

MEDICINE

Measles Death Rate Is Cut

Potent anti-measles substance isolated from blood can either prevent measles entirely or modify the attack. New drugs are curing complications of disease.

By JANE STAFFORD

► MOTHERS need not worry so much when little Johnny or Mary breaks out with pink spots and the doctor says: "Measles!" The death rate is down to one-fiftieth of what it was three decades ago and children don't get nearly as sick as they once did.

Thank good red blood, given by patriotic Americans, for this great medical advance—for one of the great factors in making measles easier and safer to have is the potent anti-measles substance, called immune serum globulin, available through the Red Cross blood program.

Sulfa drugs and penicillin do their chemotherapeutic part in fighting measles. And Mother knows now better ways of taking care of the young patients—doctors are called more promptly, the children get to the hospital when they need to and those likely to spread the infection are kept isolated.

In modern times measles has been a killer chiefly through its complications. Over 90% of the deaths from measles were due to pneumonia. When the sulfa drugs came along and then penicillin to cure pneumonia, many child lives could be saved.

Drugs Aid Disease Fight

The sulfa drugs and penicillin also have saved many a youngster from the worst results of another complication of measles, middle ear trouble and mastoiditis. Although not so often fatal as pneumonia these complications are commoner and in pre-sulfa days often led to deafness.

The most severe complication of measles today is encephalomyelitis. This is an inflammation of the brain and spinal cord. Fortunately it is rare, because when it does occur it kills about 10 out of every 100 of its victims and may leave as many as 65% of the survivors permanently damaged in mind or body.

Now children can be saved not only from measles death but from the earaches, the days and weeks of fever, the loss of strength, the threat of permanent damage to mind and body. This is being accomplished through immune serum globulin.

Immune serum globulin comes from blood. Most if not all of it so far has come from the blood Americans donated so generously to the American Red Cross for our armed forces during the war. The blood was donated and used primarily to save the lives of the wounded. In the

early years of the war the red cells of the blood were separated from the plasma and the latter was used for transfusions for the wounded. This was because at that time whole blood could be preserved for only seven days, while dried plasma keeps for five years.

At the end of the war there was a surplus of nearly 5,000,000 units of human dried plasma which the armed services returned to the Red Cross. During the war years, meanwhile, Dr. Edwin J. Cohn of Harvard had developed methods of separating blood plasma into various fractions. One of these fractions was serum albumin which provides in concentrated form the effect plasma has in preventing or overcoming shock. Because it can be packaged in smaller space and does not require the addition of water before use in transfusion, as dried plasma does, it began to be sub-

stituted for dried plasma for the armed forces in the closing years of the war.

Blood plasma contains many other substances besides the albumin. Scientists have discovered more of them than they know clinical uses for, and believe there may be still others.

It is the plasma part of the blood that contains the antibodies to disease germs which the body builds up in defense against germ invasion. Since almost all grown persons in the United States have had measles, the pooled plasma collected from donors to the Red Cross contained the measles antibodies in generous measure. They are in the blood plasma fraction separated out as gamma globulin and packaged for use as immune serum globulin.

Antibodies in Blood

Antibodies for other diseases, such as mumps and scarlet fever, are also present in the blood of normal adults and therefore in the gamma globulin fraction. But their concentration is relatively low and the blood fraction does not contain enough to be useful, though fractions from



MEASLES MADE EASIER AND SAFER—A measles victim now has an easier time of it than he once did, thanks to modern medical discoveries and better information about the disease.

convalescent patients, who have more antibodies in their blood, are proving useful.

Immune serum globulin can prevent measles entirely or can modify the attack so that it is only a mild sickness with scarcely any danger of complications. Children under three years, sick children and sick grown-ups who have never had measles if exposed to the disease get a dose big enough to ward off an attack entirely. This spares them the disease which might prove fatal in their state.

The immunity to measles given by this big dose, however, is not lasting. So doctors prefer to give healthy children, when exposed to measles, a dose just big enough to let them have a mild attack. In this way they get a chance to build up in their own bodies the antibodies that will last them the rest of their lives.

The surplus immune serum globulin and that made since the war from surplus dried plasma has been given back free of charge by the Red Cross to the American

people, who gave the blood, for use when and where needed. More than a million doses have been distributed to doctors, hospitals and health departments since 1944, and about 600,000 during the fiscal year 1947-48. The commercial value of this 600,000 doses is nearly \$3,800,000. The patients who got it had to pay only for the services of the doctor or hospital for administering the dose.

The big measles year of 1947-48, used up a lot of the immune serum globulin. In that same year, however, the National Blood Program of the American Red Cross was inaugurated and on Jan. 12, 1948, the first regional center of the program opened in Rochester, N. Y. Aim of this program is to collect, process and distribute enough blood and its health-giving fractions to meet the needs of the entire nation for transfusions, for measles-fighting and for any other use that can be found for blood.

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power system. Any arc forming between the interrupted contacts is extinguished by the released high-pressure air.

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Words in Science— SILICONES

➤ A FAMILY of synthetic resins, born of slippery organic compounds wedded to gritty silicon, basic constituent of sand and glass, is known under the name of the silicones. This is pronounced silly-cones.

Many new products are being made from these organic compounds of silicon. Greaseless lubrication good at extremely high or low temperatures; a water-repellent film that can be applied to fabric or paper and that will withstand dry cleaning and washing; better rubber tires; longer-lived electrical insulation. These are some of the major products made possible by silicone chemistry.

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PSYCHIATRY

Shock for Mental Illness

➤ USING electric shock treatments in a prophylactic way to prevent return attacks of mental illness in patients who have recovered is now being tried by two Canadian psychiatrists, Dr. J. J. Geoghegan of Guelph, Ont., and Dr. G. H. Stevenson of London, Ont.

Good results in the first three years of a five-year test period are reported by the psychiatrists in the AMERICAN JOURNAL OF PSYCHIATRY. (Jan.).

A single electric convulsion is induced about once a month in the patients, starting after recovery from the most recent attack of mental illness. The theory behind the prophylactic convulsions is that electric convulsions often end a manic or a depressive attack of illness. This being the case, the doctors reasoned that an induced convulsion might break up and dissipate accumulating tensions before they reached the point of definite mental illness.

The trial of the method is being made on a group of patients each of whom had two or more attacks of mental illness in the preceding five years. During the three years of prophylactic electric convulsions none of the 13 has had any return of mental illness.

By contrast, every one of a group of 11 similar patients who refused the prophylactic treatment has had one or more attacks of mental illness in the three years.

The method has disadvantages. Many patients dislike the electroshock treatment so much they would rather risk an attack of mental illness than look forward to a long series of electroshock treatments. The treatments themselves are not without danger. There are also economic disadvantages such as time lost from work and

cost of the treatment. These, the psychiatrists feel, are offset by the time lost and expense of repeated attacks of mental illness.

"Nevertheless," they state, "we consider it the duty of the psychiatrist to keep the patient well and to prevent recurrences of mental illness, if possible."

Until some better preventive method is found, they believe prophylactic electroshock should be tried.

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ENGINEERING

New Circuit Breaker Makes High Voltage Lines Safe

➤ COMPRESSED air is used to literally blow out a flaming short-circuit arc on a high-voltage electric power line by a new circuit breaker, the American Institute of Electrical Engineers was told in New York by Benjamin P. Baker and Erling Frisch, Westinghouse engineers.

The new circuit breaker is a safety device, developed for the protection of power systems and for high voltage use in congested metropolitan and residential areas. It is super-safe, they said, because it contains nothing more inflammable than compressed air. It is designed for use in a 69,000-volt system. It was described as the "highest-rated compressed air circuit breaker yet designed for outdoor service in such a system."

This device is capable of stopping an electrical surge of 3,500,000 kilowatts, they said. If a short circuit occurs and a tremendous surge of current travels along the line, the breaker opens the circuit and halts the surge before it can damage the

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