

MEDICINE

TB World's Worst Disease

Tuberculosis has replaced malaria as the number one infectious disease problem, as it now infects more than 50 percent of the world's population—By Faye Marley

► IN SPITE OF improved drugs and vaccines, one half of the world's population is infected with tuberculosis.

Every time the clock ticks off a minute, someone dies of TB in India. Even in the United States, more than 10,000 deaths a year are reported, and there are more than 50,000 new cases reported annually. In Latin American, Asian and African countries where statistics are not available, it is the cause of appalling sickness and death.

Tuberculosis has now replaced malaria as the world's number one infectious disease problem. Eradication cannot be attained for years to come, but in many countries control is a possibility.

It has been conservatively estimated that \$725 million a year is spent for treating TB in this country alone. The entire budget of the International Union Against Tuberculosis is \$114,000 a year.

Almost everywhere patients stop taking their drugs too soon. In Russia, where TB control is highly organized, strict supervision is required. Every patient has a control card on which drugs he is taking are written down, along with his visits to the dispensary and all visits of the doctor to him.

A nurse supervises the taking of drugs by patients, and urine tests are widely used to be sure the drugs really have been taken. Difficult patients are visited twice a week, and those known to be unreliable in drug taking are asked to take them under the nurse's supervision.

In France, by contrast, students and young intellectual workers are a problem. They are anxious to get ahead with preparation for their careers and tend to stretch their health too far. They are less concerned with disease than older persons, and carelessness, as well as lack of discipline, hinders medical treatment.

Resistance to drug treatment by tubercle bacilli which have learned to live with the drugs is one of the big problems. Dr. William B. Tucker of the Veterans Administration, Washington, D. C., also adds "primary resistance" to drugs in patients who have been infected with organisms already resistant to the drug in use.

In resistance cases, Dr. Tucker says, the most common practice in the United States is to go ahead with treatment using two or more "secondary" drugs not previously used, while at the same time watching for laboratory results.

These second-line drugs include ethionamide, pyrazinamide, cycloserine, kanamycin, viomycin, oxytetracycline, ethambutol, capreomycin and isoxyl.

There is no tuberculosis vaccine suitable for everyone, although BCG (bacillus Calmette-Guerin), the one most widely used

since its discovery in France more than 30 years ago, does give some protection. It is of no use to those already infected, of course. Moreover, it requires two months to develop immunity.

Another approach to prevention is the use of a drug, or chemoprophylaxis. Mrs. Shirley Ferebee of the U.S. Public Health Service's tuberculosis program believes that isoniazid should be given as a preventive to high risk groups, including persons in close contact with those having active tuberculosis.

In the developing countries, both BCG and preventive drugs are advised by some authorities.

The ideal treatment for TB is a combination of the drugs isoniazid and PAS, short for para-aminosalicylic acid, but this is eight times as expensive as isoniazid alone.

A Public Health Service task force to study the TB problem in this country is expected to report next May at the 1964 meeting of the National Tuberculosis Association.

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MEDICINE

German Measles Danger

► PREGNANT WOMEN who are not positive they have had German measles, or rubella, should be on the lookout for infection between now and summer.

The danger of having a malformed baby as a result of infection during the first three months of pregnancy is well known, but many women either forget whether they have had German measles, or they have no definite record of an accurate diagnosis.

Dr. John L. Sever of the National Institute of Neurological Diseases and Blindness, Bethesda, Md., told SCIENCE SERVICE that it will be several years before a vaccine against this disease is perfected and available to the public. Tests are going on as a result of the rubella virus having been isolated from military recruits about two years ago.

"Gamma globulin is the only thing available that is believed to confer some temporary protection on exposed pregnant women," Dr. Sever said, "but we never have had a really good study of how effective it actually is in preventing birth defects."

Swedish investigators have reported good results with gamma globulin taken from patients convalescent from German measles because the antibody level is high. Differences in rubella antibody content of gamma globulin vary in general use, however, Dr. Sever said.

The widespread susceptibility to German measles among pregnant women was shown



Republic Aviation

SPACE RESEARCH PLATFORM—
This laboratory in space under study by Republic Aviation at Farmingdale, N. Y., would permit research for weeks at a time on physical and psychological conditions faced in space flight at 100,000 feet altitudes. The tandem balloon system eliminates the need for ballast to keep the platform at a constant altitude.

in a U.S. Public Health Service study in which 17.5% of 600 expectant mothers from 12 hospitals, whose blood was tested, did not have "demonstrable antibody" against the rubella virus.

The research was a part of the collaborative project for the study of cerebral palsy, mental retardation, and other neurological and sensory disorders of infancy and childhood.

The project is a joint one, with 15 medical centers and the National Institute of Neurological Diseases and Blindness collaborating. The 12 hospitals that provided the blood sera in the rubella antibody study are members of the project.

German measles is usually a mild disease among children and is not reportable, Dr. Vincent Guinee, epidemiologist and measles specialist at the Communicable Disease Center, Atlanta, Ga., said.

"This is the season when German measles is to be found widely throughout the country," Dr. Guinee pointed out. The highest incidence is early spring.

The U.S. Public Health Service study by Dr. Sever, with Dr. Gilbert M. Schiff, both of the National Institute of Neurological Diseases and Blindness, and Dr. Robert J. Huebner of the National Institute of Allergy and Infectious Diseases, was reported in *Obstetrics and Gynecology*, Feb., 1964.

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