



Shell Oil Company
Interoffice Memorandum

January 24, 1992

FROM: S. R. Cowles, M.D., Dr.P.H., Medical Director, Health Surveillance/Epidemiology

TO: Group Considering Extended Medical Surveillance and Shell Physicians
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SUBJECT: Shell Extended Medical Surveillance - Current Status and Proposal for the Future

Enclosed please find a copy of a revised discussion of Shell extended medical surveillance. It includes a proposal for extension of asbestos SMSP participant follow-up into retirement (as is already occurring at certain Shell locations) as well as similar follow-up for retirees from the Silica and Man-Made Mineral Fibers SMSP's. Your review and comments would be greatly appreciated by February 28, 1992.

Thank you for your attention to this matter.

S. R. Cowles, M.D.
S. R. Cowles, M.D.

SRC:cw

Enclosure

LAM 018752

DPMC-12375

SHELL EXTENDED MEDICAL SURVEILLANCE - CURRENT STATUS 1991
AND PROPOSAL FOR THE FUTURE

Background

In 1981, the Shell Data Evaluation and Prioritization Team (D.E.P.T.) task force reviewed each substance covered by a specific Shell Medical Surveillance Program (SMSP) to determine whether or not any of the programs should be extended to include employees after retirement (Enclosure I). As a result of that review, eight substances were considered to be potential candidates for such a program. Two substances were recommended by D.E.P.T. for initial implementation. Both were chosen because of their potential carcinogenicity and because the amount of human data regarding the two substances was considered incomplete.

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Since the early 1980s, the Shell Martinez Manufacturing Complex has had an asbestos medical surveillance program that includes medical surveillance of retirees with any signs or symptoms of asbestos related conditions at the time of retirement. Union bargaining was involved in this decision. The program has been well received by employees at Martinez and has allowed continued follow-up and counselling of retirees with asbestos-related disease. It has helped assure that affected individuals have received pulmonary and optimal medical management.

In the mid-1980s, the Shell Deer Park Manufacturing Complex medical director identified approximately 20 retiring employees with medical findings compatible with past asbestos exposure and, with Corporate Medical approval, arranged for continued postretirement medical follow-up of this group. Late last year, Westhollow Research Center requested and received approval for medical follow-up after retirement of a few employees who had asbestos-related medical findings.

The individual programs created have been effective. They have, however, created a situation in which certain Shell locations are providing a greater degree of medical follow-up for possible occupationally related diseases than other Shell locations. This, in turn, has led Corporate Medical to consider the whole issue of extended medical surveillance again and to seek a more integrated and consistent companywide approach for the future.

Relevance of 1981 D.E.P.T. Criteria

The technical factors developed by D.E.P.T. on which to evaluate potential candidates for an extended medical surveillance (EMS) program are just as relevant now as in 1981. These are:

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- A. The carcinogenic potency or other chronic toxicity of the chemical (the more toxic, the greater the potential need for an EMS program).
- B. The frequency/duration of exposure of Shell employees (the more frequent and longer duration, the greater the potential need).
- C. The route of exposure to Shell employees.
- D. The exposure levels of Shell employees.
- E. The latency period (time from exposure to development of disease).
- F. The extent and quality of existing epidemiologic data.
- G. The number of Shell employees affected (a factor only of importance if the rationale for a program is to provide additional epidemiologic data).

A factor not considered in 1981 is the presence of known, effective, early intervention to either reverse or control the disease process. Given these factors, Shell Corporate Medical has reviewed the existing SMSP examinations to determine which might be considered for a companywide extended medical surveillance program.

Evaluation of EMS Potential of Current SMSPs

Of the current 15 SMSP examinations that are substance specific, only a handful might qualify for an EMS program on the basis of long latency, high toxicity, and sufficient potential exposure. For all 15, the argument could be made that more extensive epidemiology data would be desirable. Quickly rejected from further consideration at this time are the SMSP examinations

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There are five SMSP examinations for which medical rationale is available and where the existence of an EMS program might be expected to be of benefit to Shell retirees as well as to the company. Employees have been or still are occupationally exposed; the long term chronic health effects are of a potentially sufficiently serious nature; early treatment and intervention may offer improved quality of life; and onset of disease is likely to occur or progress after retirement.

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The issue of using an EMS program to further knowledge of a disease process and extend the epidemiology is also important, but in most cases, secondary to assuring appropriate medical follow-up of individuals at risk of developing an occupational disease. Epidemiology is enhanced only with much higher participation rates than such a program is likely to achieve. Better understanding of the natural history of a disease process, however, can be gained from even relatively low participation rates (60% participation was projected in 1981, and this is likely to be high, given the Wood River EMS participation rate for retirees of somewhat less than 50%).

Regular examination of individuals in a recognized risk group in a standardized manner and with specialty follow-up when indicated can provide a higher level of medical care and earlier recognition and treatment of problems than individual care by a personal physician untrained in occupational medicine and not seeing similar individuals. As with the SMSP examination, the EMS examination is an adjunct to care by the individual's personal physician and would be designed to assist the personal physician, not replace the personal physician.

The five programs for which an EMS program might be medically considered are:

- A. Asbestos - Long term chronic effects take many years to develop and are more likely to produce clinical disease after retirement than before. The severity of adverse health effects is high, and effects include lung cancer, mesothelioma, and progressive pulmonary disease (asbestosis). The number of exposed employees within Shell is high. In 1988, for all of Shell, 1295 asbestos examinations were performed and there were 325 living retirees who had previously participated in the asbestos examination program while active employees. Regular medical follow-up, counselling, and early treatment can mitigate the effects of asbestos-related disease. Such follow-up may also help in the early detection of lung cancer, but this is less certain. The goal of an asbestos EMS program would be to assure appropriate medical follow-up. Because employees with medical findings suggestive of asbestos-related

effects are far more likely to have their condition progress and to develop complications than those without such findings, the frequency of examination could be based on the presence or absence of such medical findings. Yearly examination would be recommended for all retirees with possible asbestos-related findings; those without such findings would be offered an every three year examination.

- D. Man-Made Mineral Fibers (MMMF) }
E. Silica } These two are considered together and
should perhaps be considered with asbestos as well. Long term chronic effects include the possibility of lung cancer and progressive lung disease. Retirees are as likely, or more likely, to develop clinical disease. Treatment at an early stage can help mitigate at least some aspects of the disease. Many of the same individuals previously

exposed to asbestos are now exposed to man-made mineral fibers. The total number in both programs is small--30 active employees in the silica SMSP in 1988 with 11 retirees who as active employees had participated; less than 50 active employees have been enrolled in the MMMF program since its initiation in 1989. Medical follow-up and management of cases is very similar to that for asbestos. Combining these two plus asbestos into an EMS program for substances which produce chronic occupationally induced pulmonary disease would seem reasonable.

Conclusion

Thus at this time, the only SMSP program in which an EMS program makes medical sense on the basis of current diagnosis and treatment is asbestos or a combined asbestos/MMMF/silica EMS program to medically follow-up employees who retire from these programs. Offering more frequent follow-up to individuals with medical examination findings at the time of retirement or last examination would be less costly and would focus on the highest risk group. Less frequent medical follow-up of those without findings would assure that such individuals still have the opportunity to have a periodic assessment of their status. Total annual expected participation of those with medical findings where perhaps an 80% response is possible would be roughly 30 per year Shell-wide. Every three year participation of those without medical findings with a 50-60% response rate would be roughly 50 per year.

Corporate Medical is of the opinion that at those locations where follow-up of retirees with possibly asbestos-related medical findings has occurred, the programs have been well received and of benefit to employees and to the company. Extension to other locations with asbestos, silica, or MMMF examination programs would be favored. The following protocol is proposed for use by those locations which do not already have such a program.

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EXPANDED MEDICAL SURVEILLANCE PROGRAM FOR RETIREES
FROM ASBESTOS, SILICA, OR MMMF SMSPs
(EMS - ASM)

I. Entrance Criteria

- A. Retirees who actively participated in the Shell Medical Surveillance Programs for Asbestos, Silica, or MMMF while at Shell and who experienced potential for exposure to asbestos, silica, or MMMF on an intermittent or regular basis in more than one year.
- B. Any retiree with documented asbestos, silica, or MMMF-related disease.

II. Exit Criteria: None

III. Medical Evaluation Schedule and Protocol

- A. Frequency of examination is determined by presence or absence of signs and symptoms of asbestos, silica, or MMMF-related disease at time of most recent previous surveillance examination.
 - 1. For those whose termination SMSP examination or most recent EMS examination found evidence of possible or probable asbestos, silica, or MMMF-related disease, an annual examination should be offered.
 - 2. For those whose termination SMSP examination or most recent EMS examination found no evidence of exposure-related disease, an examination every three years shall be offered.
- B. Examination Content - This examination should be specifically targeted to the pulmonary, cardiovascular, and gastrointestinal systems.

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Forms to be used are the following:

1. S-11100 (Rev. 7-90) Confidential Medical History
2. S-22324 (Rev. 10-89) Smoking and Supplemental Medical History
3. S-11102 (Rev. 9-90) Medical Exam Report-Confidential
4. S-1118-2 Periodic Medical Questionnaire-Asbestos
5. S-12972 (Rev. 11-86) ILO Pulmonary Surveillance Worksheet

Examination shall include:

1. Medical history as per forms noted above
2. Chest X-ray (PA only) with clinical interpretation and B-reading. Right and left anterior oblique X-rays should be included every three years.
3. Pulmonary function testing: FVC, FEV₁, and calculated FEV₁: FVC ratio.
4. Physical examination by a physician directed to the pulmonary, cardiovascular, and gastrointestinal systems.
5. Rectal examination
6. Stool test for occult blood
7. Resting EKG
8. Counseling by the physician concerning the combined effect of smoking and exposure to asbestos, silica, possibly MMF on the development of lung cancer.

This examination should be coded as EMS-ASM EXAM.

IV. Alert Limits

- A. Any evidence of possible exposure-related disease, e.g., asbestos, silicosis, lung fibrosis, lung cancer, mesothelioma.
- B. Chest X-ray with evidence of possible exposure-related lesion such as pleural thickening or pleural plaques, interstitial fibrosis, or tumor.

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- C. Loss of pulmonary FVC or FEV_1 , of greater than 80% from past best effort (on last exam), or decrease of more than 6% in the FEV_1/FVC . Tests with such changes should be repeated in two (2) weeks.
- D. Persistently abnormal pulmonary function tests.

These alert limits indicate the point at which referral to a pulmonary specialist should be seriously considered. A positive occult blood in stool test should be referred to the individual's personal physician.

V. Records

- A. Please forward one copy of all exam and consultation records to Corporate Medical with EMS-ASM EXAM clearly marked in the upper right corner of each document face sheet.

VI. Important. Notify Corporate Medical of any:

1. Diagnosis of exposure-related disease.
2. Any referral to a specialist for evaluation of possible exposure-related disease.

LAM 018762



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

WASHINGTON, D.C. 20201

April 25, 1978

SURGEON GENERAL
OF THE
PUBLIC HEALTH SERVICE

PHYSICIAN ADVISORY - HEALTH EFFECTS OF ASBESTOS

The results of recent studies of shipyard workers have increased concern about the health effects associated with previous occupational exposure to asbestos. This advisory notice will assist you in dealing with inquiries from your patients and other members of the public.

Asbestos refers to a group of widely used fibrous minerals. Significant exposure of men and women employed in shipyards is known to have occurred, even among those not directly working with asbestos. Exposure to asbestos can also occur in many settings, such as, direct mining and manufacturing; construction; insulation; roofing; demolition; brake lining; and the manufacture and installation of asbestos pipe, sheets, panels, paper products, friction materials, textiles, floor tiles, paints, and gaskets. The risk has been documented extensively for certain occupational exposures, and there are reports that asbestos-associated disease also occurs in household contacts of asbestos workers.

The primary effects of past asbestos exposure are asbestosis, a lung disease, and certain types of cancer, primarily lung cancer and pleural and peritoneal mesothelioma and, less frequently, gastro-intestinal and other cancers. It is now known that the health effects of asbestos appear after a long latent period (15, 25, 35 or more years) after the initial exposure. Exposures as short as a month may result in disease many years later, because the inhaled dust, being mineral, tends to remain in the tissues. It has been noted in studies of heavily exposed workers that approximately 20 to 25 of each 100 deaths among asbestos workers 20 or more years from onset of exposure are found to be from lung cancer, 7 to 10 from mesothelioma, 4 from cancer of the esophagus, stomach, colon/rectum, and some excess cancers of other sites (oropharynx, larynx, and kidney). In addition, in some groups, as many as 7 percent of workers die of a form of pneumoconiosis, asbestosis. Cigarette smoking significantly increases the lung cancer risk of asbestos exposure and aggravates asbestosis.

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In dealing with your patients or other individuals who worked in shipyards or believe that they were otherwise exposed to asbestos, you may wish to consider the following issues:

1. Occupational or Exposure History -- A detailed, lifetime history must be obtained. This is time consuming, but important because significant exposures may have been brief (one month) and may have occurred many years ago (i.e., during World War II). Because the World War II work force was comprised of many women as well as men, the potential for female patient involvement should not be overlooked.
2. Careful Management of Lung Disease -- A detailed history for symptoms such as shortness of breath or exertional dyspnea, physical examination, chest x-ray, and pulmonary function tests may be helpful in diagnosing the pneumoconioses associated with asbestos. Early x-ray changes are often subtle so x-rays must be reviewed carefully by experienced readers. Such readings should include a thorough search for pleural changes. Careful attention to and aggressive treatment of respiratory infections may be important in patients with asbestosis. The use of currently effective influenza and pneumococcal vaccines should be considered.
3. Emphasis on Smoking Cessation -- Discontinuation of smoking is an important step in the control of the sequelae of asbestosis and will assist in the prevention of lung cancer. Individuals who smoke and who have been exposed to asbestos have 30 to 90 times the risk of getting lung cancer of individuals who neither smoke nor have been exposed to asbestos and $7\frac{1}{2}$ to 30 times the risk of the non-smoking asbestos workers. Data are available which show that cessation of smoking will significantly diminish the risk of developing lung cancer among asbestos workers.
4. Cancer Surveillance -- The usefulness of screening asymptomatic, exposed individuals for lung, gastro-intestinal and other cancers is now under study in clinical trials. Individuals, however, should be carefully questioned regarding possible symptoms which could be related to cancer: chest pain, hoarseness, hemoptysis, weight loss, melena, etc. If such symptoms are present, an appropriate diagnostic workup should be undertaken.

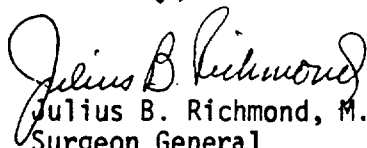
It is important to note that many people exposed to asbestos -- perhaps a majority -- suffer no apparent ill effects. It is hoped that most of your patients will be in this category.

Current use of asbestos is regulated, but attention must be given to proper ventilation and engineering controls and the use of respirators -- all measures of primary prevention. In the past the dangers of asbestos exposure were not fully appreciated; much exposure occurred in previous decades, particularly in shipyards, where individuals often worked in confined quarters.

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A discussion of asbestos and its health effects appears in the March/April issue of Ca, The Cancer Journal for Clinicians and is available through the American Cancer Society, 777 Third Avenue, New York, New York 10017. A more detailed physician information alert will be distributed by the National Cancer Institute through a number of medical journals within the next two or three months including the Journal of the American Medical Association. Additional information including a more detailed series of questions and answers can be obtained by writing to Asbestos, National Cancer Institute, 9000 Rockville Pike, Bethesda, Maryland 20014.

Sincerely,


Julius B. Richmond, M.D.

Surgeon General

Assistant Secretary for Health

LAM 018765

DPMC-12388

Extended Medical Surveillance
(post retirement)

Arteston 5 findings when retire: 3/3/

Add S.I.G. / M.M.F.

Correction: Low of. FIC - FIC - 8%

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