John A. Sbarbaro, MD, MPH

TB Control is Indeed an Exercise in Vigilance

In its recent analysis of the reemergence of tuberculosis in the United States, the Congressional Office of Technology Assessment (OTA) concluded that the withdrawal of public health resources and the resultant dismantling of community tuberculosis control programs played a major role in the resurgence of the disease[1]. While the OTA report focused on recent years, the problem actually began shortly after the discovery of effective drug therapy in the early 1950s and the resultant closure of many specialized tuberculosis facilities.

Between the late 1880 and 1952, sanatoriums and the physicians who cared for tuberculosis patients had been apart from the mainstream of medical care. As a result, private physicians were totally unprepared to assume responsibility for the diagnosis and treatment of tuberculosis. There was little understanding and even less acceptance of the fact that because of the disease's impact on others in the community, the physician would have to work closely with the state or local health department to insure appropriate surveillance and treatment. Many physicians felt that it was their duty to "protect" their patients and failed to report new disease to the health department. In response, laws requiring laboratory reporting and monitoring were established.

To add to the problem, by the early 1970s a private physician was likely to encounter a bacteriological positive case approximately once in every 12 years[2], a probability that grew progressively smaller as the population and number of physicians increased while the number of new active tuberculosis cases decreased. Therefore, when the resurgence of tuberculosis began in 1985, few physicians could be expected to suspect tuberculosis, diagnose it quickly, or prescribe the most efficacious treatment. Physicians were even less likely to consider the existence of multidrug-resistance even though these drug-resistant organisms emerged from inadequate and improper treatment.

Fortunately, most tuberculosis cases are still curable and preventable using traditional public health and medical approaches. The real problem lies in identifying inadequate services and initiating prompt intervention. With the passage of the Public Health Service Act in 1944, Congress established the Division of Tuberculosis Control and authorized grants to states to support their efforts in tuberculosis control. Although the Public Health Service first implemented a national reporting system for active tuberculosis cases in 1953, the legal authority to protect and intervene remains the duty of state and local governments.

During the late 1960s categorical tuberculosis project grants were phased out in favor of General Public Health Formula Grants under Section 314(d) of the Public Health Service Act. Because these new federal grants did not require that state and local governments use any of the funds for tuberculosis control, many health departments distributed the funds to other purposes.

The same sequence of events is emerging today. Unfortunately, the disease we face is not the same. Multidrug-resistant tuberculosis has the potential to return us to an era of untreatable disease and sanatorium care. What should be done? What can be done?

The OTA found a lack of systematic research on the effectiveness of tuberculosis control interventions and related economic analyses. It is impossible to analyze what has not been identified or quantified. Before a disease control program can be developed, the controller must know the answers to the classic epidemiological surveillance questions: "Where is it?" "Who has it?" and "Why?" In the article that follows, Bloch et al. extend this classic definition of epidemiology to include: "Who took care of it?" "How did they do it?" and "How good a job did they do?" A timely and important expansion of tuberculosis surveillance.

The emergence of drug-resistant tuberculosis is a sensitive indicator of deficiencies in the treatment process. Unfortunately, until 1993 the tuberculosis surveillance system did not collect information on the initial drug susceptibility of reported cases[3], and although periodic national surveys of primary drug resistance were initiated in 1961, they were discontin-

ued in 1986, probably due to competing priorities for scarce CDC resources.

The new surveillance system intends to identify drug susceptibilities both before treatment is initiated and after therapy is completed—and, further, to pinpoint why drug resistance emerged. Specifying the risk characteristics of the patient and the initial treatment regimen will give insight into the expertise of the treating physician or facility—both public and private. The time interval between the initiation of treatment and the patient's sputum conversion to negative is a direct measure of the adequacy of a treatment regimen. For example, the choice of medications selected for the regimen may be correct, but the mode of delivery—self-administered pills—may be totally inappropriate. Directly administered therapy is advocated for all patients and should be mandatory for patients likely to be nonadherent with therapy.

What is unstated by Bloch and his colleagues is the real potential for prompt and early intervention to address inadequate care identified by the expanded surveillance system. The authors do note that data from the expanded surveillance system will be shared with state and local health officials, private physicians, and other health care workers and "should" lead to improved patient management. However, tuberculosis control and protection of the public is the legal obligation and duty of state and local health departments. In the past it has been all too easy for officials to disregard this responsibility, claiming either a lack of timely information or a lack of interventional power, especially in situations in which the patient is receiving care from a private physician.

An expanded and responsive surveillance system could well overcome the lack of timely information. And if state and local officials remain unwilling to intervene, even when armed with timely information about inadequate care, there may be an additional opportunity for corrective action through the source of the patient's health care. Analyzing data derived from 1990 state hospital discharge abstracts covering 100% of acute short-stay hospitals and Veterans Affairs hospitals in 16 states, the OTA found that government programs pay for almost 75% of the hospital care provided for tuberculosis (including Medicare 17%, Medicaid 36%). Private insurers pay for an additional 16%.

As demonstrated daily by managed care programs, standards of treatment can be established and promptly enforced by third-party payers. Monitoring and accrediting bodies such as the Peer Review Organizations and the National Committee for Quality Assurance have proven their ability to stimulate such action by third-party health insurance payers. An expanded surveillance system capable of monitoring the ongoing progress of new active cases could provide these third-party payers with the information necessary to influence aggressively the care provided to patients in the private sector.

Significantly, the description of this new surveillance program is authored by both state and federal officials. Tuberculosis control demands such cooperation. Dr. Dixie Snider, one of the paper's authors, recognized early the need for uniting public health departments, community agencies, academic institutions, and professional organizations. Dr. Snider assumed responsibility for the CDC's tuberculosis division when interest in tuberculosis control was rapidly fading and funds diminishing. His vision energized staff and reinvigorated nationwide interest in tuberculosis control. The existence of this network enabled the CDC to respond with speed and efficiency to the frightening emergence of drug resistant tuberculosis. Did Dr. Snider foresee these events? Unquestionably the answer is 'Yes!'

Dr. Snider's quiet effectiveness underlies the intensified fight against tuberculosis. He personifies the best in public health, a lifetime of work, not for fame but for mission.

Many benefits could emerge from an expanded computer-supported tuberculosis surveillance system from improved management through improved program development. But first and foremost the improved surveillance system fulfills the mandate of the oft-quoted dictum: tuberculosis control is an exercise in vigilance.

Dr. Sbarbaro is a Professor of Medicine and Preventive Medicine at the University of Colorado Health Sciences Center and was the Director of Public Health and Preventive Medicine for the City and County of Denver from 1972 to 1986.

Tearsheet requests to Dr. John A. Sbarbaro, University of Colorado Health Sciences Center, 4200 East Ninth Avenue, Box A-069, Denver CO 80262; tel. 303-372-2369; fax 303-321-1023.

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