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Workshop on Environmental and Occupational Asthma

This workshop is dedicated to Professor Jack Pepys, who trained many of us, educated all of us, and who more than any other individual has advanced our understanding of occupational and environmental asthma.

The Workshop Participants

Opening Remarks

This Workshop on Environmental and Occupational Asthma addresses a topic of growing national and international importance. Asthma now affects as many as 20 million Americans, its mortality has doubled in the past decade and is twice as great among black Americans, and it is responsible for increasing hospitalizations with an estimated annual medical cost of four billion dollars. The proportion of asthma that is environmentally and occupationally related is not known, but is generally accepted to represent a significant proportion of all asthma cases. Research on asthma and interest in environmental and occupational causes of asthma have increased dramatically in the past 10 years. Yet it is clear that the information gained by this research is not being transmitted to primary care providers who first see these cases and must be in a position to make the correct diagnosis and take necessary measures in patient management.

This workshop is also timely. It comes at a time when the National Heart, Lung and Blood Institute has initiated its National Asthma Education Program, when the Institute of Medicine of the National Academy of Sciences is developing an initiative to enhance the practice of occupational and environmental medicine, and when the National Institute for Occupational Safety and Health and the National Center of Health Statistics have undertaken new surveillance initiatives for occupational and environmental asthma. This workshop provides an excellent opportunity to provide needed input to these several national programs.

For the purposes of this workshop, it was decided to utilize a broad and inclusive definition of environmental and occupational asthma. The following working definition was adopted, from a 1980 *Thorax* article by Newman-Taylor: "Variable airway narrowing causally related to exposure in the [working] environment to airborne dusts, gases, vapors or fumes." It was recognized that somewhat different definitions of environmental and occupational asthma may be desirable, depending on circumstance. This definition helped direct the workshop to address asthma arising from industrial exposures in the workplace or as the result of industrial emissions or products. Our knowledge of asthma arising from those exposures comes mainly from studies of occupational asthma, which greatly influenced the workshop content. It was, however, recognized that exposures resulting in asthma from the same agent may occur in the workplace or the general environment. It was also recognized that asthma-like conditions, such as reactive airways dysfunction syndrome and byssinosis, share many characteristics with asthma, and these conditions have therefore been included in these discussions.

When working group reports that follow refer to occupational and environmental asthma, this indicates a broad definition of asthma and asthma-like syndromes arising from occupational and environmental exposures. "Occupational asthma" is used in circumstances appropriate to only occupational exposures. Although there was little discussion of childhood asthma, which was not included in the scope of the workshop, because of the importance of environmental exposures in childhood asthma and in the natural history of subsequent adult asthma, the Epidemiology and Surveillance Working Group provided several research recommendations regarding childhood asthma.

The goals of the workshop were designed by the program committee to summarize the current state of knowledge about environmental and occupational asthma, to develop strategies to transmit essential knowledge to primary care providers, and to identify research priorities. These goals are as follows:

- To provide a workable definition of occupational asthma and identify respiratory hazards resulting from environmental as well as occupational exposures.
- To relate the current knowledge to needed skills and behaviors within the practice patterns of physicians, particularly primary care and other first contact providers.
- To provide and evaluate mechanisms for reinforcing physicians' skills and behavior in regard to preventing, treating, and reporting of environmental and occupational asthma.
- To recommend surveillance mechanisms for recognition of environmental and occupational asthma.
- To suggest further measures in the areas of clinical assessment, epidemiology, management, control, and prevention, necessary to identify and protect individuals

at risk.

- To identify research gaps and recommend new research initiatives.

I commend the workshop participants for the skill and enthusiasm with which they worked together to address these several goals. We thank the conference contractor, Technical Resources Inc, for the superb job they did in organizing the workshop. We particularly appreciate the support and participation of the several federal member agencies of the Task Force on Environmental Cancer and Heart and Lung Disease that sponsored the workshop. These include the Environmental Protection Agency; the Division of Lung Diseases of the National Heart, Blood and Lung Institute; the National Institute for Occupational Safety and Health; and the National Institute of Environmental Health Sciences; and the Agency for Toxic Substances and Disease Registry.

The following recommendations represent the consensus view of the working groups following discussion at the workshop and review by all participants of the final draft. The individual papers in this issue were each presented at the workshop and are printed, as revised, following peer review.

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Priorities for the Management of Environmental and Occupational Asthma

As with asthma generally, the frequency with which occupational and environmental asthma is reported appears to be increasing. The reasons for this are not clear, but may relate to increasing environmental exposures in an increasingly chemically dependent society, to improved diagnostic techniques, and to increasing sensitivity to the association between occupational and environmental exposures and asthma on the part of both patients and physicians. A concomitant increase in occupational and environmental asthma research has occurred over the past ten years. The organizers of this Workshop believe that important new information arising from this research has not been adequately communicated to primary health providers and that little attention has been given to education and prevention programs on occupational and environmental asthma. When these concerns were made in the form of a proposal for a Workshop on Environmental and Occupational Asthma, several federal agencies and institutes willingly stepped forward to sponsor this effort. Further testimony to the importance of this issue was provided by the enthusiastic and dedicated participation of the Workshop participants.

The Workshop reports and recommendations, together with the papers presented, discussed, reviewed and revised before publication in this supplemental issue of *Chest* collectively provide an excellent review of occupational and environmental asthma in 1990. Several recommendations which are particularly relevant for the practicing physician deserve emphasis:

- A single definition for occupational and environmental asthma is not necessary, as different criteria for case definitions are appropriate to different uses. A broad working definition which was inclusive of asthma and asthma-like conditions served the needs of this Workshop in summarizing current knowledge and recommending research and prevention strategies.
- Exposures to industrial emissions resulting in occupational and environmental asthma are both varied and prevalent. It is important for the practicing physician to have a general understanding of the importance of dose-response, and especially the importance of high exposures arising from spills of chemicals such as isocyanates in the manifestation of asthma, but also that control of exposures to the level of permissible exposure limits in no way assures that asthma will be controlled in all patients.
- Data presented at this Workshop provide the single best-documented study of the importance of environmental exposures which can result in epidemic community asthma. The recurring outbreak of environmental asthma in Barcelona, Spain, which included asthma deaths arising from community exposure to soy bean dust, provides compelling new information on the potential importance of industrial point sources in the etiology of asthma.
- The importance of the occupational history in the assessment of occupational and environmental asthma cannot be stressed strongly enough. The practicing physician must take a thorough occupational and environmental history and account for potential exposures in the home, the workplace and the community. The pattern of asthma (immediate, late, dual and recurrent) associated with these exposures must be recorded. Asthma with exposures to a wide range of nonspecific stimuli including solvents, permanent press fabrics, detergents, cigarette smoking, diesel exhaust, and cold air are all important in both the diagnosis and management of this disease.
- It is now clear from several exposures including isocyanates and western red cedar, that early diagnosis of occupational asthma and removal from further exposure is critically important to prevention of serious sequelae of asthma which may include death. The physician is responsible to provide the patient and his or her employer explicit written restrictions from irritant exposures. If it is not possible to prevent asthma through environmental control or job transfer, the physician is responsible for recommending alternate employment.
- Physicians should understand state workers' compensation laws and procedures in order that their occupational asthma patients' rights and privileges not be compromised. If the physician is unable to provide appropriate advice to the patient, the patient should consult a physician who is experienced and qualified