

## History 21 TUBERCLE BACILLUS INFECTION. by Dr. Turnbull

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### TUBERCLE BACILLUS INFECTION.

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(To Nurses.)

The first thing I want to talk to you about in tuberculosis is your own personal attitude toward it because we have a great deal of trouble with the nurses fearing that they themselves may contract tuberculosis. I do not think there is anything more incongruous than a nurse who comes to an institution of this kind and then runs away for fear of the disease. A nurse who is in that mental attitude is unfit to do public health work of any kind. The way you act and the things you say will have more influence upon what the people say and think than all that the doctors can do in the dispensary. That is one thing I feel is a very serious thing, and something we cannot be too emphatic about.

Some years ago, when the tubercle bacillus was discovered, everybody thought tuberculosis would be ended. We thought it was an ordinary every-day disease such as other contagious diseases and that we could destroy the tubercle bacillus just the same as any other germ. That belief is still persisting.

As far as you are concerned you need not be afraid of ordinary contact with tuberculosis patients. There is practically no danger from ordinary contact in tuberculosis. If you will act on that, I think your minds will be a great deal easier in handling these cases. You are not going to catch it from them. This is going to require some little explanation.

We believe that everybody in civilized communities is affected with tuberculosis. That can be proven in a great many ways. It has been proven on the autopsy table that every person who dies from diseases other than tuberculosis can be proven to have healed lesions in the lungs, of some kind or other. It can be proven by the X-ray and positive reaction to tests. So we will just take it for granted that every one who passes fourteen years of age has been infected with tuberculosis. We do not have to worry, we have healed up these lesions. If we can handle the millions and millions of germs that are shut up in our lungs we do not have to worry about those we get from our neighbors. They are perfectly harmless to us because we have built up a resistance to them. In other words, the infection that you have to fear after you have passed fourteen years of age is an infection from the inside and not from the outside.

Take the records of doctors, nurses, and attendants working in a dispensary who are exposed constantly to tuberculosis, and the statistics show that the incidence of tuberculosis in tuberculosis institutions is much lower than in those outside. It is less because you lead a better regulated life. You come nearer to leading an ideal life in this work than in any other line of nursing.

Another thing that is even more striking is that statistics show that husband and wife do not contract tuberculosis from each other. Now, then, there is the closest exposure that you can think of. and if that does not increase tuberculosis you have little to worry about in the contact of adults. I want you to take for

granted that you are not in danger in tuberculosis work. If your patient has a cold or has bronchitis, be careful you don't catch it, but there is no danger of catching tuberculosis because you already have it.

The only thing you need to worry about is the breaking out of the disease that is already in your own chest. We believe that the time of infection from tuberculosis is childhood. In children under two years infection is always fatal, and quickly fatal. If a baby gets tuberculosis it practically always dies. From two to four years, they have a chance to get better. Then from four years on, the death rate falls rapidly, and from four to fourteen the death rate is very low—it is the age when the death rate is lowest in tuberculosis. In the tuberculosis history it is probably the most important age. It is in that age that the child is going to get his infection, it is in that age that the seed is going to be planted, and it is in that age that he is going to build up his resistance.

What becomes of that seed during that time will determine the crop when the child is twenty or twenty-five. After you pass fourteen, you begin to get the results of the previous infection. You have the tuberculosis known as chronic tuberculosis. After the age of fourteen, we never see a new case. So if you will divide the life up into these three periods—birth to three years, three to fourteen years, and from fourteen years through the rest of life, you have the stages we have to take care of and treat differently.

The preventive measures must be divided into three parts. What will you do to prevent tuberculosis in babies? What will you do for children? What will you do for adults? Do everything on God's earth to prevent infection of babies, for they are going to die.

Whenever you have a tuberculosis family with a baby, you can do good, but you must do it quickly. We have wasted a lot of time and effort in shutting up adult tuberculous patients. On the other hand, I believe that if we can forget about the adult patients, to a certain extent, and think more about the babies and little children we would get better results—results in the next generation. When it comes to babies you cannot be too particular and demand too much.

The ideal thing would be to take the baby away from a tuberculous father or mother from its birth. This has been proven in cattle. In other words, the infection takes place after birth. It is a direct infection from the mother, so the ideal condition is to take the baby away at once. The tuberculous father is not as dangerous at first as the tuberculous mother. Whether you can take away the baby or not I do not know. I have asked several people who ought to know, and they think that the judges in this State have the authority to take the baby away if it can be proven that the baby's life is in danger.

In addition to that you must teach your tuberculous families of the danger of infecting the baby. Do not allow any one who is tuberculous to handle the baby. The health of every one in the family has to be watched. In addition to that, the milk supply ought to be watched for there is no doubt that some babies are infected with bovine tuberculosis. You cannot do too much to protect the baby.

When it comes to the children of four to fourteen years you cannot shut them up. You cannot keep them away, and frankly this is not so necessary. You have got to watch that child with the one idea of preventing his getting a massive infection. The child has to get his immunity in this age when he is running around and coming in contact with his playmates and other people. You want to watch that he does not get too big a dose of germs.

He ought not, under any consideration, to live in the house with tuberculous people; and though it won't kill him then, we believe that the cases who break down in after life are those who get the massive infections in childhood and do not get the lesions healed up as they should. I think we can get better results by removing the child. It is in cases of this sort that the term pre-tuberculous is used; not an uninfected child, but a child who is not feeling well, is not growing right, is not eating right, is running a little evening temperature, is having night sweats, is having a little cough—he has something wrong with him but you can find nothing definite. If you find a child of that sort living in a house where there is a tuberculous patient, send that child to the sanatorium because that is the kind of child we can help.

When it comes to the care of adults we have an entirely different proposition to consider. You have then got a class that is entirely infected. The problem then becomes one of keeping the individual in such good health that he can resist the tubercle bacilli that are in him. If he can resist the ones inside, a few extra bacilli on the outside will not hurt him.

In other words, I believe that if one of us were taken to a South Sea Island or some other place where there are no tubercle bacilli and were to live there under bad sanitary conditions or get some tropical infection such as malaria that would break down our resistance, we would be just as likely to develop tuberculosis there as here. It is the infection from the inside that we need be afraid of in adults, so it becomes a question of keeping up their bodily resistance. The thing you have to rely upon, as far as the protection of children is concerned, is the avoiding of giving them a massive infection. On that account we have to watch and destroy the sputum of these patients. Remember that we believe the infection is, from the sputum, and that the infection is a house infection.

Public expectoration is a bad thing and the laws preventing it should be enforced because of the danger of dragging the infection home to the children. The sputum of adult patients, therefore, has to be cared for because of its danger to children. When it comes to ambulatory patients, it will require all our efforts. The ideal way is the use of sputum cups, but people do not like to carry their sputum cups around in public and there will always be, a lot of patients who will not do this. In the use of the sputum cup the patient has got to have his mouth pretty close to it so that he does not smear anything on the outside of it.

If there is anyone you should oppose it is mustaches on tuberculous patients. If you get a patient to have his mustache shaved you have done a definite thing in preventing the spread of infection. The other things that you can do with your adult patients are just what you are doing. I do not know how much isolation is possible and advisable in this State. I really think we will accomplish more if we spend our time and effort in getting children out of tuberculous homes, and we will be doing much more good. All the precautions you are taking are good, and should be carried on.

The things that I have tried to tell you are these: All of you who have passed fourteen years have an infection but have built up sufficient resistance to tuberculosis so that you have no reason to fear infection from contact with tuberculous patients; the most serious time of infection is in childhood, and infection in infants is hopeless; from two to four years they have some chance, and from four to fourteen they probably will get well—they are mostly clinical cases; from four to fourteen years the children are getting the infection that ought to protect them the rest of their lives, but a great deal depends on the size of the dose, the surroundings, and care, whether or not that child is going to build up a good immunity; the

absolute separation of the baby from the tuberculous patient, the partial separation and control of the child as far as the tuberculous patient is concerned and the watching of the general health of the adult are about all that you need to do.

DISCUSSION.Q.—At what age is the immunity established?A.—It is generally supposed that there is a fairly definite immunity at fourteen years of age, but the older the patient the greater the immunity. A baby has no immunity.

Q.—Do you feel that in our public health work particular attention should be paid to the children and an effort made to build up their resistance by a closer supervision than we have ever paid before, particularly in relation to diet and clothing?A.—Absolutely, it is our one hope. We are fighting something that is universal. We have been fighting to destroy the tubercle bacillus and we have got up against something that we cannot do. So the one chance that we have for doing good is in making the bacillus harmless. We gradually build up a resistance to germs and they become harmless, and the children is the group we have got to begin with, because there is where the immunity should be begun. We should see that their health is so good that they heal up the infection, and build up their resistance. I think we will get some results in the next generation.

Q.—Would you recommend rounding up tuberculosis contacts, that is children whom the dispensary doctors have pronounced non-tuberculous?A.—You should do everything in your power to get those children out of the house where there is tuberculosis, even though the tuberculous patient is not sick. Instead of getting the patient away try to get the children away.

Q.—Will it not be hard to educate people to taking away the child rather than the sick patient?A.—Yes. It would be easier to take the sick patient away, but we are doing nothing.

Q.—Don't you think that the worst part of the work is to educate the worker? If the workers cannot see the point, by the time they get through arguing why something else should not be done, we don't accomplish much.A.—It is something we are not going to get done at once, and something that will be made slower because we have probably been on the wrong track. Here is an infection that everyone has, and herein a condition that anyone is likely to go down with under bad conditions, *and* considering the impossibility of isolating all those cases and the impossibility of destroying the tubercle bacillus does it not look more hopeful to build up the resistance of the children of the next generation? All that is necessary is to keep that child away. I would keep that child away from a tuberculous mother forever or at least until the child is fourteen years of age.

Q.—Should a tuberculous mother be allowed to nurse her baby?A.—Infants of tuberculous mothers should be bottle fed from the first nursing. Ideally, the tuberculous mother should never have babies.Q.—We have physicians on our staff who recommend that babies be nursed by the mother.A.—A good thing might be to take up things of that kind at county medical meetings; and the nurses should be invited to attend.

Q.—What is your opinion of tuberculin?A.—My personal opinion is that it is not very effective. Tuberculin may be valuable in bone or gland cases, but it is not much good in pulmonary tuberculosis. There is so much in the influence of psychic treatment. One of the greatest arguments against tuberculin is that it has been used for twenty years and has not made good.

Q.—How young do you take children in the sanatoria?A.—Six years is the limit, but we are not arbitrary about it. If you have enough children under that age, send them in and we will make special arrangements for them.

Q.—Is tuberculosis a transmissible disease?A.—It is a transmissible disease, but it is transmissible only early in life.