan a patient education program for workers exposed to asbestos, helping them to recognize safety violations and hazardous exposure as well as warning signs of disease.

f. Review Part V of Asbestos and Disease, by Selikoff and Lee.

2. Therapeutic care

The primary care physician should be able to:

a. Outline appropriate management approaches to chronic asbestosis.

b. Recognize the need for and proceed with cancer screening in patients exposed to asbestos.

c. Refer patients with complicated pulmonary or dermatologic problems or with cancer to appropriate medical consultants for specialized care.

3. Rehabilitation

a. The primary care physician should assist the patient who is disabled by asbestosis or asbestos-induced cancer in utilizing institutional and community resources for rehabilitation.

b. Use of specific criteria for the diagnosis of asbestosis and of mesothelioma will also allow the primary care physician to defend the patient's right to compensation for occupationally acquired asbestosis.

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