

Facts About Diphtheria.

What is Diphtheria?

Diphtheria is a disease caused by a germ called the diphtheria bacillus. Like many diseases, there are special parts of the body where these germs find suitable conditions for growth, namely, the nose, the throat, and the larynx. When diphtheria bacilli attack that part of the throat about the tonsils and soft palate, we call the disease diphtheria; if the nose is involved, nasal diphtheria; if the mouth membranous croup.

As diphtheria may begin in the nose, throat, or larynx, and spread so as to be present in one or both of the other parts, and since a membrane is formed by the growth of the germs, you can readily see why it is called "strangling" or "choking disease." This membrane may reach such size that the air-passage will be stopped up entirely or cause difficult breathing.

Early Signs of Diphtheria

Diphtheria of the nose occurs most frequently in young children, and usually makes its presence evident by causing a continuous bloody nasal discharge which makes the upper lip sore. This condition may last for several weeks, and you would not suspect any trouble unless it spreads to the throat or until you hear of other children having diphtheria who have been playing with the child having such a nasal condition. A culture should be taken from any nose having such a discharge and sent to the State Laboratory of Hygiene for examination.

Diphtheria of the throat may begin as an "ordinary sore throat," and be so mild that scarcely any membrane will be formed and the real condition of the child be overlooked until some other child develops a serious case from having come in contact with him. On the other hand, extensive membrane may be formed which will cover the roof of the throat and make breathing difficult.

Diphtheria of the larynx, which is better known as membranous croup, affects mostly babies. It is quite often confused with spasmodic croup. The difference between croup and laryngeal diphtheria is that ordinary croup usually comes on suddenly in the nights and gets better when day comes. In membranous croup, as a rule, the child shows evidence of sickness before it gets croupy, and continues to grow worse until sufficient diphtheria antitoxin is given to cure the disease. The voice is often lost in membranous croup, and very rarely in ordinary croup.

Don'ts About Diphtheria

Don't forget that croup and sore throat kill too many babies to let a granny, your neighbor or yourself treat your child.

Don't put off calling your physician, if your child gets croupy during the night and does not get better soon after day.

Don't forget that diphtheria antitoxin will cure your child, if it has diphtheria, if given very early after the onset. Each minute you delay lessens the possibility of saving its life.

Don't forget that diphtheria can be prevented in about 90 per cent of cases if children between six months and six years of age are given three doses of toxin-antitoxin.

Carriers

One per cent of the people as a whole, are diphtheria carriers. Carriers are those who harbor germs in the throat or nasal cavities. These carriers may have had the disease and knew they had it, or they may have become carriers by contact with a case of diphtheria or another carrier and did not show symptoms of sickness. As a large percentage of people especially adults, are naturally immune to diphtheria, you can readily see why there can be lots of carriers who have shown no signs of sickness.

Now you will understand "where Mary gets diphtheria," when she has not been about any one the least bit sick.

Getting Diphtheria

Diphtheria is "caught" by a child who is not protected by nature and who has not had three doses of toxin-antitoxin for at least six months, by getting into his mouth the discharge from the nose or throat of a person who has diphtheria germs present about his tonsils or in the nasal cavity.

We see where the germs come from. Now how do we get them? The secretions from the nose and throat of diphtheria carriers are often rich in these germs. In coughing and sneezing, fine particles of spray are sent out by one person and breathed in by another. People are always picking their nose and putting their fingers on various articles which children carry to their mouths. By hand-shaking, handling the same things, etc., the secretion travel from one to another. Chewing the same gum, biting the same apple, using the same pencil, drinking from the same cup, blowing on the same handkerchief, kissing, etc., all play a part in the same game of life against death.

Time Of Greatest Danger

About 90 per cent of babies under six months old will not have diphtheria if the germs get in their throats. While they are undergoing develop-

ment before birth, this number acquires from their mother's blood enough antitoxin to protect them from diphtheria until they are six months old, but by this time the antitoxin so obtained has disappeared from 85 per cent of these children. As they grow older, nature protects them; but man must assist nature. Knowing that such large number of children under six years are susceptible to diphtheria and that 75 per cent of the deaths from the disease are in the same age group, we can truly say that the time of the greatest danger is from six months to six years, especially from six months to three years.

Toxin-Antitoxin

Toxin-antitoxin is a preparation used to prevent diphtheria. It is given in three doses at weekly intervals in the same manner that typhoid vaccine is. No sores are caused. There is scarcely any reaction in young children, but in older ones and grown people we find reactions more frequently. Toxin-antitoxin cause the body cells to manufacture diphtheria antitoxin so as to have a supply of it for immediate use if diphtheria germs get in the throat.

Toxin-antitoxin was first used several years ago in New York by the City Department of Health. They have given it a thorough test to learn if it was liable to cause any permanent or temporary bad effect, and to see if it would prevent diphtheria. The treatment was given to 2,400 children less than seven days old, and no bad results followed. Studies have been made on 5,000 children who had toxin-antitoxin four years previously and 90 per cent showed by test they had enough antitoxin in their blood to enable them to resist diphtheria.

What has been done in North Carolina? For the last two or three years toxin-antitoxin has been used to a small extent by private physicians. During the summer months of 1921 in seventeen counties campaigns were conducted by doctors in their home communities, through the Bureau of Epidemiology, North Carolina State Board of Health, and about 10,600 children under six received three treatments. Since close to 86 per cent of those beginning the treatment completed it, we feel sure that it caused very little discomfort, or so many would not have returned for the second and third dose.

The use of toxin-antitoxin has been endorsed by the Medical Society of our State, and this organization also requested the State Board of Health to supply it at a minimum cost. Enough toxin-antitoxin to save your child from diphtheria can be bought through your doctor for 10 cents.

Toxin-antitoxin is not the treatment of diphtheria, as is the antitoxin. It also takes six weeks, or six months for it to establish immunity in 90 per cent of those taking three treatments. Toxin-antitoxin does not prevent one from becoming a carrier, nor does it cure a carrier. Germs may get in the throat, but toxin-antitoxin will prevent the symptoms of the disease from developing. A diphtheria carrier who has had toxin-antitoxin may develop tonsillitis. A laboratory examination of the throat will find the germs but the patient will not have clinical diphtheria. Do not let such instances cause you to lose faith in toxin-antitoxin. It is not effective in every case.

Care Of Sick Child.

The most important point in giving proper care to the sick child is to place it under the care of a good doctor immediately after you see signs of sickness. If this is done and diphtheria antitoxin is administered properly there will be very few deaths from the disease. To enable every one to have accessible a diphtheria antitoxin which is efficient, the North Carolina State Board of Health, through its Laboratory of Hygiene, will supply any physician or druggist in the State with diphtheria antitoxin at 25 cents a syringe.

The child should be kept in a room to itself as much as possible, and only the person acting as nurse, and the doctor, should enter. Use a handkerchief to cover up the nose and throat so as to prevent those nursing him from catching the disease, and always be careful along this line, inasmuch as he may be a diphtheria carrier. He should have individual drinking vessels and eating utensils for at least three weeks. As the "poison" made by the diphtheria germs so often affects the heart, it is best for a child to make sure to do this organ no harm, by remaining in bed several days after he is seemingly well, and, even then, be cautious about taking strenuous exercise for several weeks.

Rules Governing Parents

Rule 1. Each parent, guardian, householder, and adult shall immediately and securely fasten in the most conspicuous place near the main entrance of his or her home (when living in a hotel, apartment house, or rented room, upon the door leading to their apartment or room) such placard as sent by the quarantine officer to him or her; and in case such placard is removed in any way whatsoever the householder, parent, or guardian shall immediately notify the quarantine officer, so that the placard can be replaced. This placard must remain as specified for a period of twenty-one days from the onset of the disease or until written permission is given by the quarantine officer.

Rule 2. Each parent, guardian, householder, and adult shall report to

the quarantine officer, giving the name, age, color, and sex of every person in his or her home that has diphtheria, date of onset, and name of school district, within twenty-four hours after he or she has evidence to believe that the child has diphtheria, as specified in Section 7152, Consolidated Statutes.

Rule 3. No parent, guardian, householder or adult shall permit any child or minor who resides in his home to attend any public or private school, Sunday schools, church meeting, theatre, party, picnic, or other public assemblage, to go near a public park, or to appear upon a street while the house is placarded: Provided, however, that persons other than those having diphtheria are not to be included in this rule, if the patient and attendants are completely isolated at all times, and if they can prove to the quarantine officer that they are naturally immune to diphtheria by the Schick test, or have had three doses of toxin-antitoxin at least twelve weeks previously, or will take an immunizing dose of diphtheria antitoxin: Provided, also that such persons must have the necessary cultures made to prove that they are not diphtheria carriers.

Rule 4. No parent, guardian, householder, or adult shall permit any child or minor, who has been exposed to diphtheria, to attend any public or private school, Sunday school, or other church meetings, theatre, party picnic, or other public assemblage, or to go near a public park, or upon a public street, within five days from the time of exposure. The same provisions to rule 3 shall apply to rule 4.

Rule 5. Each parent, guardian, householder, and adult shall notify in some way the teacher if a child or minor living in his or her house has diphtheria.

Rule 6. Each parent, guardian, householder, and adult must, upon request by the quarantine officer, inform him of the name and address of any child or minor who has been exposed to diphtheria in his or her house.

Rule 7. No parent, guardian, householder, or adult shall neither sell, give away, or receive, in containers that are to be returned, any milk, butter or other dairy products while the house is placarded, until a personal interview has been made with the quarantine officer, so as to learn how to prevent contaminating these products with diphtheria germs in order not to spread the disease.

Rule 8. No person, adult or minor, who has diphtheria, has been exposed to diphtheria, or has been found to be a diphtheria carrier, shall attend any public or private school, Sunday school church meeting, theatre, party picnic or any other public assemblage, to go near a public park, or to appear upon a public street, unless permitted to do so by the quarantine officer after having complied with the provision of rule 3.

Rule 9. Each parent, guardian, householder, and adult must observe during and at the termination of the disease the following precautions, adopted by the North Carolina Board of Health for the prevention of the spread of diphtheria:

(a) Those having diphtheria must be kept in rooms to themselves as well as housing conditions will permit.

(b) As few people as possible are to be permitted to act as nurse, and in no instance a person whose duty will make it necessary for that party to leave the premises prior to the termination of the quarantine; and those nursing the sick must be made to wash their hands after each assistance.

(c) The room must be ventilated and the sun permitted to enter as instructed by the doctor.

(d) As far as possible, the discharge from the nose and throat must be properly disposed of by supplying the sick with paper napkins, rags, etc., to cover up the cough and sneeze, and such rags, etc., must be burned after use.

(e) The feeding utensils and drinking vessels handled by a person who has diphtheria must not be used by any other persons until they have been thoroughly boiled.

(f) All washable material, such as sheets, pillowcases, towels, etc., which have been used by or come in direct contact with the person having had diphtheria must be either boiled on the premises or soaked for three hours in a solution of carbolic acid in the proportion of a tablespoonful to a pint of water, or a preparation equivalent in antiseptic power.

To prevent the infection of the room and house during the disease is far better than to attempt to disinfect the room and house after the disease. All the terminal fumigations in the world will not atone for carelessness and uncleanness in the care of the sick.

It is good to give a room a thorough cleaning after any case of sickness. Such materials as can be boiled should be treated; otherwise, expose it to the sunshine for several days. The room should be thoroughly aired and sunned. The floors and woodwork can be scrubbed with hot water and soap. These measures are safer and more economical than fumigation.

Rules Governing Teachers

Rule 1. When a teacher has reason to suspect that any person residing in his or her school district has diphtheria or when any child is absent from school because of what may be diphtheria, he or she must make a written report to the quarantine officer with-

in twenty-four hours, giving the name of the person or child, the name and address of the householder with whom the person or child lives, and the name of his or her school district.

Rule 2. No teacher shall reside in a home where there is a person sick with diphtheria, and conduct or attend a public or private school, unless housing conditions can be such that the patient and attendants can be and are completely isolated at all times.

Rule 3. The principal of each school must keep a copy of the posters and literature which points out the signs and symptoms of diphtheria as furnished to him or her upon application to the North Carolina State Board of Health, Bureau of Epidemiology, Raleigh, N. C.

Rule 4. When the principal of the school receives official notice from quarantine officer that diphtheria exist in a family residing in the school district, he or she is required to strictly obey and enforce the following rules:

(a) He or she must exclude from his or her school each child living in a house, apartment, or room where diphtheria exists, except such children as are shown to be immune to the disease by the Schick test or who have had three doses of toxin-antitoxin for not less than eight weeks; but in this instance throat and nose cultures must be made, to rule out the possibility of a carrier, and the patient and attendants must be completely isolated at all times.

(b) He or she must have observed daily the children in his or her school for signs and symptoms of the disease, and is ordered and empowered to exclude immediately from school any pupil showing indications of diphtheria, for five days or until the symp-

ptoms here subsided, or a satisfactory certificate is presented, signed by a physician or the health officer.

(c) He or she must report within twenty-four hours to the quarantine officer the name and address of the parent, householder, or guardian with whom the child resides.

(d) He or she must have called frequently to the attention of the children the signs, symptoms, and the dangers of diphtheria, and read aloud before the assembled school such letters, references, or lectures, and send to the homes by the children such literature as he or she may receive from the county quarantine officer dealing with "FACTS ABOUT DIPHTHERIA."

(e) He or she, within twenty-four hours after receiving notification from the quarantine officer of the presence of diphtheria in his or her school district, must notify, by letter or otherwise, the superintendent of the Sunday schools, church officials, or some responsible person (when the address of such person is known), and have it announced at any public meeting which is being held, the prevalence of diphtheria in his or her school district, its signs, symptoms, dangers, and precautions to be taken so as to prevent its spread.

(i) He or she must not permit the use of the common dipper, drinking cup, or open bucket, when diphtheria is present in his or her school district.

Rule 5. The principal of each school must certify by letter to the quarantine officer who has jurisdiction over the district that such duties as set forth in these regulations have been performed whenever notice is received from him of the prevalence of diphtheria in his or her school district.

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