

in disease surveillance systems and laboratory facilities, and serious workforce shortages.

In the GAO survey, many hospitals were found to lack the capacity to respond to large-scale infectious disease outbreaks. Few have adequate medical equipment, such as ventilators, adequate stores of equipment and supplies, including medications, personal protective equipment, quarantine and isolation facilities, and air handling and filtration systems. There is an ongoing shortage of intensive care beds and isolation rooms, where infectious disease patients are treated. In five states, hospitals told the GAO they had shortages in hospital medical staff, including nurses and physicians, necessary to increase response capacity in an emergency.

There Is a Solution

In effect, not only is the country's ability to meet its current public health and medical needs considerably undermined by reigning post-industrial economic policies, but this same deregulatory mind-set blocks the steps necessary to adequately prepare for emerging new microbial threats. It is use-

ful that the Federal government recently purchased 3,000 new ventilators for the national stockpile, for use in the event of a pandemic outbreak. But, what is needed is a new Hill-Burton survey to determine what the hospital and public infrastructure needs in order to build into the system the redundancy needed to deal with daily and emerging crises. Federal low-interest loans—at 1-2%—must be made available to counties throughout the country to undertake the capital improvements necessary to get the job done. The country achieved this once before, through Hill-Burton—why not again now?

As the College of American Pathologists warns: Consider where the country will be next Fall. As the flu season hits, hospitals and laboratories will face the challenge of weeding out suspected SARS cases from other illnesses, including influenza. Will there be the necessary isolation rooms in place by then? Can our public health agencies handle the Summer's avalanche of West Nile illness, and the expected increase in associated deaths and paralysis? Congress and state leaders must be put on the line to defend the public welfare. Ignoring it could be devastating to the nation.

Stopping Disease: The Yellow Fever Case

The first line of defense against disease is to try to stop its spread. This is no less so, when the enemy-disease is a "mystery variety," i.e., one whose features (transmission, incubation, etc.) are still unknown, as in the case of SARS. The way that health care officials in Vietnam have succeeded in stopping SARS so far, has been by taking decisive action to isolate victims at its first presence, and by having the staff and infrastructure present, with which to act.

The 1888 photo here shows Camp E.A. Perry, a yellow fever detention camp on the south bank of St. Mary's River in Florida, near the Georgia border. This scene was common during the many U.S. public health mobilizations against yellow fever outbreaks over the period 1878-1905—considered the date of the last major yellow fever epidemic in the United States. The Florida border camp was established by the Marine Hospital Service (the name then for the Federal public health program which later was named the Public Health Service). Persons travelling from yellow fever areas were required to remain in the camp for the incubation period (6-10 days) before proceeding elsewhere. The Federal Public Health Service was called on by states and localities to make common war on the disease, by treating people and acting to halt its spread.

It wasn't until after World War I that many of the features of yellow fever were definitively known, though

the role of the mosquito had been observed early on. The sickness is caused by a virus, and there are two epidemiological patterns of the disease. One is known as urban yellow fever (man-mosquito-man cycle); the other is jungle, or forest yellow fever (monkey-mosquito-monkey cycle).

New Orleans was the center of the last major yellow fever outbreak in the United States, in July 1905. The Federal Public Health and Marine Hospital Service acted promptly, with state and city officials, to set in motion epidemic operations. A campaign was organized for controlling mosquitoes, through screening, fumigating, oiling, and salting, and for isolation of the sick. "Tent hospitals" were set up, as they had been in previous outbreaks. On Oct. 26, 1905, the epidemic was considered under control—five weeks before the first killing frost, which usually marked the end of an outbreak. Out of a population of 325,000 in New Orleans, 3,404 were stricken with yellow fever during the siege, and 452 died.

What was learned from this battle, and similar experiences—especially that led by Commander Walter Reed in Panama—combined with subsequent research and the discovery, during World War II, of DDT, enabled the control of the yellow fever infection.

Yet today, this kind of fight-the-disease thinking no longer governs. For example, when the West Nile fever—a mosquito-borne virus—entered New York City in 1999, there was no effective Federal mobilization to contain and defeat it. The infection is now rapidly spreading throughout North America, and is heading southward through Mexico.—*Marcia Merry Baker*