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WHY DO MEDICAL SURVEILLANCE EXAMINATIONS?

By: T. A. Lincoln, M.D.

Medical surveillance examinations are close clinical observations of workers potentially exposed to chemical, physical or biological stresses. They may consist of complete periodic physical examinations or of specific laboratory tests on certain organ systems, for example a periodic chest x-ray examination. They are not the same as periodic general health evaluations performed on healthy unexposed workers. Medical surveillance examinations require all the skills of the periodic health appraisal but in addition require knowlege of how much and in what manner a worker is being exposed as well as what effects such exposure might cause. The physician who performs medical surveillance examinations must be more than just a skilled clinician.

One might reasonably ask, why do medical surveillance examinations? Chronic degenerative or malignant changes, even when they rarely occur, sometimes can't be detected early enough to prevent irreversible changes. Why not just reduce employee exposures to safe levels and avoid the costs and potential liabilities of these examinations?

Reducing employee exposures to "safe" levels is basic to any health protection program. However, in many plants there will be employees with 10-35 years of company service who may have worked many years where potential levels of exposure were higher than now considered appropriate by modern

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standards. The amount of exposure which occurred in the distant past is often not known. The technology for measurement had not been developed or the realization of the potential toxicity of some substances was not known. These employees, therefore, need to be kept under surveillance to enable detection of any adverse delayed health effects. Such detection would allow early intervention and would signal the need for reevaluation of the total health protection program.

In addition to this monitoring for delayed effects, there are many additional justifications for medical surveillance.

Some employees may have medical conditions which make them more vulnerable to the subtle effects of low level exposure to toxic materials or physical stresses. A good example would be exposure to methylene chloride. When this material is absorbed and metabolized in a worker, it raises the level of carboxyhemoglobin. If that worker already has advanced coronary artery disease with impaired circulation to the cardiac muscle, he or she cannot safely tolerate much reduction in the oxygen carrying capacity of the blood. If that worker also smokes, the carboxyhemoglobin level is already elevated. Finding this disease or this lifestyle factor could require certain special exposure restrictions to make the work safe. Also, the special reason for helping an employee stop smoking is apparent.

In many cases no specific interaction like the one just mentioned is present but general adverse health effects of drugs, alcohol or tobacco are of

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concern. The worker who abuses alcohol, smokes 1-2 packages of cigarettes each day, or who is on various therapeutic medications, may be sustaining special health risks. These could have an additive effect when combined with the occupational exposure. In order to appreciate what special risks the worker and the company may be taking, it is essential to know what these drug or lifestyle factors are and try to help the worker do something about them. If the problem is simply a potential adverse drug interaction or an effect impairing alertness, sometimes alternative drugs can be prescribed. Another reason for documenting non-occupational factors is to keep a more complete health record. Such a record may enable a more accurate attribution of these lifestyle or drug factors in the causation or aggravation of diseases which may have both an occupational and non-occupational origin.

During an adequate medical surveillance examination there must be an exchange of information between the medical examiner and the worker. The medical examiner needs to inquire how the worker being examined has been exposed in the past or is currently being exposed. The examiner must be familiar with the production process and be able to understand workers when they describe what they do. Good medical practice requires the examiner to get his (her) own medical and crude exposure history.

What does the worker do? What is the worker's impression of his past exposure? Does he regard it as high, medium or low? What is the worker's level of understanding of the reasons to avoid excessive exposure? How do special work practices influence exposure? Ideally, the medical examiner

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should have available industrial hygiene monitoring results of the individual worker or of comparable workers so he (she) can respond to questions. It is sometimes amazing to learn of the misunderstandings of the hazards of exposure or the levels of exposure as reflected in monitoring results. The medical examiner, especially the physician, has to be adequately prepared to answer questions in a calm confident manner. Responding that, "I don't know. You had better talk to your supervisor." Is not reassuring to the worker.

Medical surveillance examinations should be performed and information collected in a manner which can be subjected to possible future epidemiological analysis. The examination is a time of vital data collection. The medical record must contain adequate health experience information and specific test results so it can be a reliable data source.

Sometimes the medical surveillance examination is the time when body materials such as blood, urine, hair etc., can be collected for bioassay in order to estimate past exposures and current body burdens of toxic materials. Whenever such tests are performed, the employee must be informed of the results and given interpretations of them. Full knowledge of the limitations and vagaries of such testing must be appreciated by any medical examiner. Opportunities for additional follow up testing and investigation of test results are essential. How many occupational physicians have been puzzled by high blood lead levels in lead burners only to learn that the worker made toys or fishing lures out of lead at home in his basement with no exhaust ventilation?

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Medical surveillance examinations should collect information on the general health of the worker. Strict limitation of these examinations only to the potential effects of exposure to specific materials can lead to potential liabilities. A chest X-ray examination performed for evidence of early interstitial fibrosis in an asbestos worker which then ignores a suspicious mass in the hilum could lead to a malpractice claim.

Both the medical examiner and the worker being examined must have an adequate understanding of the scope of the examination. If it is limited to only one specific test, the worker must understand that a general health appraisal is not being performed. When the health effect being searched for is not highly specific, e.g. any cancer, it is not only prudent but highly desirable to conduct a general health survey being alert to possible significant historical abnormalities, physical findings or test results. Referral for more complete evaluation may be necessary but these findings must not be ignored.

The worker must be informed of the results of any medical surveillance examination which has been performed. Follow up evaluations of undersirable work practices, borderline or elevated exposure levels detected by industrial hygiene monitoring, exposure anxieties, lifestyle problems and miscellaneous health concerns are an important objective of medical surveillance examinations. It is not enough to perform certain examinations or tests and then dutifully file the results in a cabinet. Consistent with medical ethics, the medical examiner should be sure that adequate attention to individual or

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group abnormal findings related to job exposures has been paid by the worker, the plant health and safety professional, the supervisor and the plant management. Again consistent with the confidential nature of certain medical information, a continuous interchange of group surveillance examination results should be conducted between the medical department and the unit where exposed employees work. Also, ideally, evaluation of group experience should be conducted. Many times subtle effects of exposure will never be appreciated unless group examination results are collected and analyzed.

Conclusions

The medical department should play an important role in health protection. Medical surveillance examinations are an opportunity to learn of new health problems which have a relationship with job exposures, to inform and reassure the worker and to collect vital health data which can be analyzed to detect possible subtle occupational relationships. Unless the examiner has a clear understanding of the potential toxicity of the substance or physical stress to which the worker is being exposed and knows how the worker is actually being exposed, he (she) cannot perform quality examinations. Unless one knows what one is looking for, he (she) is unlikely to find it!

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