

# THINGS YOU SHOULD KNOW ABOUT TUBERCULOSIS

BY F. M. POTTENGER, Ph. M., M. D.

PRACTICAL INFORMATION WITH WHICH EVERY PERSON SHOULD BE FAMILIAR.

The following interesting and instructive article on tuberculosis is the most dramatic disease with which the American people are afflicted, was read before the Los Angeles Schoolmasters' club in January of last year:

This being pre-eminently a commercial era, we have sacrificed health and happiness to material prosperity. We have welcomed the advent of labor-saving machinery; we have watched with pride the building of the great lines of transportation, which have extended our markets and made out-of-the-way places accessible; we have been compelled to stand in awe at the wonders of electricity, at the transmission of intelligence from ocean to ocean and from continent to continent. These have attracted our attention because through them fortunes have been made and wealth has accumulated.

Great as these discoveries are, they sink into insignificance when compared with the discovery of the tubercle bacillus as being the cause of tuberculosis. No discovery in the scientific world carries with it such a blessing to the human race as this, for it places tuberculosis in the ranks of preventable diseases. This discovery gives us the key to the situation and shows us how we may overcome this dread disease which causes more deaths than all other infectious diseases, excepting pneumonia, combined, and which leaves more suffering in its path than all the armies of the world.

The common beliefs held by the laity concerning this great scourge are more or less erroneous; in fact, few have an exact understanding of it.

The average man knows that tuberculosis is a very prevalent disease and believes that there is no hope for a person when once afflicted with it, and doubts the diagnosis in cases which profess to have been cured.

Some believe it to be infectious, others do not, and very few know the source of infection or how to avoid them. Perhaps the most common misconception is that it is hereditary. This has been disproven for the vast majority of cases. In the literature of the entire subject of tuberculosis there are reported only a few authenticated cases where the disease was inherited. One investigator claims that after a careful search of medical literature he was able to find only 18 cases where it was shown that the disease was transmitted from parent to offspring at the time of birth. So seldom does this occur that it can be totally disregarded in the discussion of the subject.

Tuberculosis is so common that we are all interested in it. About every seventh man dies of it. New York City, the metropolis of America, digs 8999 graves a year for tubercular patients. The United States sacrifices more than 100,000 precious lives every year, and the world offers up 5,990,000 of its people during every 365 days upon its altar. There are 1,250,000 people in the United States who are constantly suffering from tuberculosis.

Such facts are appalling and show us that we must have the hearty cooperation of all members of society if we wish to cope successfully with tuberculosis.

There are three points I wish you to remember concerning tuberculosis:

First—Tuberculosis is an infectious disease.

Second—Tuberculosis is a preventable disease.

Third—Tuberculosis is a curable disease.

If you remember these you will endeavor to learn in what manner it is infectious; how to prevent it, and what things are necessary to a cure when the disease has once attained a foothold.

The infection is produced by the tubercular bacillus, without which there can be no tuberculosis. This minute organism is found in all tubercular foci. The lungs being the most common seat of the disease we will consider how the infection takes place from one ill of tuberculosis of the lungs. The tubercle bacillus develops only within the body or on artificial media in incubators. In fact, it must have certain conditions or it cannot grow. It requires a certain temperature, the range of which is quite limited, being from 20 to 105 degrees, Fahrenheit. It must have moisture and must be excluded from the light.

All of these conditions we find within the human lung and here the germs are developed in great numbers, and thrown out with the cough and expectoration. It has been estimated that a patient in the advanced stage of tuberculosis—or consumption, will cast off through his expectoration as many as 7,000,000,000 of bacilli a day, which, if the patient is careless, will infect his surroundings and thus continue to spread the disease.

You may say, "If one patient cast off so many deadly germs of the disease, why is it that all are not in-

fectured, and where is the hope of ever curing the disease?" About 50 percent of the people are infected some time during life, as is shown in the post-mortem room, but their powers of resistance being greater than the aggressive powers of the germs, the disease becomes arrested. Nearly all of us breathe in bacilli daily; but most of them come to us either killed or injured. They are usually thrown out into a temperature below or above that which is necessary to their well-being. They are also as a rule exposed to light and often to the direct rays of the sun. So, if the germs that we are constantly breathing in with the air, only a comparatively small number are virulent and able to reproduce the disease. With proper care the chief sources of infection could be destroyed. Although it is doubted by some investigators whether the tuberculosis of cattle can be communicated to man, yet until this is proved, we should take stringent measures to weed out and destroy tuberculous cattle, so that their milk and flesh would not be used as articles of food.

The sputum from all tubercular patients should be carefully collected in proper receptacles and burned or destroyed by some powerful germicide. The rooms and dwelling occupied by a tubercular patient should be thoroughly disinfected after the removal of the patient and before they are again occupied. If these precautions were taken, the danger from tuberculosis would be reduced to a minimum and the percentage of cases would rapidly decrease.

It must be remembered that while there can be no tuberculosis without the tubercle bacillus, this is not the only cause.

There are predisposing causes which play a very important role.

A man in perfect health need have very little fear of the disease; but it is when he is debilitated that he is prone to infection.

One of the first essentials is to improve the dwellings and elevate the plane of living of the poor. The overcrowded tenements are the chief sources of infection. In the Fourth and Sixth wards of New York during the years 1894-5 and 6, 38 percent of the dwellings had cases of tuberculosis reported from them; and from 12 houses in this densely populated district 156 cases were reported in eight years previous to 1897. Since only about one-half of the cases are reported, it is probable that about twice that many, or about 375 cases, occurred in 12 houses in eight years. That means that those houses are permanently infected and that it is dangerous for anyone to live in them.

To show the danger of neglecting disinfection and the value of it when properly done, I wish to relate to you the history of a tubercular patient, and what followed his death. The items are taken from an article in the Alkaloidal Clinic for December, 1901, by Dr. Milliken of Silver City, N. M.

In 1850 a farmer of good family history was seized with la grippe, who, owing to a relapse, was very slow in making a recovery. He spent much of his time during convalescence with a friend who was ill of tuberculosis. He himself became tubercular and died of the disease.

His son, a strong, hearty fellow,

with loss of a pound or two of weight. Cough at this time may not be present at all, or only after talking or laughing. Or the disease may begin as a protracted cold from which the patient finds it difficult to free himself.

Such symptoms rarely send the patient to the doctor, so he waits until the cough becomes severe and the disease is far advanced. The remedy for this must come through a closer relationship, between the people and their family physicians.

Stomach troubles are a large contributing factor in the lowering of resisting power of the individual, and many cases of tuberculosis follow attacks of indigestion. Therefore, it is necessary to keep the stomach in a healthy condition. To do this the food must be a good quality and the individual must have time to eat so that he may masticate it thoroughly.

With our system of public schools with only one hour at noon, our children are placed between two horns of a dilemma. They must either take a cold lunch, which is usually made up of sweets, pastry and other indigestible articles, or rush home, gulp down a warm meal and then hurry back to the school room. This is a great evil and one which weakens the constitutions of many children during the period of active growth when they should have good, digestible food and plenty of time to eat it.

The poor must be cared for at the public expense, and those in better circumstances must be educated so that they may know how to prevent the disease; and, if infection has taken place, that they may suspect its presence in the early stages and place themselves under proper treatment while it is yet curable.

And now, in closing, I wish to add one word. For the sake of humanity do not make a tubercular patient feel he is an outcast. It is unnecessary. It is cruel. If he is careful to destroy his sputum he is not a dangerous companion. If he is careless about this, instruct him, so that he ceases to be a danger. It lies in the power of those afflicted to prevent others from being infected. All that is necessary is instruction and a willingness to obey orders.

In the Brompton hospital in London during the past 29 years, 15,000 patients with tuberculosis have been cared for and yet neither a nurse, nor a physician has become infected. The same record has been made in the Adirondack Cottage Sanitarium during the 17 years of its existence, and also in the Winyah, at Asheville, during 13 years since its establishment.

No, the tubercular patient is not necessarily dangerous to the well, but the tubercular patient who does not destroy his sputum and who does not obey the rules of hygiene, is dangerous to himself and all who come in contact with him. The spread of the disease is due to ignorance and carelessness. It must be checked by intelligence and care. To this end we need the cooperation of all who love their fellow man.

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who waited upon him when he became too weak to care for himself, became tubercular and died four years later.

A second son bought the carpet that was in his father's room and put it in his own room. In about one year he began to decline. His trouble was also shown to be tubercular. He made a struggle for seven years and finally arrested the disease.

Another son bought the couch upon which his father had slept, and used it to sleep on. He soon showed signs of decline and examination showed him to be tubercular. After five years he succeeded in arresting the disease and is still living.

A fourth son and three daughters, who were away from home attending college, remained well.

A young farmer rented the place and moved into the house. Within two years his wife died of tuberculosis and two children of marasmus, which means, most probably, tuberculosis of the bowels.

Another young man with a healthy family moved into the house, and lost three children within 18 months, of an obscure bowel trouble, which was undoubtedly tubercular, and the father died a few days later of "bronchitis," which was most likely tuberculosis.

It was now suspected that the house might have something to do with it, so a thorough cleaning was ordered. The paper was torn from the walls. The latter, with the woodwork, floors and ceilings, was washed down with an antiseptic solution. The house was thoroughly disinfected. Thanks to this thorough disinfection not one case of tuberculosis has developed in the house since.

Sunlight is the enemy of germs. The tubercle bacillus exposed to it is killed in from 30 minutes to three of four hours. Hence, the tubercular patient should be placed in a cheerful, sunny room and the sunlight should be allowed to flood it constantly during the hours that the sun is shining. Houses should be constructed so that the living room will receive the sunlight daily. These rooms should be ventilated so that a constant stream of fresh air is entering to displace that vitiated by exhalations from the body. Science tells us that air is poisonous to the economy, when it contains more than 0.2 percent of carbonic acid gas, due solely to respiratory impurity. An ordinary individual, when at rest, throws out 0.5 cubic feet of carbonic acid gas an hour. So to keep the air pure and sweet, 3900 cubic feet of fresh air must be furnished per hour.

How many people receive their full quota of fresh air? Very few, I am afraid, especially during the colder months. Houses are closed, lest some awful draught enter and bring clean, pure air, the mucous membranes of the air passages are injured; the blood does not receive its proper nourishment, and as a consequence vitality, the resisting power, of the individual, is lowered.

Another manner in which resistance of the individual is lowered is by excesses of all kinds, and especially the abuse of alcoholic liquors. The consumption of alcohol interferes with the elimination of waste products, which are retained within the system, where they interfere with nutrition, weaken the individual and make him an easy prey to tuberculosis.

The success of the warfare which is now being waged against tuberculosis depends upon the cooperation of the medical profession, and society, to the end that all sources from which the bacilli come be destroyed; and that the individual resistance be increased.

But while we are carrying out these measures for prevention, we must do something for those who are afflicted. And here we have by no means a hopeless task. Tuberculosis is not only curable, but, as I have shown you, the tendency in most cases is toward a cure. While one man in two is inoculated with bacilli, only one in seven dies of the disease.

In the early stages of the disease, tuberculosis is as curable as pneumonia or typhoid fever. The men who are giving their attention to this great work are curing from 50 to 85 out of every 100 early stage cases. But here the laity must come to the aid of the medical profession. As a rule an individual with the disease waits too long. The majority of cases that fall into our hands have been ill for a year or more. But they willingly believed that it was "throat trouble," "bronchial trouble," or "stomach trouble" until its deadly grip was fastened firmly upon them.

Every month that passes after infection has taken place decreases the chances for cure. People must not be deceived by these comforting phrases, but they must know that they all mean in the great majority of cases, the same thing—tuberculosis. Ignorance may give the patient comfort, but it is comfort with death as the reward.

Everyone should know that the first symptoms of tuberculosis are very slight. The patient feels indisposed, tires easily, loses his appetite and suffers from slight stomach disturbances.

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