Preliminary Report of a Recall Program for Persons with Inactive Tuberculosis

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INCREASING RECOGNITION is being given to the fact that persons with abnormal chest roentgenograms resulting from previous tuberculosis infection should have lifelong followup. Studies in Denmark (*1*) and Muskogee County, Ga. (*2*), document that persons infected with tubercle bacilli, as indicated by a positive purified protein derivative intermediate skin test, and also showing definite fibrotic lesions on chest roentgenogram, have reactivated dormant infection at a rate of 0.5 to 2 percent per year. Stead (*3*) has written extensively on this reactivation phenomenon.

In her epidemiologic model, Ferebee (*4*) suggested that as many as 75 percent of new cases of active tuberculosis result from reactivated cases in the infected population of the United States. Logistically, it is impossible for the staffs of existing U.S. health facilities to treat preventively the entire reactor pool with 1 year of isoniazid (INH). Ferebee, therefore, suggested that higher risk groups receive first attention. Patients whose chest roentgenograms show definite fibrotic lesions diagnosed as minimal, moderate, or far-advanced inactive tuberculosis deserve just such attention.

Many U.S. health departments know of a large number of such persons. Because of the lack of personnel, as well as the justifiable emphasis on controlling new active cases and accomplishing adequate followup of case contacts, persons in whom the disease has been inactive for a long time have been given little attention after their disease was ascertained to be inactive. In terms of yield per dollar spent on tuberculosis control, however, it seems reasonable that supervision of these persons would pay dividends.

During 1961 to 1963, the Long Beach (Calif.) Department of Public Health conducted a recall program for persons with apparently inactive disease (*5*). Health department personnel reviewed their records from 1935 to 1960 and selected 2,536 persons with evidence of inactive pulmonary disease as defined in the National Tuberculosis Association Standards of 1961. In an effort to locate these persons, telephone and city directories, together with death certificates, were reviewed, and relatives and physicians mentioned in the patients' records were contacted. Valid addresses could not be obtained for 1,028 persons.

The remaining 1,508 persons were sent letters inviting them to return for examination. Only

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399 persons responded; 383 (15 percent) agreed to participate. Of these 383 participants, 161 (42 percent) had received chemotherapy previously. Thirty-one persons (8.1 percent) were found to have reactivated disease, and 20 of these had not received chemotherapy previously.

The rationale for such a recall program would also extend to persons who have had known active tuberculosis in the past and who received less than 6 months of chemotherapy. A report in 1964 revealed that 47 percent of 282 male patients who had received less than 6 months of treatment had relapsed within a 10-year period (*6*).

Denver Program

The Disease Control Service of the Denver Department of Health and Hospitals recently initiated a program to recall persons whose names were on a register of persons with inactive tuberculosis during a 10-year period. These persons were to be reevaluated by use of chest roentgenograms and multiple sputum examinations. The rationale for the program was twofold: (*a*) that the yield of active cases of tuberculosis would be high and further infection of the population from this source eliminated and (*b*) potential reactivated tuberculosis would be prevented by offering each recall patient with bacteriologically negative results a course of prophylactic isoniazid. The initial experience of this program follows.

Method. The register of the disease control service was reviewed for persons whose last diagnosis was far-advanced, inactive pulmonary tuberculosis. The register contained names of some 10,000 persons with diagnoses of tuberculosis of varying degrees. Persons were excluded from further followup efforts if the record showed they had moved out of the county, were dead, or older than 90 years.

A letter of inquiry was sent to the Veterans' Administration, Army, or other hospital outpatient clinics, or to a physician in private practice if the last notation on the person's record indicated that he was receiving his medical care from one of these sources. A form letter was sent to the remaining persons with an appointment date at the disease control clinic. The letter explained the need for a followup interval history and examination and included information about preventive isoniazid medication. Consultation with physicians in private practice was obtained whenever desired by persons in this category. A cost-time study was performed to ascertain the number of clinic personnel and time needed for this project.

Results. For this preliminary study, 1,404 names were pulled from the register for persons with inactive tuberculosis. Of these, 866 persons had moved or died. Listed as receiving their medical care from established outpatient clinics or physicians in private practice were 369 (26 percent). No source of medical care was listed by 169 persons, and they were sent routine appointment letters. Of the 169 letters sent, 82 were returned because the patient had moved or his address was unknown. Four persons had died. Therefore, of the original 1,404 persons whose disease was known to be inactive, only 83 (6 percent) were actually contacted. Of these, 69 failed to keep their appointment and did not request another one; 14 appointments were kept.

Chest roentgenograms and sputum cultures obtained for all 14 persons revealed that one had relapsed to active disease. The remaining 13 were offered preventive isoniazid chemotherapy, but only five accepted the medication. Eight persons refused prophylactic therapy.

Discussion. Since the Arden House Conference on Tuberculosis in 1959, most experts in public health have strongly supported the selective use of INH prophylaxis to reduce the incidence of active pulmonary tuberculosis. Because the capability of health departments to competently distribute preventive INH is limited, a series of priorities have been introduced. Both the American Thoracic Society Committee on Therapy (*7*) and the Ad Hoc Committee on Chemoprophylaxis (*8*) strongly recommended the prophylactic treatment of persons with inactive tuberculosis.

The Tuberculosis Branch, National Communicable Disease Center, Public Health Service, and others, have urged health departments to initiate programs of recalling persons with inactive tuberculosis, especially those treated before antituberculosis medication was available. Recall programs would both identify those with interim relapses and offer chemoprophylaxis to those whose tuberculosis has been proved inac-

tive. Other workers have stated that the active casefinding productivity of such an effort will not be worth the cost. Moreover, many workers in the field question whether persons contacted under these circumstances would actually accept a year of chemoprophylaxis.

In this preliminary effort, the department of health and hospitals found only one person with active tuberculosis of an original 1,404 persons surveyed, for an overall casefinding rate of 0.7 per 1,000. However, 866 persons were immediately eliminated and only 169 persons were sent clinic appointment letters—an actual casefinding rate of 6 per 1,000. Most impressive, however, is that one of 14 patients had active tuberculosis for a casefinding rate of 71.4 per 1,000. The initial survey took approximately 3 months and cost $1,074.

One mistake that should not be repeated is the policy of sending routine query forms to the physicians in private practice who were last documented as caring for the person. Although answers to our queries were received from approximately 90 percent of those physicians, the responses were generally inadequate in factual content, such as to the date of the last chest roentenogram or sputum examination. Responding physicians were then sent a personal letter, explaining the need for a further followup of their patients, as well as the rationale for instituting a course of preventive INH therapy. Further, examinations and drugs were offered free of charge through the department of health and hospitals. Few physicians indicated a desire to pursue either a course of further examinations or chemoprophylaxis.

This experience suggests that, in the future, persons initiating such programs should directly contact the person involved, whether or not he had listed a personal physician, and then, following adequate workup, involve the physician in the chemoprophylactic treatment of his patient. The patient's interest should be sufficient stimulus to assure his physician's participation.

Compared with current X-ray casefinding practices, this type of program is financially reasonable. During the past 3 years, the Denver and Tri-County Tuberculosis and Respiratory Disease Association has spent approximately $25,000 per year to find an average of two previously unknown active pulmonary tuberculosis cases per year—a yield of 0.12 new active cases per 1,000 X-rays and an average casefinding cost of $12,500 per new case.

Furthermore, when considering chemoprophylaxis effects, it should be noted that while this inactive recall program began with persons known to have far-advanced tuberculosis (inactive), the mobile X-ray unit program identified only 123 persons with inactive tuberculosis in 3 years at a cost of $610 per case. This casefinding cost must be added to any prophylactic isoniazid tuberculosis control program initiated in a general population. This cost is eliminated by focusing on a select known population.

Conclusions

As indicated previously, this preliminary inactive recall program, as originally designed, should be modified. The stated source of primary medical care should be bypassed when designing a chemoprophylaxis program based on the recall of persons with inactive pulmonary tuberculosis. Further, more efforts should be directed at those persons failing to respond to the first contact and a public health worker should be used to recontact persons not responding to the initial recall effort. Such changes will enhance the program's casefinding value, and the overall tuberculosis control program will benefit from the selective use of INH prophylaxis among these high-priority candidates.

Summary

The Disease Control Service of the Denver Department of Health and Hospitals recently initiated a program to recall persons whose tuberculosis had been diagnosed as inactive during a 10-year period. The purpose of the survey was (*a*) to discover active cases of tuberculosis and to eliminate further infection of the population from this source and (*b*) to prevent potential reactivation of tuberculosis by offering each person who had bacteriologically negative results a course of prophylactic isoniazid.

From the 1,404 names selected from a register of persons with inactive tuberculosis, only 83 (6 percent) were actually contacted. Of these persons, 69 failed to keep their appointment and did not request a reappointment. Fourteen persons kept their appointments.

Chest roentgenograms and sputum cultures

were obtained on all 14 persons. One of the 14 had relapsed to active disease. Five of the remaining 13 accepted preventive isoniazid chemotherapy; eight patients refused. The case-finding rate for the 14 persons was 71.4 per 1,000.

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Tearsheet Requests

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Physician Augmentation Program

The Physician Augmentation Program, authorized under the Health Manpower Act of 1968, supports the addition of 1,000 first-year places in schools of medicine and osteopathic medicine beginning in fall 1970. These newly created places must be an increase over that to which the schools are already committed. Total enrollment through this program is expected to be about 4,000 in the fourth year of operation.

Grants will be awarded on a national competitive basis to schools of medicine and osteopathic medicine that document their intention to institute a major increase in the first-year enrollment and that appear to have the greatest potential for achieving major increases with their resources as supplemented by funds allocated by the program.

Special attention will be given to applications for the program from schools of medicine that make provisions for the following factors as they increase their first year enrollment:

1. Clinical training that provides extensive experiences in patient care in outpatient and ambulatory facilities.

2. Provisions for experiences that will encourage students when they graduate to enter the practice of family medicine.

3. Provisions that will lead to improvement in the distribution, both geographic and among various socioeconomic groups, of medical and other health services.

A clear intent for increasing the output of physicians has been expressed recently by the Association of American Medical Colleges and the American Medical Association. Both organizations have endorsed the proposition that all medical schools should aim to expand their collective enrollment to a level that permits all qualified students to be admitted.