Organization (WHO) issued a report documenting the deadly toll: Infectious diseases killed an estimated 17 million people worldwide last year, the report noted, and the numbers are rising. "We are standing on the brink of a global crisis in infectious diseases," warned WHO director-general Hiroshi Nakajima.

The international problem of infectious disease is worsening, in part, because some nations' outbreak-surveillance apparatus atrophied during the 1960s and '70s—a period when the sustained success of vaccination campaigns and antibiotic drugs had lessened concern about communicable diseases. In Germany, this was compounded by the fact that the public health system is highly fragmented. As in the United States, Germany's states, or Länder, have authority over public health, but Germany's more than 500 local health departments have greater autonomy than their U.S. counterparts. "Under the German system, if something big happens, you have limited capacity to deal with it," says Lyle R. Petersen, a CDC epidemiologist who is on assignment to the Koch Institute. "And up until now, there was no federal agency here that could deal effectively with major outbreaks."

Germany's answer is to enlist the Koch Institute in meeting that challenge. Franz-Josef Bindert, who heads the German health ministry's communicable-diseases section, says the field study in Bavaria is "a good example" of the sort of work that Koch can do to help German state and local health departments detect and fight outbreaks of infectious diseases.

The Koch Institute has a rich heritage in science's struggle against disease. Founded in 1891 as the Prussian Royal Institute for Infectious Diseases, its first director was Robert Koch, the famous German bacteriologist who traveled the globe seeking out the causes of epidemics and ways to help contain them. The institute was the site of some important research by Koch, who won the 1905 Nobel Prize in medicine. Allied bombs badly damaged the institute's laboratories during World War II, and its reputation suffered when some of its Nazi-era scientists were accused of unethically testing vaccines on humans.

After the war, Koch rebuilt itself by concentrating on basic research in fields such as electron microscopy, virology, and bacteriology—rather than on the applied techniques of epidemiology. Now the federal health ministry is changing Koch's focus again, more toward disease epidemiology and surveillance. The changes began a couple of years ago, when Koch's core HIV/AIDs section was expanded to encompass other infectious diseases. Koch's team of epidemiologists started analyzing state data more

U.S. Beefs Up CDC's Capabilities

In 1967, U.S. Surgeon General William Stewart announced that the United States could "close the book on infectious disease." U.S. health officials, like those in other developed countries, believed that the astounding success of vaccines and antibiotics would continue and eventually beat infectious disease into submission. That confidence has proved to be at best premature, however: Diseases such as tuberculosis, cholera, and typhus, for decades considered under control, have resurfaced with a vengeance and, along with AIDS and new food- and water-borne infections, have caused deaths from infectious diseases to increase by 58% between 1980 and 1992 in the United States alone.

Researchers at the U.S. Centers for Disease Control and Prevention (CDC) in Atlanta admit that they let their guard down. "There was a general complacency," explains Ruth L. Berkelman of CDC's National Center for Infectious Diseases. Much of CDC's expertise in the field was lost as infectious-disease experts retired and were not replaced. All in all, there was "a major erosion of CDC's capability to deal with these problems," agrees Jon Counts, a microbiologist at Washington State's Department of Health in Seattle.

Two years ago, spurred in part by three reports between 1987 and 1992 from the Institute of Medicine critical of the U.S. public health system, CDC took steps to try to reverse the slide. The agency drew up an ambitious $125-million-a-year plan—Addressing Emerging Infectious Disease Threats: A Prevention Strategy for the United States—which called for increased monitoring for emerging infections, improvements in local and state public health facilities, and enhancement of international efforts to control the spread of these pathogens and to watch out for the development of infectious agents resistant to existing treatments.

The U.S. Congress responded by allocating $6.7 million in 1995 and $10.7 million this year, a sum President Clinton wants to increase to $27 million in 1997. "It's the first money for emerging infectious diseases [excluding AIDS] that we've had," says Berkelman. Already, with about $2.5 million of those funds, Connecticut, Minnesota, Oregon, and northern California have set up programs to monitor known emerging infectious diseases, such as a tick-borne illness called ehrlichiosis and the *Escherichia coli* strain 0157:H7, and to look for new threats. The CDC has also agreed to provide $200,000 a year to 13 states, as well as to New York City and Los Angeles, to bolster local public health efforts to combat infectious diseases. But this level of federal support is a far cry from what the CDC plan called for. "The additional funding to states is a good beginning, but we still have major problems," Counts says. Most public health efforts will still be directed to dealing with crises, even though catching outbreaks early and preventing the spread of an epidemic is far more cost-effective, explains Mike Osterholm, an epidemiologist at the Minnesota Department of Health in Minneapolis.

In parallel with its efforts to bolster domestic disease surveillance, CDC, along with other federal agencies, has been pursuing international cooperation. In mid-April, the United States and Japan signed an agreement to work together for the first time to improve global efforts to prevent and control the spread of emerging and re-emerging diseases. Similarly, the most recent Trans-Atlantic Alliance agreement between the United States and the European Union calls for a global communicable-disease network. Next week, the two parties will announce the creation of three subcommittees that will develop goals for expanding surveillance and response, research and training, and the capacity to deal with emerging infections.

But such international agreements face an uphill struggle. With U.S. national programs in such disarray, for CDC "the focus thus far has been on domestic programs," says Robert Pinner, an epidemiologist at CDC's National Center for Infectious Diseases. And WHONET, a computerized database designed to monitor for resistant microbes across the globe, has only about 30 countries contributing data and many developed nations are just beginning to get involved, says clinical microbiologist Thomas O'Brien, who runs WHONET from Brigham and Women's Hospital in Boston.

"We've never really had a strong national disease-surveillance program, and globally, [surveillance] has been fragmented," says Gail Cassell, a microbiologist at the University of Alabama, Birmingham. And she worries that the U.S. government is still not ready to commit to real change: "[The funding] is not nearly enough to fix the problems we have, and it doesn't even touch on the research needs." **–Elizabeth Pennisi**