

Tuberculosis

Basic Facts in Picture Language

prepared by the
National Tuberculosis Association

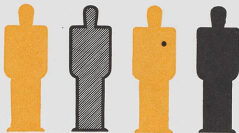
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PBV D7

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What the Symbols Mean

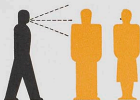
The orange-colored figure means a healthy person.

The figure in outline with slanting lines means a person who has tuberculosis germs in his body. He is infected but not sick. Later the germs may cause disease.

The black spot in the orange-colored figure shows that the person has had tuberculosis of the lung which is now healed. So long as it remains healed he cannot give the disease to others.

The black figure means a person who definitely has tuberculosis disease. When rays are added to the figure it means that there are germs in his sputum; therefore he may give the disease to others.

Every Case of Tuberculosis Comes From Another Case



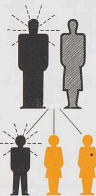
A relative or boarder who has tuberculosis comes to live in the household of this healthy man and wife. One or both are likely to get the disease from him.

One year later.



The boarder leaves the household. The husband has been infected. He shows no signs of sickness.

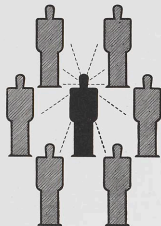
Ten years later.



Tuberculosis has spread in the family. The husband is sick with tuberculosis. The wife is infected but not sick. The oldest child also has tuberculosis. The second child is in perfect health. The youngest (with black spot) shows an infection which has healed.

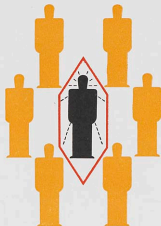
The Spread of Tuberculosis Can Be Prevented

Dangerous Contact



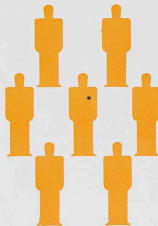
One person with tuberculosis may spread the disease to many others with whom he comes in close contact.

Contact Broken



But if he is cared for in a sanatorium his disease cannot spread. Modern methods of treating tuberculosis give lungs a chance to heal.

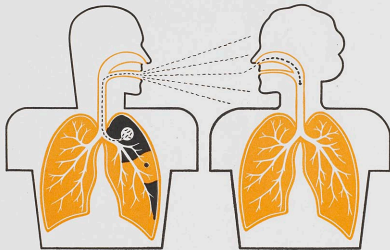
Contact not Dangerous



When his lungs have healed and he no longer coughs and spits up germs it is perfectly safe for others to live with him again.

By protecting one, many are protected. That is why the fight against tuberculosis is so successful. Yet about 700,000 people in the United States still have tuberculosis.

Tuberculosis Germs Spread from the Sick to the Healthy

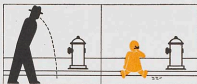


The germs that cause tuberculosis grow in the lung of the person who has the disease. These germs are very small. Thousands may be in a tiny drop of sputum. They may be coughed out into the air. A sneeze may throw them several feet. They are in the mouth and on the lips. Whoever comes close to the mouth of the person who has tuberculosis is likely to pick up some of the germs. Things that touch his lips may have germs on them. Once the germs are in the mouth of a healthy person they may find their way into the lung. This is how the seed of tuberculosis is planted. Danger comes chiefly from repeated large doses of germs over a period of time.

Germes May Be Spread by Direct or Indirect Contact



A tuberculous mother kissing her baby may plant the germs directly onto the child's lips.



Sick people sometimes spit on the ground. A child may later pick up germs on his fingers and carry them to his mouth.



A cough or sneeze or brisk talking may shower the germs in little droplets directly to another person's lips.



Personal toilet articles should be used by one person only.



Sleeping in the same bed with a sick person is dangerous because of long hours of close contact.



The exchange of anything that has touched the lips of the sick may be the means of carrying germs from one person to another.

Contact in the Home is Very Dangerous

Contact in the home:

A "contact" home is one in which there is a case of tuberculosis.



No contact in the home:

A "non-contact" home is one in which there is no case of tuberculosis.



People living in a contact home are more likely to get the disease than those living in a non-contact home. Of course a single large "dose" of tuberculosis germs from a sick person you meet only once may start the disease, but that does not happen often.

Children living in contact homes are in great danger because of the day-by-day close contact.

These developed tuberculosis.

These did not develop tuberculosis.

Age groups

under 5 years



5-14 years



15-39 years



40 years and over



under 5 years



5-14 years



15-39 years



40 years and over



Each figure: 10% of group.

Attack and Resistance

When tuberculosis germs attack the body, certain natural forces of the body fight back. We call these forces Resistance.



A strong body, good health habits and sensible living help to build strong resistance. Keeping away from people who have tuberculosis lessens the danger of the attack of many germs.

Can You Tell Who Has Tuberculosis? Six Have It; Two Do Not



Symptoms of the Sick Ones

	Tired, weak	Losing weight	Coughing	Indigestion	Blood spitting	Chest pain	Husky throat
							
							
							
							
							
							

Only the Doctor Can Tell Who Has Tuberculosis



He finds out about the person's home conditions, about his past life and asks about any symptoms that may be present.



He takes the temperature, to see if there is any fever. He taps the chest with his fingers and listens to the sounds made by breathing. The doctor's practiced ear knows what these sounds mean.

But sometimes the changes in the lung are very slight and the sounds are not definite.



Fortunately the X-ray helps. It makes a picture of the lung and shows where the trouble is.



The doctor also makes a tuberculin test which shows whether or not tuberculosis germs are in the body.

He asks for a sample of the sputum

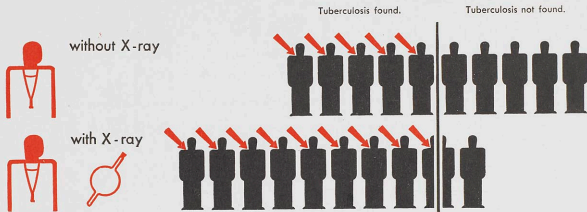


which he sends to the laboratory for an examination to see if there are germs in it.



When the doctor has gathered all the facts and studied them he can tell whether the person has tuberculosis or not.

The X-ray Helps to Find Tuberculosis

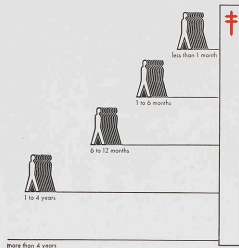


Each figure: 10% of groups examined.

Results of the first examination of persons later known to have tuberculosis. When the X-ray was NOT used, the doctor failed to find tuberculosis in half the cases. Early tuberculosis is hard to find without the X-ray. When the X-ray WAS used, the doctor found 85% at the first examination.

Delay is Dangerous

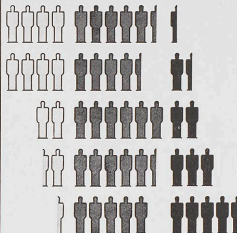
Time between first symptom and diagnosis



Early

Moderately advanced

Far advanced



Each figure: 10% of patients

At the left is shown how long certain people waited from the time their first symptom was noted until the doctor made a diagnosis. At the right is shown the stage of the disease. Doctors divide tuberculosis into three stages: Early, Moderately Advanced and Far Advanced. The longer diagnosis is delayed the more likely is it that the disease will be far advanced. Early tuberculosis heals readily. Advanced tuberculosis is serious.

How Tuberculosis Develops in the Lung



Healthy lungs—made up of thousands of tiny air spaces.



Tuberculosis germs have entered one lung for the first time and quickly spread disease over a large part of it.



In most cases this first stage of the disease heals in a few weeks leaving only a small scar. The person may not even feel sick.



Later tuberculosis germs may again attack the lung. The second attack is usually serious and spreads unless treated at once.



The disease has spread to most of one lung. A large hole or cavity in upper portion.

No two cases of tuberculosis are exactly alike. These pictures show only in general how the disease develops. There are many variations.

Why Rest the Lung . . . and How

Any injured part of the body heals only if put at rest.



Running—50 deep breaths per minute.

Walking—25 breaths per minute.

Lying flat—10 shallow breaths per minute.

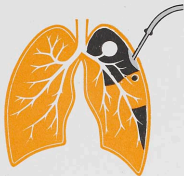
Vigorous exercise makes the lungs work hard.



Rest in bed is the treatment for tuberculosis because body rest eases the work of the lung and gives it a chance to heal.

Complete Lung Rest

One lung may be completely rested by a slight operation called Pneumothorax. The other lung carries on the work of breathing.



The chest wall is painlessly pierced by a hollow needle, which does not, however, go into the lung.

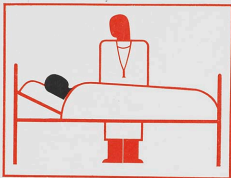


Air is let in and the lung collapses like a sponge that is squeezed.



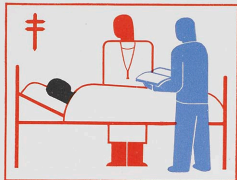
When the lung has healed, it is allowed to blow up again. Only the scars remain.

The Sanatorium is the Best Place to Get Well



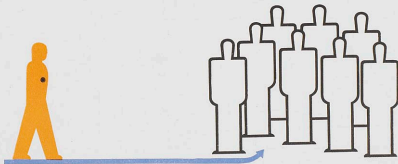
Everything at the sanatorium is arranged to help people get well. They get rest, good food, fresh air and sunshine. The doctor is always on call. Skilled nurses look after the comfort of patients. While in the sanatorium sick persons do not spread their disease to others.



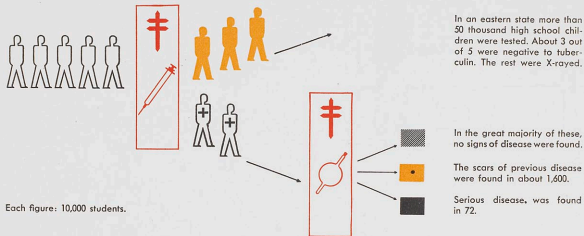


The Whole Man Must Be Treated

Medical and nursing care help heal the lung. But that is not enough. Each person must learn a new way of life. Trained workers help the patient to learn a new trade that will not be harmful; they teach him how to fit himself into the community when he is ready to leave the sanatorium.



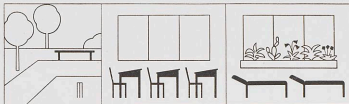
Tuberculosis Should Be Found Before It Causes Disease



Systematic examination of people who are not sick is a modern way of finding early tuberculosis. One way of doing this is to give all persons of a group, such as high school children, the tuberculin test and then to X-ray all those who have reacted positively.

The School Helps to Fight Tuberculosis

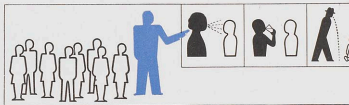
The school and its surroundings teach children how to live sensibly.



Health examinations are made of all children. In some high schools this examination includes tuberculin testing to see which children are infected with tuberculosis germs. Those who are, should be X-rayed to see if any damage is being done to the lungs.



Health habits are taught and practiced.



Beds for Tuberculosis

U. S. A. Average:



Massachusetts
(highest ratio)



Nebraska
(average)



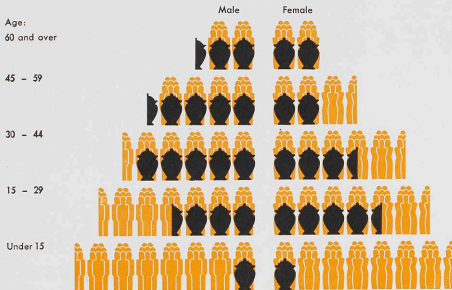
Tennessee
(lowest ratio)



Every community should be able to care for all its tuberculous persons in good sanatoria. It has been found that to meet the need, the number of sanatorium beds should be equal to the number of deaths from tuberculosis in one year. This ratio, i.e., one bed for each annual death, is a minimum. Some states have a ratio of two beds for each death.

Each orange strip: 100,000 population
Each black urn: 10 deaths
Each red bed: 10 hospital beds

Tuberculosis Death Rates According to Age and Sex



Each orange group: 2,500,000 population.
Each urn: 2,500 deaths from tuberculosis.

Notice that tuberculosis takes its largest toll during youth and middle age. More girls than boys (15 to 29) die of tuberculosis but in later ages, male deaths outnumber female deaths.

Poverty Breeds Tuberculosis

Monthly rentals \$ 10 to \$ 20



Monthly rentals \$ 30 to \$ 45



Monthly rentals \$ 55 and more



Each urn: 25 deaths per 100,000 white population.

Tuberculosis may attack anybody but it is most common among the poor. Poverty itself does not cause tuberculosis (only the tuberculosis germ can do that) but poor housing, crowding and careless living make it easier for the disease to spread from person to person. Hunger, worry, overwork, make it easier for the disease to develop once it has attacked.

Occupation Influences Tuberculosis

Professional men



Clerks, etc.



Agricultural workers



Skilled workers



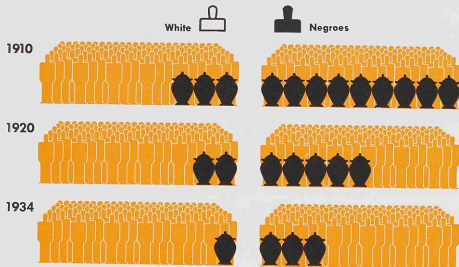
Unskilled workers



Tuberculosis is more common among poorly paid workers than among those who are well paid. A few occupations like mining, stone cutting and grinding are a definite hazard for tuberculosis but the chief influence of occupation on tuberculosis is the wage level and the standard of living it makes possible.

Each urn: 25 deaths from tuberculosis per 100,000 workers in the age of 25 to 44 years.

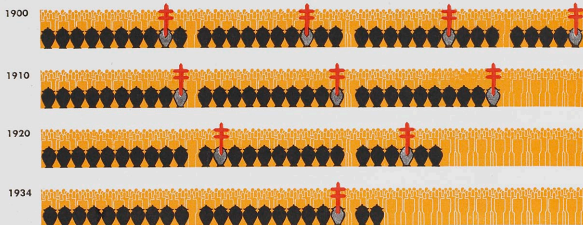
Race and Tuberculosis



Each urn: 50 deaths per 100,000 population

Deaths from tuberculosis among Negroes are about three times as many as among whites. However, the number of deaths among Negroes has decreased as rapidly as among whites. Today tuberculosis deaths among Negroes are relatively as many as deaths among whites in 1910.

Tuberculosis Is Declining



Each urn: 5 deaths per 10,000 population

Each black urn: 5 deaths per 10,000 population (excepting tuberculosis)

Each grey urn: 5 deaths from tuberculosis per 10,000 population

Since 1900 there has been a steady decrease of all deaths (per population) in the United States. Tuberculosis deaths have decreased even more rapidly. In 1900 every ninth death was due to tuberculosis. In 1910 every twelfth; in 1920 every nineteenth and in 1934 every nineteenth.

Progress in the Tuberculosis Fight

Long ago



In bygone days tuberculosis was a hopeless disease and death was expected.

Yesterday



For the past 30 years better medical care has been restoring many to health.

Today



Now we try also to prevent development of the disease after infection has taken place.

Tomorrow



Why not prevent infection entirely and wipe out tuberculosis!

Isotype, the picture language in which this book is written, was originated by the International Foundation for Visual Education, a non-profit organization with headquarters in The Hague, Holland. The staff of the Foundation consists of sociologists, teachers, designers and artists who work as one unit. The aim of Isotype is to express ideas simply, clearly and directly and in such manner that people of all the world and of all classes will understand them. Isotype makes use of symbols. These symbols are not altered to suit each new situation but always mean the same. By combining the symbols and by their arrangements, complex ideas as well as simple ones may be expressed visually and dramatically.

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