place for the patient with non-tuberculous pulmonary disease? This patient, too, needs the skilled diagnostic aid of the staff of its tuberculosis service, its surgical facilities mayhap, its facilities for treatment, the advantages of its numerous services in case of complications or concurrent disease, its laboratory and bronchoscopic facilities and equipment for emergency measures. In addition, there is a maximum degree of protection from infection with tubercle bacilli and there is no stigma of residence in a sanatorium. Here the patient with non-tuberculous disease of the lungs has all the advantages of a sanatorium or tuberculosis hospital without its disadvantages. Also, there are available many other facilities in the event that they are needed.

It is to be regretted that the ideal in service is not always at the disposal of the patient with pulmonary tuberculosis nor the person with non-tuberculous disease of the lungs. Perhaps, after all, among patients having non-tuberculous pulmonary disease he is most fortunate who is attended by the physician highly proficient in the diagnosis and management of diseases of the lungs, wherever he may be found.

Prevention of Tuberculosis*

PAUL H. RINGER, M.D., F.A.C.P.
Asheville, North Carolina

THE prevention of tuberculosis rests upon a tripod:

One: Diagnosis—cases must first of all be found.

Two: Segregation of cases when diagnosed.

Three: The finding, examining and safeguarding of contacts—those that have been in close association with a victim of the disease.

Let us deal briefly with diagnosis.

The late Dr. Lawrason Brown, of Saranac Lake, New York, said that one of the chief reasons for not diagnosing tuberculosis lay in not bearing the disease in mind. This aphorism was addressed primarily to physicians and there is no question as to its truth. In this year 1938 the laity is more health conscious than it ever has been, as is shown by the patient entering the doctor's office with sputum and urine specimens for examination, and requesting a blood count, a blood-pressure estimation, a basal metabolic rate, an electrocardiogram, and what not. If the laity have thus become health conscious and, to a certain extent, laboratory conscious, they should also be aware of certain symptoms that herald the onset of one of the most serious and common diseases of the human race—pulmonary tuberculosis. Many of these symptoms, moreover, do not require the assistance of a physician in their determination, nor is there any question of the so-called "human equation"; they are open and shut propositions, speak for themselves, and can be appreciated by any person, as well as by the most experienced doctor. So many individuals put off seeing a physician because of economic reasons, lack of faith, belief that nothing is fundamentally wrong, fear of bad news, or some other reason, that it is well people as a whole should be conversant with some of the early evidences of failing health as far as tuberculosis is concerned. Well, what are some of these symptoms?

Fatigue

The patient notices this, complains of it, and only too often ascribes it to anything but the actual cause. The patient is tired and he knows it.

References

1 Stewart, David A.: The Sanatorium as a School of Medicine.
2 Amberson, J. Burns, Jr. and Riggins, H. McLeod: Tuberculosis Among Student Nurses: A Five Year Study at Bellevue Hospital, Annals of Internal Medicine, 10:156-165. (Aug.) 1936.

* Broadcast Station W.K.Y., Oklahoma City, Oklahoma, Meeting of The Southern Tuberculosis Association, November 16, 1938.
**Loss of Weight**

The grocery or the drug store scales tell the story. No need to seek a doctor's office.

**Fever**

A feeling of heat or flushing and some general aching, occurring especially after 4 p.m., should cause the individual to take his temperature. Knowledge of how to use and read a clinical thermometer in this day and time should be universal, though one is often astounded at the appalling ignorance of those who should know better. The readings of the thermometer are independent of any doctor or clinic. Any daily temperature over 99° should cause concern.

**Cough**

A symptom which is self-evident and which proves itself "without benefit of doctor." Any cough lasting more than two weeks should be investigated. Beware of "cigarette coughs"—they usually constitute an escape from reality.

**Sputum or Expectoration**

This cannot be concealed and is always disagreeable, if not revolting, to the individual. Sputum persisting for a fortnight demands attention. Examination at competent hands for the germs of tuberculosis or for other germs that may be, and often are, present can be secured free of charge at any state or City Board of Health Laboratory. All that is needed is a wide-mouthed bottle (one ounce size), a bit of sputum (thick) the size of a nickel, a five-cent stamp and an address—yet how often do we still see patients with advanced tuberculosis who have been under the care of practitioners and whose sputum has never been examined!

Why am I dwelling on these simple and almost axiomatic facts? Why emphasize the obvious? It is because in speaking to a lay audience, I am anxious to stress the factors involved in suspecting tuberculosis which can be ascertained without consulting a physician; because while people are now generally "health conscious," they still remain pitifully "disease unconscious"; and, therefore, they should be instructed as to what they themselves can do, so that the ravages of an insidious disease will not gain unwarranted headway. Also, bear in mind that all I have suggested costs not one penny—save perhaps a dollar and a quarter for the clinical thermometer.

Given the co-existence of two or three of the above-mentioned symptoms, the individual should consult a competent physician or clinic. With the evidence presented by the patient, further investigations will then be made, such as physical examination, x-ray, etc., with which we have no concern in this talk.

The diagnosis of tuberculosis having been definitely established, isolation of the patient is essential if the germs of tuberculosis are present in his sputum, for then there is definite danger to those with whom he associates; and the danger is in direct proportion to the youth of the contacts. In the higher economic brackets, a private room and bath with separate dishes, towels, etc., and with exclusion of young children from the invalid's apartment will suffice for adequate protection. But how few stricken with tuberculosis can supply such a set-up! Failing this, immediate removal to a hospital or sanatorium is most desirable; but if this be wholly impracticable, as much segregation as is possible under the given set of circumstances should be carried out until such time as entrance into an institution becomes feasible.

The prevention of tuberculosis, however, is not at an end when the actual case has been discovered. It has but just begun. In the vast majority of instances, the patient ill with tuberculosis has been in contact with a variably large family and with fellow workers in the office, whose employer should be notified. These individuals who have been exposed and who are known as "contacts" must be investigated in order to see whether they, too, have developed the disease. Fortunately, we have at our disposal a simple, painless and very accurate diagnostic measure—the skin tuberculin test—which can be given by any competent physician, and which, contrary to the opinion of many parents, is free from risk or danger to children. An individual who has been infected with tubercle bacilli, even though he may not be sick with the disease, will react positively to the test; in other words, inside of forty-eight hours there will appear about the site of the little hypodermic
injection, a red area varying in diameter from that of a dime to that of a silver dollar. The appearance of a positive reaction does not mean that the individual has active tuberculosis (except in children under two years of age), but it does mean that the person has had a tuberculous infection which, in the absence of any symptoms, has never attained the dignity of tuberculous disease. As proof of this, about 65 per cent of all adults will react positively to the skin test, yet the vast majority will be in a perfect state of health. After the skin test has been made on members of the sick individual’s family, all those reacting positively (especially the children), should be x-rayed and the films interpreted by some competent physician or radiologist. Those showing definite or suspicious x-ray findings should be under the supervision of some doctor or clinic, and should be followed up by periodic x-rays for a term of years. It is here that the social worker comes into the picture, for it is by her efforts alone that the follow-up system can be made to work, just as it is by her untiring energy that the members of the family of the active case, diagnosed in the clinic, can be forced to present themselves for skin-testing and possible subsequent x-raying. It is part of the private practitioner’s duty to see that all members of the patient’s family are tuberculin tested.

In a broadcast of ten minutes’ duration, only the high spots of tuberculosis prevention can be touched. The way is long and hard—one meets ignorance, prejudice, hostility, resentment, sympathy and cooperation. In these United States, forty-eight state tuberculosis associations and forty-eight state boards of health are on their way, are working hard, are headed in the right direction; and, eventually, will put their heels on the neck of the reptile, tuberculosis. They can all be incredibly aided by thoughtful and earnest assistance on the part of those they are trying to serve and to save, the people of their respective commonwealths.

Marital Tuberculosis
B. L. FREEDLANDER, M.D.*
San Francisco, California

The physician is called upon to solve for the tuberculous patient many problems of marriage. Next to the effect of pregnancy on the tuberculous patient and the danger of infecting the offspring, the most common question is the danger of transmitting the disease to the healthy consort. In view of our changing concept of the pathogenesis of tuberculosis, it is important to analyze the subject of marital tuberculosis in the light of recent evidence.

There has been considerable difference of opinion regarding conjugal phthisis. Fishberg is strongly of the opinion that tuberculosis in both husband and wife is rare in spite of the intimacy of the contact. Of 170 couples in which one of the consorts was tuberculous, it was found that only 2.5 percent were phthisical. Pope and Pearson have made statistical studies of this problem in England, and have come to the conclusion that the chance of tuberculosis occurring in both husband and wife is small,—about the same as the incidence of insanity in both husband and wife. There are many who contend that when marital tuberculosis does occur, it is characterized by a favorable course of the disease in the secondary cases; and that soon after the actively disease partner is removed the infected consort recovers his or her health. The further claim is made that only rarely is progressive tuberculosis observed in the newly infected consort. It is their conviction that phthisis can develop only in those adults constitutionally predisposed to the disease, regardless of the opportunities for contact and reinfection. They base their concept on the theory that the unaffected consort has in all probability been infected during childhood and that the resulting immunity makes reinfection unlikely. All the authors referred to above tend to minimize the significance of latent and even active quiescent phthisis in the consort.

* From the Tuberculosis Service of the Department of Medicine of the University of California Medical School at the San Francisco Hospital, and the San Francisco Department of Public Health.