

TRACKING AN ATYPICAL ENEMY

Med School scientists trail a tuberculosis-like disease in Mexico and Central America

By IMOGENE PATRICK

A QUEST for information about a tuberculosis-like illness that afflicts many Oklahomans has taken a team of University of Oklahoma Medical Center scientists south to Mexico and Central America to plot the geographic profile of a group of "germs."

The disease—or category of diseases—is known as atypical tuberculosis, thought to be transmitted by soil-to-human contact. These infections are caused by mycobacteria that closely resemble the tubercle bacillus, the microorganism responsible for human tuberculosis which long has been known to be spread from man to man.

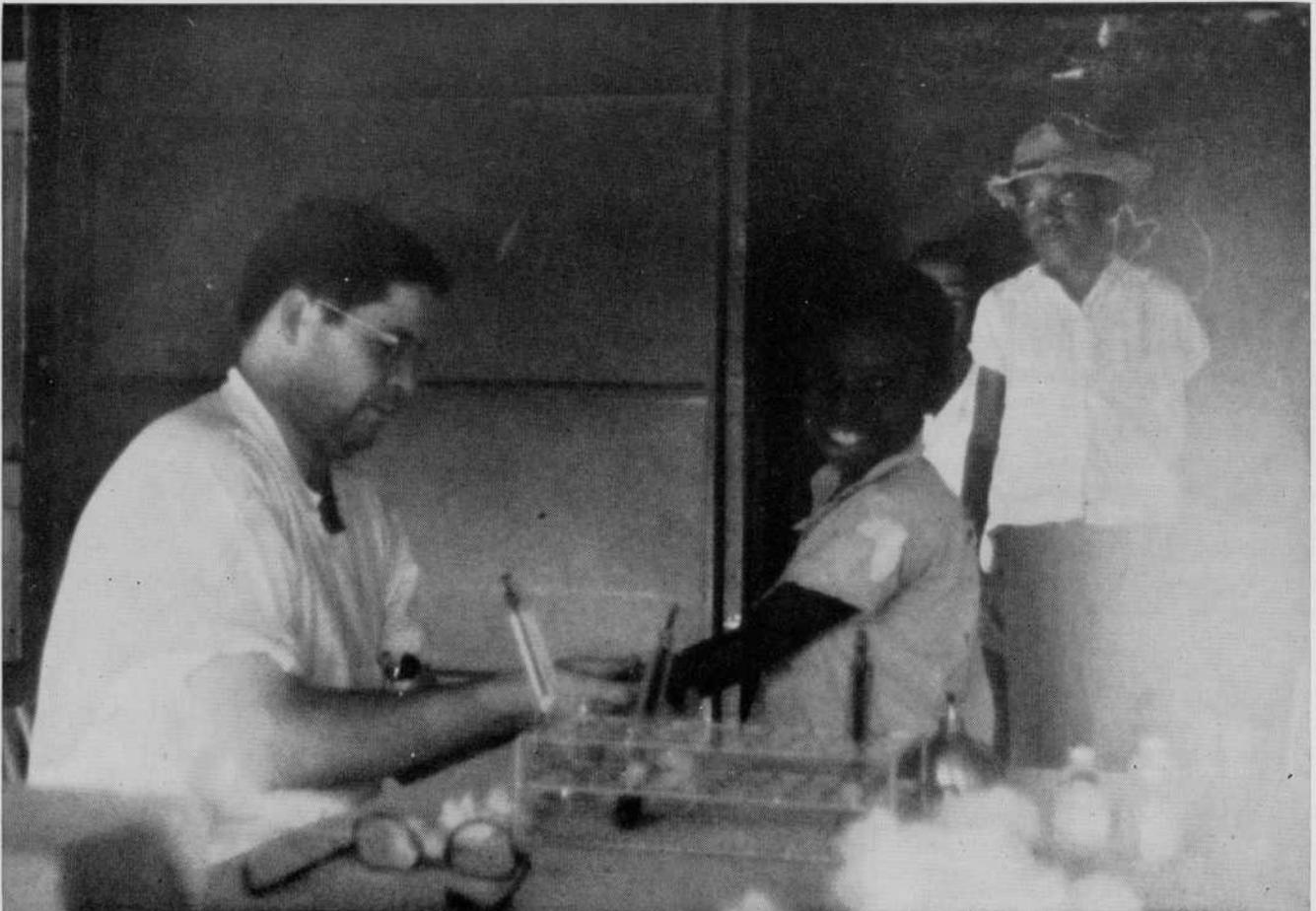
Atypical tuberculosis, though rarely fatal or disabling, often results in a long-term illness characterized by lesions of the skin and lymph nodes. The drugs that can control tuberculosis are ineffective against it. In children, the infection usually involves the neck and chin and may be treated by surgical drainage of the enlarged nodes. Lung infection sometimes occurs in adults. So alike in structure are the various mycobacteria—those causing both human tuberculosis and atypical infections—that a person in-

fectured with one may react positively (or "cross react") to a skin test for another.

Microbiologists at the Medical Center several years ago reported a widespread and previously unsuspected incidence of infection by these atypical tuberculosis strains in Oklahoma, with a higher rate among Indians than other population groups studied. Investigators elsewhere had found an exceptionally high incidence in the southeastern United States. Suspecting geographical influences, Dr. Everett C. Bracken, associate professor of pediatrics and microbiological research, and Dr. Harris D. Riley, professor of pediatrics, in 1962 undertook a survey in Central America. "We wanted to find out whether there was a north-south band of occurrence," Dr. Bracken said.

From this has developed a far-flung epidemiological study, with strong overtones of inter-American good will and cooperation. The program is financed by the U.S. Public Health Service and Louisiana State University's International Program. During the winter of 1962, Drs. Riley and Bracken skin-tested children in Honduras, Guatemala

A young test subject ignores Dr. Riley's forbidding needle to smile for the camera. Most of those tested in Central America were children.



and Costa Rica. Last summer, Drs. Riley, Bracken and Robert A. Beargie, instructor in pediatrics and a National Institutes of Health research fellow in infectious diseases, carried the study to the Guadalajara area of Mexico, where testing was begun in collaboration with the Department of Preventive Medicine at the University of Guadalajara School of Medicine.

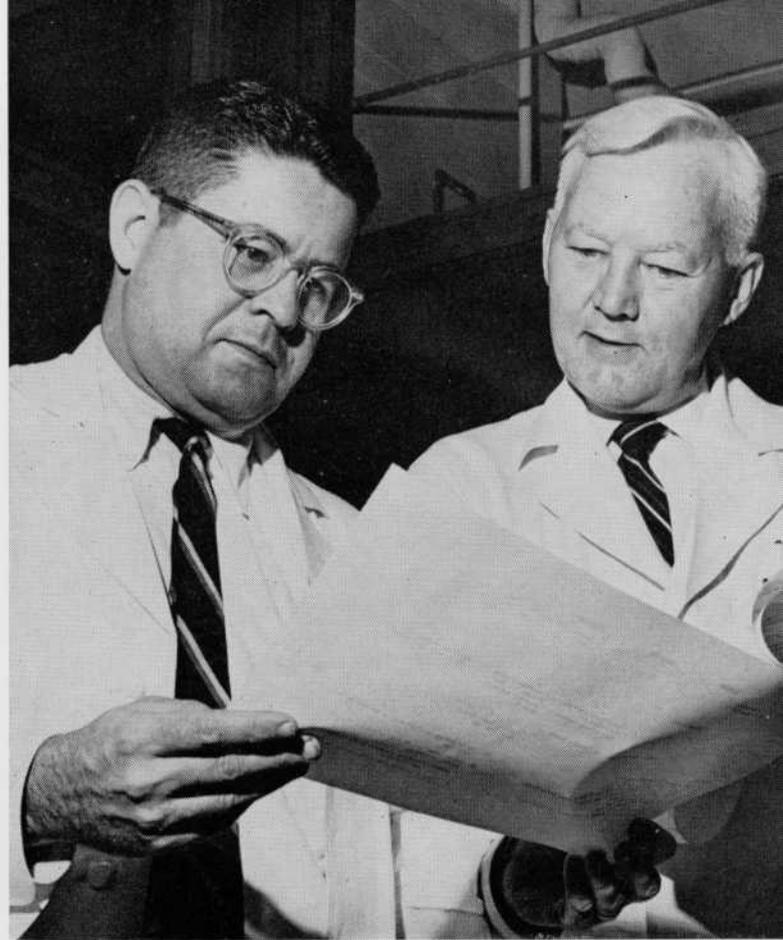
The Oklahomans tested 2,215 persons, mostly children, in the Central American countries. Studies in Honduras were conducted on the remote islands of Bahia, off the northern coast of the mainland. In Guatemala, the test subjects were primarily school children in the cities of Antigua and Ciudad Vieja. Costa Rican studies were carried out chiefly with school children in small cities near San Jose and in a preventorium for children exposed to tuberculosis.

One hundred children in the Mexican district of Jalisco were tested by the Oklahoma men and another 1,000 will be screened by their University of Guadalajara colleagues. Three different tuberculin—materials made from a laboratory culture of organisms—are used in the studies. Each tuberculin or antigen is “specific” for the organism from which it was produced—that is, it measures a subject’s sensitivity to that particular bacterium. Subjects received intradermal injections of all three tuberculins. Two days later, the skin reaction was “read.” A positive reaction, determined by the size of the red spot at the site of the skin test, indicates whether you have ever been exposed to the specific “germ.” It does not necessarily mean you have the active disease. After tuberculosis or atypical tuberculosis microorganisms have been in the body a few weeks, you become a “reactor,” or show an allergic response to a skin test.

“Los Norte Americano medicos,” accustomed to the less stoical attitude of U.S. children, were charmed by the young Mexicans who stood unflinching, their eyes widening at the approach of the needle, and one by one rewarded them with a “muchos gracias” after they got their “medicine.”

“We learned quickly to skin test the left arm of the adults,” Dr. Bracken said. “If a man couldn’t work because of a skin reaction on the right arm, it meant his family didn’t eat that day. No right arm, no food.”

A strikingly high reactor or “exposure” rate was found in all the Central American countries. (The Mexican data are still being collected.) “It was particularly impressive when compared to findings in North American populations,” Dr. Beargie said. In a group of under-15 children screened, four percent had a positive reaction to the human tuberculin skin test; seven percent to an antigen prepared from another tubercle bacillus, and ten percent to an antigen from still another atypical strain of mycobacteria. The comparable figures in Central America for children of the same age group were 38, 48 and 49 percent, respectively. The Central American study also showed a high rate of cross reactivity or positive reactions to all three antigens. This was particularly true of the adult age groups. The scientists concluded that future studies should be restricted to children under six, who, because they have been more limited in their contacts, are more likely to react only to the most common organism of the area.



Drs. Riley (left) and Bracken, suspecting geographical influences in the spread of the disease, undertook surveys in Honduras, Costa Rica and Guatemala in 1962 and in west central Mexico during 1964.

Dr. Bracken considers the good will aspect of the program as important as the epidemiological findings. “The areas we went into have very little contact with the medical world outside of Central America and Mexico,” he said. “Although you don’t ‘tell’ their medical and paramedical workers to do things a certain way, if you can inoffensively ‘suggest’ how to do it and explain why, you can accomplish a great deal.” The OU group explained that they wanted to correlate their studies with those of their Latin friends and the only way this could be achieved was to use a standard methodology. “The idea that we wanted to synchronize and coordinate our knowledge was an acceptable reason,” he said.

Knowledge of the geographic distribution and the specific organisms responsible for the highest incidence of infection in a locality would be an aid in diagnosis as well as contributing to future control of tuberculosis-mimicking diseases. The research paid immediate dividends to many of the Central Americans and Mexicans who participated. The screening clinics turned up youngsters with active tuberculosis who were promptly brought under treatment.

There are fringe benefits in Oklahoma, too. At the Medical Center in Oklahoma City, all children tested for tuberculosis are also skin-tested for the related organisms, and each case that reacts positively to the human tuberculin is studied more intensely than before. “We are finding many diseases that look much like tuberculosis but that prove not to be,” Dr. Beargie said.

The author is public relations director of the OU School of Medicine.