"ASBESTOS RELATED DISEASE - A COMMUNITY EPIDEMIC IN THE MAKING"

by

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50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. Recipient's Accession No. 155896/AS
4. Title and Subtitle "Asbestos Related Disease - A Community Epidemic in the Making"			5. Report Date 00/00/00 6.
7. Author(s) Lemen, R. A., I. J. Selikoff, G. A. Hurst, and J. K. Wagoner			8. Performing Organization Rept. No.
9. Performing Organization Name and Address Division of Field Studies and Clinical Investigations, NIOSH, U.S. Department of Health, Education and Welfare, Cincinnati, Ohio			10. Project/Task/Work Unit No. 11. Contract (C) or Grant(G) No. (C) (G)
12. Sponsoring Organization Name and Address			13. Type of Report & Period Covered 14.

15. Supplementary Notes

16. Abstract (Limit: 200 words) The importance of epidemiological assessments in tracing the development of disease among workers was demonstrated in this report concerning the exposure of workers to asbestos (1332214) particles. A NIOSH field survey made at a thermal pipe insulation facility in the southwestern portion of the United States measured airborne asbestos concentrations of 15 to 20 times the current standard. A significant number of workers employed for less than 10 years at this site demonstrated symptoms and signs consistent with asbestos related diseases. Potential for community exposure was also great. Prior to the opening of this facility in the southwest, its predecessor was operating in the northeastern United States from the early 1940s through 1954. A study of a 900 member cohort of former employees at this earlier site was completed and demonstrated a highly significant excess of asbestos related diseases, malignant and nonmalignant in nature. A study of family members living with the worker at the time of employment, indicated that 50 percent of these family members had x-ray abnormalities consistent with asbestos related disease. Other reports indicating that asbestos related diseases were not limited to the worker were cited as well. Ninety percent of all past employees of the southwestern facility had been located and the search was continuing for the remaining 10 percent.

17. Document Analysis a. Descriptors

b. Identifiers/Open-Ended Terms NIOSH-Publication, NIOSH-Author, Occupational-exposure, Asbestos-products, Insulation-materials, Construction-materials, Respiratory-system-disorders, Cancer-rates, Risk-analysis, Epidemiology

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages 9
	22. Security Class (This Page)	22. Price A02

(See ANSI-Z39.18)

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OPTIONAL FORM 272(4-77)
(Formerly NTIS-35)
Department of Commerce

In 1971, a NIOSH Field Survey of a thermal pipe insulation plant in the southwestern United States measured airborne asbestos concentrations in the magnitude of 15-20 times the current standard for asbestos. Medical examinations conducted at that plant demonstrated that approximately 50% of those individuals employed for ten or more years had asbestosis while a significant number of those individuals employed for less than ten years exhibited symptoms and signs consistent with the early development of asbestos related diseases. Furthermore, potential for community exposure to asbestos was found when it was discovered that indiscriminate dumping of asbestos waste by the plant had occurred in large areas of the community. It was also found that burlap bags once used for shipping raw asbestos had been sold to local nurseries for use in wrapping rose bushes.

In the early 1940's the predecessor plant of the southwestern facility was in operation in the northeastern United States. This plant continued in operation until 1954 when it was disassembled and moved to the southwest location. Studies by the Mt. Sinai School of Medicine on a cohort of 900 individuals formerly employed in the northeastern facility had recently been completed. This investigation has demonstrated a highly significant excess of asbestos related diseases, malignant and non-malignant in nature. More recently an investigation of surviving family members of this population, living with the worker at the time of his employment has shown X-ray abnormalities, in the magnitude of 50%, consistent with asbestos related disease. One must conclude, therefore,

that exposures to asbestos are not limited to within the factory walls. In a 1965 report, Newhouse and Thompson[1] indicated that as high as 52.6% of mesothelioma cases gave a history of living in the same house with an asbestos worker. They also indicated that a statistically significant ($p<0.01$) number of mesothelioma patients lived within half mile of an asbestos factory. Earlier J. C. Wagner and associates[2] saw an unusually frequent number of mesothelioma among residents of a community surrounding an asbestos mine in South Africa. He has shown that the majority of these mesothelioma cases were not among employees but were among either family contacts or residents of the immediate vicinity surrounding the mine, individuals having only casual exposure to the material. Further community exposure is attested to again by Wagner[3] when he sights mesothelioma occurring among workers in a non-asbestos facility using bags having formerly contained asbestos. The studies by Mt. Sinai of the northeastern predecessor plant, provide the necessary risk factor upon which some 200 excess deaths are predicted to occur over the next 20-30 years in the study population of the southwest. Ergo, an innovative epidemiologic approach to intervention in this pending epidemic of asbestos related disease is being undertaken by the National Cancer Institute, the East Texas Chest Hospital, and the National Institute for Occupational Safety and Health. At the present time over 90% of all past employees for the southwestern plant have been located and further shoe leather tracking should locate a majority of the rest of them, as well as family members.

Studies such as this show the role of the epidemiologist in promoting viable community health programs in preventive medicine. His role is

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obviously more than just showing an association between cause and effect, it is his ethical responsibility to carry beyond this concept and insure that adequate surveillance, intervention and preventive measures are iniated and carried out to provide maximum health protection for a community exposed to a known carcinogenic agent.

Data resulting from epidemiologic investigations among employees and family members will be presented for the northeast facility. In addition medical and environmental data will be presented for the southwest facility. Future activities resulting from these investigations will be discussed.

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References for the Briefing Document in Support of the Abstract Entitled "Asbestos Related Disease - A Community Epidemic in the Making"

1. *Mesothelioma of Pleura and Peritoneum Following Exposure to Asbestos in the London Area by Muriel L. Newhouse and Hilda Thompson. British Journal of Industrial Medicine, Vol. 22, pp 261, 1965.*

2. *Diffuse Pleural Mesothelioma and Asbestos Exposure in the Northwestern Cape Province by J. C. Wagner, C. A. Sleggs, and Paul Marchand. British Journal of Industrial Medicine, Vol. 17, pp 260, 1960.*

3. *Epidemiology of Asbestos Cancers by J. C. Wagner, J. C. Gilson, G. Berry, and V. Timbrell. British Medical Bulletin, Vol. 27, No. 1 [Epidemiology of Non-communicable disease], pp 71, 1971.*