Preventing the Spread of Disease

H. L. Youtz
Preventing the Spread of Disease

Extension Service
South Dakota State College of Agriculture and Mechanic Arts
Brookings, S. D.
To Prevent the Spread of Disease

1. Keep sick people away from the well people.
2. Put the person sick with a contagious disease in a bed by himself, in a sunny, ventilated room.
3. Be careful of the clothing, the bedding and the excreta.
4. Find the source of typhoid fever and eradicate it.
5. Get rid of flies.
6. Vaccinate against small-pox, diphtheria, scarlet fever, and typhoid fever.
Preventing the Spread of Disease
H. L. Youtz, M. D.

Many of the diseases that affect human beings are contagious. A disease is contagious that may be spread from a person, who has the disease, to others. When one person becomes ill with a contagious disease, others coming in contact with the sick person are likely to become ill with the same disease. The disease will ‘spread’. When a person is sick with gall-stones, or appendicitis, or pleurisy, or rheumatism those who live in the same house or those who visit the sick person need not fear that they will catch the same disease. These diseases are not contagious. They do not spread. There are other diseases that belong in this group but the ordinary diseases of this type are not numerous.

Among the contagious diseases are many of those we know most about or at least that we see most frequently. These are the ones we think of especially when we speak of preventing the spread of disease. The commonest of these are ordinary colds, tonsilitis or other forms of sore throats, influenza or grippe, typhoid fever, measles, chicken-pox, scarlet fever, diphtheria, cerebro-spinal meningitis, tuberculosis (consumption), small-pox, whooping cough, etc. One or more of these diseases are to be found in almost any neighborhood at some time of the year. The spread of any of these may be lessened and even entirely prevented if proper care is given to the sick and if proper precautions are taken by the rest of the people of the community. All contagious diseases are caused by germs. They are germ diseases — each one caused by its own particular kind of germ. A germ disease spreads because disease germs present in the sick person in some way are carried to other persons and cause them to become ill with the same disease.

Since contagious diseases are caused by germs and diseases spread because germs are carried to other people causing them to have the same disease, it is easy to understand that if we want to prevent the spread of disease we must prevent the disease germs from going from sick persons to well persons or else we must use methods that will keep a person from getting the disease even though some germs find their way to him.

How Disease Germs Enter and Leave the Body

Disease germs enter the body of their victims most often through the nose and mouth with the air that is breathed or with the food and drink. Most germs leave the body of the sick person in the same way; through the mouth and nose in breathing and coughing. In scarlet fever, the scales from the body when the skin ‘peels’ may carry the germs. In typhoid fever the germs are carried from the body chiefly through the excreta — the stools and the urine. Small-pox germs are spread from the small-pox pustules.

When Diseases Are Contagious

Most germ diseases are contagious through all the course of the disease, from the time the patient first feels unwell until all symptoms, and all peeling, if any, have disappeared.

How to Avoid Contagion

Stay away from one sick with a contagious disease. Putting it another way, the sick person must be kept away from those who are well. If this could be done completely, most diseases would cease to spread.
They would not cease to be contagious but because the germs found no new place to take up their abode there would be no new cases. This is the object of quarantine. We quarantine a sick person with the intention of keeping other people away so the germs cannot get to them.

Since we have learned to isolate, or keep by themselves, persons with tuberculosis of the lungs, the disease has decreased at least one half. We all have a dread of tuberculosis so we are careful in the care of it. If we used the same precautions as carefully in the care of other contagious diseases, they, too, would become less prevalent and eventually disappear all together. If we use all our best knowledge in fighting disease, the time will really come to our community when preventable disease will not occur.

If quarantine is perfect, that is, if the patient is kept entirely to himself, completely isolated, during all the time the disease germs are being thrown off from his body, no one else will get the disease. Sometimes a person in the early stages of a contagious disease, is spreading germs before he realizes he is sick. He is not quarantined until some one else has had a chance to get some of the germs. In measles, the first signs of the disease are those of an ordinary cold. Often a child will have a cold in the head, have a running nose, cough, perhaps a great deal for two to six days before any rash appears which makes a diagnosis possible. It is during the time of beginning measles that it is most contagious. Whoever has been near the child, at home, in the school-room, or at the movies, has had a chance to get some of the germs. It is important, then, to be on the look-out for symptoms of contagious disease whenever anyone, especially a child, complains of not feeling well. Such a person may then be quarantined, or isolated, if necessary, at the earliest possible date. Especially is this true when we know there is contagious disease in the neighborhood.

A mother never makes a mistake in putting a child to bed when it complains of not feeling well. A few hours of rest, quiet, and sleep, at the outset, will often ward off an illness. When fever is present a warm sponge bath, and water to drink freely are safe, soothing and beneficial.

**The Sick Room**

Sunlight is a deadly enemy of disease germs. The person who is isolated, or quarantined, should therefore, be kept in a room where the sun can enter freely. The room should be reasonably large and have plenty of windows so ventilation can be regulated. (We must not forget that in some diseases, especially measles, the eyes are sensitive to light. Sometimes we must be content with good ventilation with very little sunlight for a few days.) Fresh air is a necessity for a well person and more necessary for a sick one. Fresh air does not need to be cold air.

**Germs Carried by Third Person**

Germs of some diseases may be carried from a sick person to some one away by a third person who has been in the sick room. Not every one who gets germs of a contagious disease will get the disease but they can carry the germs to someone else who may get sick as a result. If a person from a home where there is a case of contagious disease goes to school or to church, or any place where there are other people, especially children, they may carry disease germs to some of these people.
If one member of your family has a cold, sore throat, or other ordinary contagious disease, even though he stays at home and in bed, other well members of the family may carry the germs to school, etc. A person recovering from a contagious disease must not leave quarantine too early. He must not relax his isolation for some days after all symptoms of the disease have disappeared. Germs may still be present and cause a relapse, or he may carry them to others.

Some diseases are required by law to be quarantined. Other very contagious diseases are not. Ordinary colds and sore throats, or tonsillitis, are very contagious. We all know how often we hear some one say 'We all have colds (or sore throats, as the case may be) over at our house. I don't know where we got them'. Nearly always that means that one of the family got it first (from some one else), then one by one the other members of the family got some of the germs from the first one sick and then one by one all of the family got the disease in turn. A towel used by one with a cold and by others of the family will spread germs.

**Care of Colds and Sore Throats**

Colds and sore throats can be prevented if we are careful to use the same precautions that we use in other contagious diseases. A member of the family who has a cold or a sore throat should be put in bed and in a room by himself. No person with either condition should be permitted to sleep with a well person or in the same room with a well person. A person with a cold and cough should never cough or sneeze unless he has his mouth and nose covered with a handkerchief, better yet, with a suitable piece of old soft, clean cloth or soft paper (toilet paper is very satisfactory for this use) that may be burned when once used. A bright, sunny room, well ventilated, helps to destroy the germs.

If there is expectoration it may be disposed of in the same manner. A paper bag at the bedside—or a cone made of folded newspaper—with a roll of toilet paper to provide handkerchiefs to be used once and then placed in the bag—the bag replaced frequently with a clean one and the old bag and contents burned—these things increase comfort, lighten the washing, and safe-guard the health of the rest of the family. There should be no spitting elsewhere than in the proper handkerchiefs. There should be no soiled handkerchiefs to lie about or to be put with the family wash. They carry germs.

We said a while ago that rheumatism is not contagious. There is a kind of rheumatism that often occurs after an attack of tonsilitis. Tonsilitis is contagious. More than one person during an epidemic of tonsilitis may develop rheumatism during or after an attack. To that extent the rheumatism is contagious and may be prevented by preventing the spread of tonsilitis.

**Diseases Less Easily Controlled**

Some contagious diseases, such as cerebro-spinal meningitis and influenza, seem to spread widely even though quarantine is very rigidly enforced. This would seem to show that the germs causing these diseases may be carried through the air for longer distances than the germs of most other diseases. But the same measures that help to control other diseases help in the control of these, also, though not so effectively. Isolation of those who are sick, with either of these two diseases, in well-aired, sun-lighted rooms goes far toward checking their spread.
Care of Clothing and Bedding

We have said nothing about the clothing and bedding used by those sick with contagious disease. Just as a well person may carry disease germs from a sick person to another person and so cause them to become ill, so clothing and bedding that has been used by a sick person may carry germs to some one else. All this clothing and bedding should be placed in water to be boiled (before being taken from the sick room) to kill the germs, or be put in a solution of lysol and water (two tablespoonfuls of lysol to one gallon of water) for the same purpose, before being taken from the sick room. If the clothing or bedding is sent to the laundry or is mixed with the family wash without being so boiled or soaked it may carry disease germs to other clothing and so to other people. This is especially true of clothing or bedding that has been in direct contact with the skin of the sick person. Other less intimate clothing and bedding should be thoroughly aired outdoors, in a bright sun-light for several hours.

The Sick Room

The room that has been used as a sick-room for a person with contagious disease should be very thoroughly aired for several hours after the patient has been released. This airing should be done, if possible, when the sun can shine in well and when there is some breeze. All the bedding and any clothing and drapes that may have been in the room should be carried outdoors. In some cases fumigation is required but this should be done according to the instructions of the doctor or health officer.

Disinfectants

Lysol or carbolic acid, or any ordinary disinfectant, are of no value if merely placed in a room. The odor does not kill germs. To kill germs they must be used in solutions as a wash, or articles must be soaked in solutions of the disinfectants: lysol and water in the proportion just given—two tablespoonfuls of lysol to a gallon of water—carbolic acid, one tablespoonful to one gallon of water. This use of disinfectants not only kills disease germs but overcomes disagreeable odors as well.

Typhoid Fever

Typhoid fever is not contagious in the way most contagious diseases are. The germs of typhoid fever are thrown off almost entirely through the bowels and in the urine. The danger of catching this disease lies almost wholly in handling the patient, handling the clothing or bedding, or in handling the bed-pans and excreta. Typhoid fever germs enter the body not in the air we breathe but in the food we eat or with the water or milk we drink.

To prevent the spread of typhoid fever, we must be especially careful to soak all clothing and bedding in the solutions of lysol or carbolic acid already described. Those caring for a typhoid fever patient must be scrupulously careful of their hands and clothing. The hands must be washed in lysol water (one tablespoonful of lysol to one pint of water) after every handling of the patient lest germs be carried to the mouth. We must also be very careful of the disposal of the stools and urine. In no case must these be thrown on the ground nor into an ordinary privy or toilet, nor into a running stream until they have been thoroughly mixed with water containing lysol or carbolic acid, of the amount stated before, and have been allowed to stand for some time. This is extremely important as any of these germs of typhoid fever
permitted to leave the sick-room or the house may cause typhoid in some other member of the family or in some other member of the community.

We have said that typhoid fever germs enter the body with the food or with water or milk. Typhoid germs taken from the house and disposed of in any way that does not kill them may be washed by rains into the well that furnishes drinking water. They may be washed into a stream and carried for a considerable distance to endanger those down stream who may drink from the stream. They may be brought into contact with garden vegetables that are afterwards eaten. They may be carried by flies to the milk or to other foods the flies may visit after having contaminated themselves with the excreta from the sickroom.

Milk or garden vegetables from the home where typhoid fever is present should not be sold from the place. They may carry typhoid germs. Water from a well into which surface water runs is unsafe. This surface drainage may be prevented: first, by placing the well so that drainage is away from it; second, by providing a tight curb extending from a few inches above the ground to at least five or six feet below the surface.

Stagnant water is never safe for drinking. 'Dam water' is unsafe. Water from an unused well or from a cistern that is not clean and well-covered is not safe. All these waters—if sometimes they must be used—may be made safe for drinking by boiling twenty minutes. After boiling the water may be cooled in clean vessels.

In every case of typhoid fever, search must be made for the place from which the germs have come. If one member of the family becomes ill with typhoid fever, the germs of which are in the well-water or milk, other members of the family may get the germs from the same source no matter how carefully all the rules for the sick-room are carried out. The same is true if the germs were brought in the milk or vegetables. To check a typhoid fever epidemic not only must every precaution be used in caring for the clothing and bedding and in disposing of the excreta of the sick person, but it must be discovered where he first got the germ. Then that source must be rid of typhoid germs. Typhoid fever may not develop for several weeks after the germs enter the body. A person traveling may pick up the germs in one place and be thousands of miles away when taken ill.

Danger in Camping

If you are planning an auto trip across country which will compel you to use water and milk from many sources—some of which may be unsanitary—in camps and elsewhere, by all means take the precaution to have every member of the party vaccinated against typhoid fever. Typhoid fever can be prevented. You cannot always avoid drinking contaminated water or milk: you can make yourself safe against typhoid fever. Plans for this must be started with your doctor at least a month before the trip is to begin.

Flies and Disease

One of the most frequent disorders in the summer time is a kind of dysentery called 'summer complaint'. This is a very important condition, especially in children. It may be due to one of several causes, most frequently it is a germ disease. We have mentioned flies as carriers of germs in the case of typhoid fever. Flies are frequently car-
riers of disease. Their presence is often the explanation of the occurrence of 'summer complaint'. Flies breed especially well in piles of old manure. Such flies should not be permitted to accumulate near the house. Open privies attract flies as do decaying matters of any sort. Food left uncovered on the table in the house attracts the same flies. Germs they may pick up in one place they will probably leave at the next. Baby's 'summer complaint' is likely to be due to milk contaminated by a fly that first visited the manure pile, the privy, and possibly other filthy places, and then drink some of baby's milk, washing its feet in it at the same time, and then, perhaps, sat down to rest on Baby's milk bottle or Baby's lips. Flies are more than a nuisance. They are a menace to health.

The cleanest house-yard is the pleasantest house-yard. It is also the most wholesome and the most sanitary. Piles of rubbish, decaying vegetables or fruits, slops, and dish-water carelessly disposed of, pens or stables for stock too near by—all these are unsanitary—they attract flies—they invite disease.

**Vaccination**

There is one other important thing we must remember in our effort to prevent the spread of disease. We have talked about methods of keeping disease germs from getting from a sick person to a well person. We must not forget that we can often do things for a person that will make disease germs harmless to that person. We can make him immune. We do this by means of vaccination.

Small-pox vaccination has been so long in use and has been so widely practiced that we are all familiar with it. Any neighborhood where every one, or nearly every one, has been vaccinated against small-pox will never have a small-pox epidemic. Small-pox vaccination will prevent small-pox.

Sometimes we hear someone say—'The doctors urge vaccination that they may have the business of vaccinating They want more business.' Do you know that if a doctor is known to neglect vaccination and quarantine among his patients, his fellow-doctors, who should know what they are talking about, are likely to accuse him of being neglectful so disease may spread and his business be better? Do you realize that one case of typhoid fever, or small-pox or diphtheria means more 'business' for the doctor than vaccinating a whole neighborhood? The only business increased by vaccination and other health measures is the business of keeping well.

By vaccination, we can now prevent smallpox, diphtheria, typhoid fever, much of scarlet fever and measles. Those who know tell us that the average length of life today is at least fifteen years longer than it was fifty years ago. Why? Because not so many babies die. Because not so many children die. Because not so many young people die. Just as many old people die. Babies, children, and young people do not die as they used to because we have learned how, by vaccination, to keep them from having diphtheria, scarlet fever, typhoid fever, and small-pox. In the Spanish American War a few out of every thousand American soldiers died of typhoid fever. In the World War only one out of every twenty thousand died of typhoid fever. What made the difference? In the World War every soldier was vaccinated against typhoid fever. If we vaccinate all the babies and children against small-pox, diphtheria, and scarlet fever, very soon instead of being the usual diseases of childhood these will become the unusual.