

# Is Tuberculosis Still a Problem?

PHYLLIS Q. EDWARDS, MD

WITH THE DISCOVERY in the late 1940s and early 1950s of antimicrobial drugs specific for tuberculosis, it became possible for the first time to discuss realistically the elimination of this communicable disease. Thoughts of eradication were exhilarating, but more sober minds cautioned about the improbability of eliminating entirely all living tubercle bacilli in man and beast. A more realistic goal would be the elimination of tuberculosis "as a public health problem." Twenty years later that is still the goal.

The revolutionary effect of chemotherapy in the treatment of tuberculosis and in tuberculosis control programs can be readily seen in focusing on the highlights of the tuberculosis problem over four decades. The chemotherapeutic era spans the two decades from 1952 to 1972. But let us go back to the two decades before chemotherapy to trace the fundamental changes in tuberculosis mortality and morbidity, as well as the major changes in public health control programs.

## Tuberculosis Deaths and Cases

In 1932 tuberculosis accounted for almost 79,000 deaths at a rate of 63 per 100,000—one death for every 1,600 persons in the United States at that time (fig. 1, table 1). Although the number of deaths from tuberculosis had dropped to about 25,000 after the first 20 years (16 per 100,000), the greatest progress in the reduction of mortality has taken place in the past 20 years. From 1952 to 1962 tuberculosis deaths decreased 62 percent; and in the past 10 years, 58 percent. In 1962 there were 9,506 deaths from tuberculosis—1 for every 20,000 persons in the United

*Dr. Edwards is chief of the Tuberculosis Branch, Center for Disease Control, Health Services and Mental Health Administration, Atlanta, Ga. Tear-sheet requests to Phyllis Q. Edwards, MD, Center for Disease Control, Atlanta, Ga. 30333.*

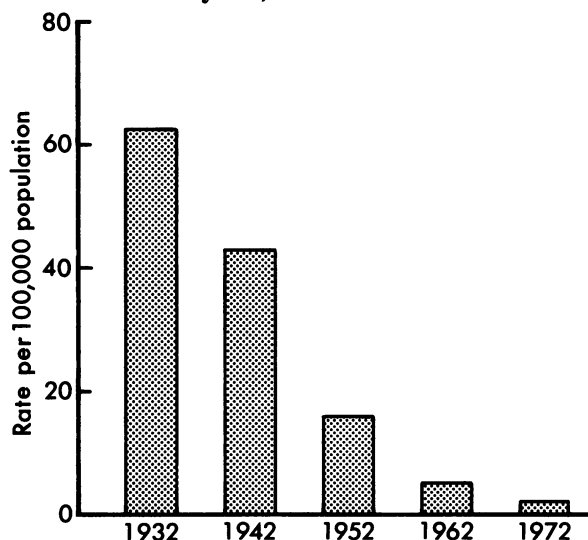
States. In 1972 there were an estimated 4,000 deaths from tuberculosis—only 1 for every 52,000 persons in the country. Corresponding rates were 5 per 100,000 in 1962, and they were estimated to be just under 2 in 1972.

In the prechemotherapy years, the number of cases of active disease reduced slowly—a drop of only 4 percent in the decade from 1932 to 1942 and 6 percent from 1942 to 1952. But in the first decade after tuberculosis drugs were introduced, the incidence of new cases dropped 39 percent. In the next decade, the drop was again about the same—37 percent. Corresponding reductions were seen in case rates, although the percentage decrease has been somewhat greater (fig. 2, table 2). In the two earlier decades, the case rates went down 10 percent in the first decade and 20 percent in the second, compared with around 45 percent for the two more recent decades. The point is that the introduction of chemotherapy caused an abrupt change in the rate of decline, but the new rate of decline has remained almost level rather than accelerating.

## Hospital Treatment and Chemotherapy

The 20-year period from 1932 to 1952 was marked by increasing demands for inpatient care. Many tuberculosis hospitals had waiting lists for admission; the length of stay for the average pa-

**Figure 1. Tuberculosis death rates for selected years, 1932-72**



**Table 1. Deaths from tuberculosis for selected years, 1932-72**

Year	Tuberculosis deaths <sup>a</sup>	
	Number	Rate
1932 .....	78,890	62.9
1942 .....	58,190	43.2
1952 .....	24,861	15.9
1962 .....	9,506	5.1
1972 .....	4,000	1.9

<sup>a</sup> Includes estimates for nonreporting areas in 1932 and 1942 and preliminary data in 1972.

tient, including those who died soon after admission, was close to 10 months; and the number of hospitalized patients as shown by the average daily census increased 8 percent (fig. 3, table 3). From 1952 to 1962 there was a rapid decrease in both the length of hospital stay (down 33 percent) and in the number of patients (down 51 percent). During the past 10 years effective chemotherapy and increasing utilization of outpatient facilities have combined to reduce even more the need for hospital beds. The decrease in tuberculosis inpatients averaged 13 percent annually from 1962 to 1972, and the average length of stay was reduced by 4 months. On June 30, 1972, only 10,700 persons were hospitalized for tuberculosis compared with 46,000 in 1962, and the average length of stay in 1972 was less than 90 days compared with 200 in 1962.

Perhaps the most crucial measure of change in tuberculosis is what chemotherapy has meant to the person in whom active disease develops. Before chemotherapy the outlook was bleak, espe-

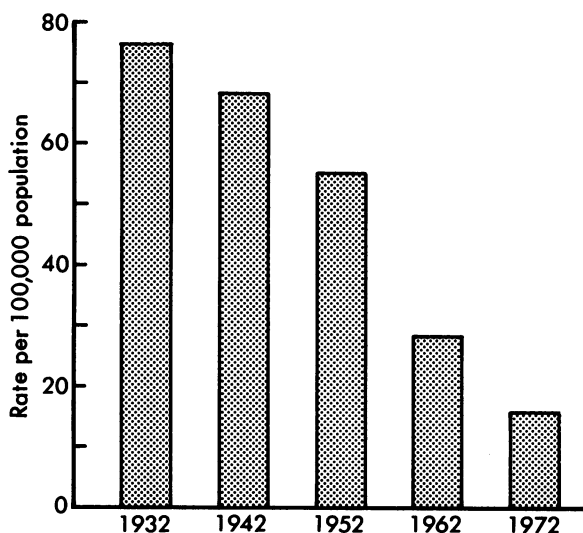
cially for the large numbers of patients with advanced cavitory disease at the time of diagnosis. For those who survived, a lifetime of chronic and relapsing disease lay ahead, with long periods of hospitalization. Today the prognosis for complete recovery is virtually 100 percent. Some patients still need initial hospitalization for a few weeks or months, but many patients may be treated entirely on an ambulatory basis. Relapse or reactivation is so infrequent following effective chemotherapy that followup examinations every year for life are no longer indicated.

### Roadblock to Progress

Are we making satisfactory progress toward eliminating tuberculosis as a public health problem? Just what is "a public health problem?" And how is progress measured?

Several direct measures of progress have been cited in the falling numbers of cases and deaths from tuberculosis each year and in the sharp re-

**Figure 2. Tuberculosis case rates for selected years, 1932-72**

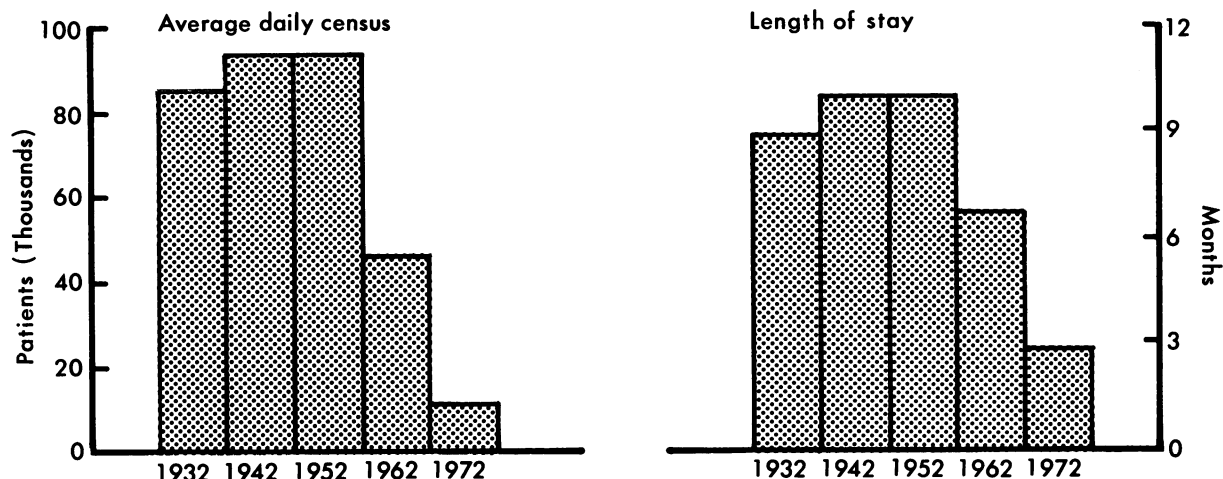


**Table 2. New active cases of tuberculosis for selected years, 1932-72**

Year	Tuberculosis cases <sup>a</sup>	
	Number	Rate
1932 .....	96,500	76.7
1942 .....	92,500	68.7
1952 .....	86,700	55.4
1962 .....	53,315	28.7
1972 .....	33,500	16.1

<sup>a</sup> Includes estimates for nonreporting areas in 1932 and 1942 and preliminary data in 1972.

**Figure 3. Hospitalization for tuberculosis—average daily census and length of stay for selected years, 1932–72**



**Table 3. Data on hospitalization for tuberculosis for selected years, 1932–72**

Year	Tuberculosis hospitalization <sup>1</sup>	
	Average daily census	Length of stay (days)
1932	86,000	275
1942	93,000	293
1952	93,000	299
1962	46,000	200
1972	10,700	87

<sup>1</sup> Includes estimates for nonreporting areas in 1932 and 1942 and preliminary data in 1972.

ductions in both the frequency and duration of hospitalization. Tangible costs in terms of time lost from work and expenditures for medical care can be readily calculated to show the enormous savings brought about by chemotherapy. Intangible costs in terms of human suffering may be even greater, although they are not easily expressed as savings in time or dollars. Yet progress seems to have slowed down in the past few years: the case rate has not declined as rapidly as we had hoped, or expected.

The technological knowledge needed to prevent transmission of tubercle bacilli is relatively simple and clear cut. Effective chemotherapeutic agents are readily available. Dosage schedules have been worked out, and ample evidence is at hand to anticipate the response to therapy by most patients. Our early fears that we might see an increase in bacterial resistance have not materialized; nor has the choice of drugs been so limited

that it has not been possible to find a regimen that the problem patient can tolerate. We have a solid base to support the use of isoniazid alone for preventive treatment for those at risk of developing active disease.

Why then is tuberculosis still a public health problem? Chemotherapy is the tool—yet for some years now we have made little progress in solving the problems that cause people to stop taking their drugs before completing the prescribed course. An acutely ill patient is generally highly motivated to take the medication he expects will make him well. But during the many months of required treatment after the patient has become completely asymptomatic and the periodic chest X-rays and bacteriological examinations show satisfactory results, the motivation for many patients to take the medication faithfully, day after day, tends to wane rapidly.

The most important problem we now face in tuberculosis control is finding ways to help people stay on treatment. The goal for the patient is cure with little chance of relapse. For the community the goal is elimination of an expensive but preventable communicable disease.

### Source Material

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