Tuberculosis Epidemic: What History Can Teach Us

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A Look Back

icap Global Health

Early 1990s: A Neglected Disease Roars Back

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H.I.V. and TB Join to Form Deadly Spiral

Each Fuels the Other As Epidemics Rise

By WARREN LEARY

WASHINGTON, June 3 — Tuberculosis has become the leading cause of death worldwide among people infected with the virus that causes AIDS, the World Health Organization says.

International health officials met last week in Geneva to determine how to cope with the growing threat

44 L THE NEW YORK TIMES METRO SUNDAY, OCTOBER 11, 1992

CITY

Tuberculosis, Left in Shadows, Reappears as a Grimmer Peril

Continued From Page 1

is neither. We should be ashamed."

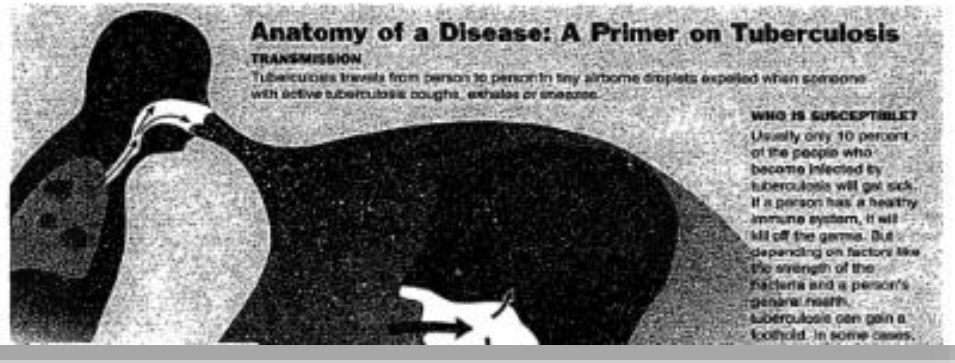
Stark as it is, his assessment reflects the prevailing view among public-health officials. And like many of his colleagues, he blames neglect for the stunning reversal. For while most Americans put TB out of their minds over the last 30 years, it never really went anywhere. In the poorest parts of Miami, Atlanta, Houston and New York City tuberculosis persisted, through the 1960's, 70's and 80's.

In 1978, for example, TB case rates in central Harlem were nearly 20 times the national average, and at least five times higher than the average for New York City. If anything, the disparities have grown worse since then. Last year, reported-case rates in central Harlem soared to 220 per 100,000 residents, among the highest of any American community — and 35 times the figure for residents of the Upper East Side, just a short subway ride away.

ment, the illness is readily cured. But the proportion of patients with strains of tuberculosis that resist treatment with conventional drugs has more than doubled in the last decade. Nearly 25 percent of all TB patients in New York City, for example, had clear cases of drug resistance last year. Such resistance develops when patients don't complete therapy, permitting the most resilient strains of the bacteria to thrive. But increasingly, people are infected with these new strains from the start.

For these patients, tuberculosis is a particular horror. Treatment can take years and involve regimens of drugs that are as brutal to the system as cancer chemotherapy. Often part or all of a lung has to be removed. And it can be lonely. Infectious and potentially life threatening, such patients must live virtually isolated from human contact.

The fear of contagion has cast a special pall over a health-care industry filled with workers on all levels who must mingle with the patients every day. There is growing concern that the new epidemic will drive



23% of State Prisoners Test Positive for TB

By LISA BELKIN

Twenty-three percent of prison inmates in New York State and 6 percent of prison employees have tested positive for tuberculosis infection, according to the most thorough study to date of TB in prisons

percent of those who test positive will come down with tuberculosis, a risk that drops to 1 percent if preventative medication is taken. Only people with active TB can transmit it to others.

tems. He said, however, that the Centers for Disease Control estimate that the national rate of TB exposure is 4 percent.

Statewide, the number of cases has increased dramatically, to 4,186 cases in 1990, a rise of 31

Doctors and Patients Are Pushed To Their Limits by Grim New TB

By ELISABETH ROSENTHAL
Special to The New York Times

DENVER — For the last 13 months, Roy Buckner has lived in a hellish

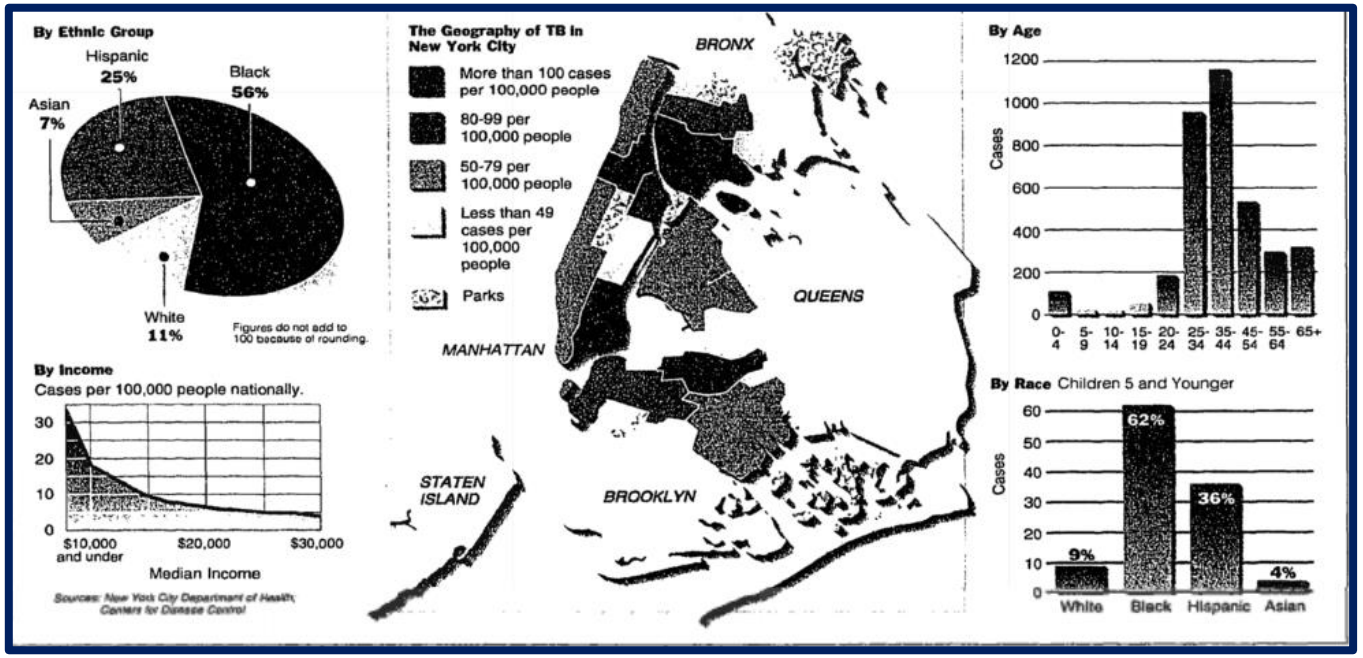
Tuberculosis: A Killer Returns

Second of five articles.

An Uneven Toll – Characteristics of the Outbreak

Tuberculosis in Harlem:

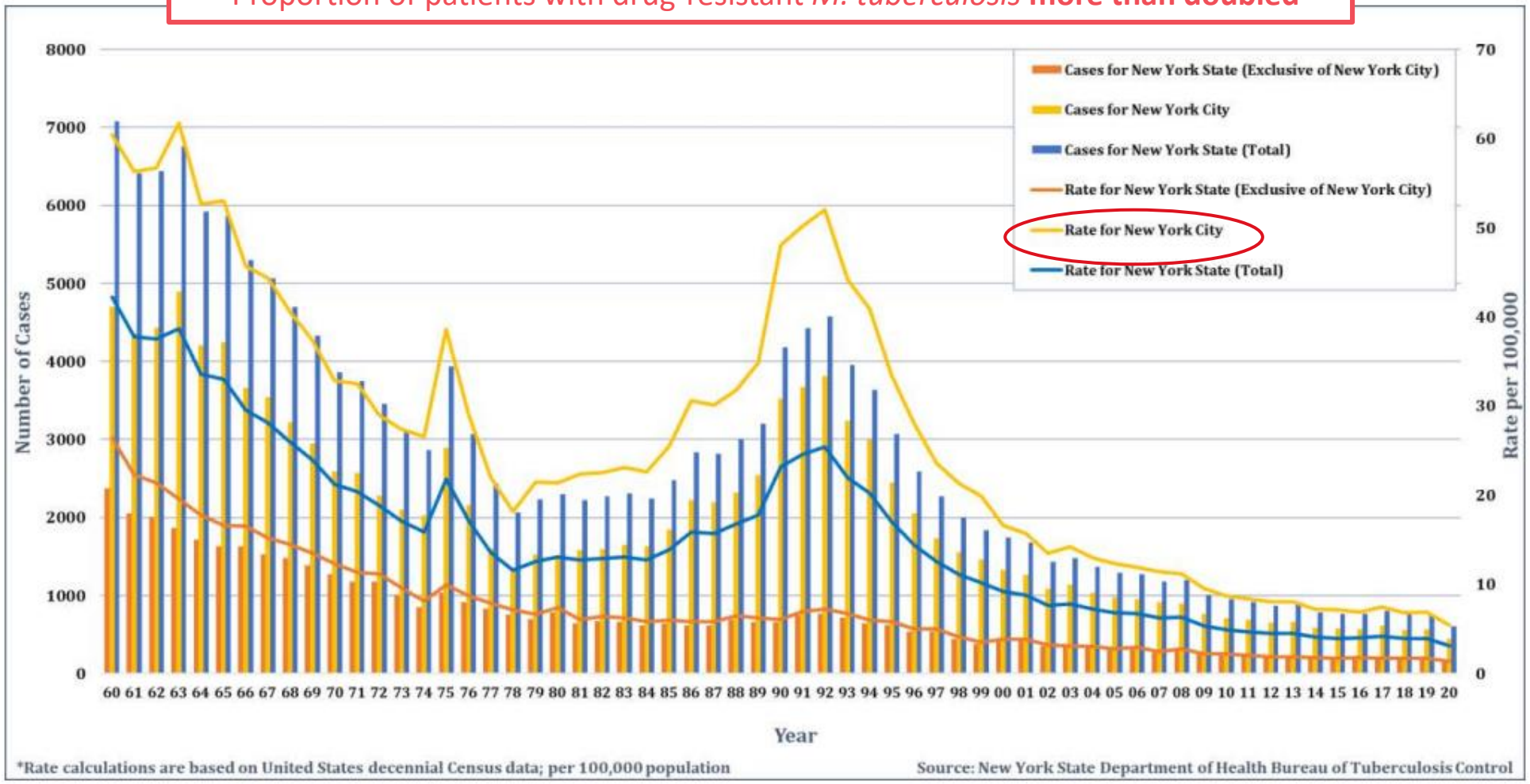
- Tuberculosis rate was 222 per 100k persons—**more than 20 times** the national rate
- Only **11%** of Harlem Hospital patients were completing treatment



TB cases in 1992, New York Times

Evolution of TB in New York State and City

- Cases nearly **tripled** from **1978-1992**
- Proportion of patients with drug-resistant *M. tuberculosis* **more than doubled**



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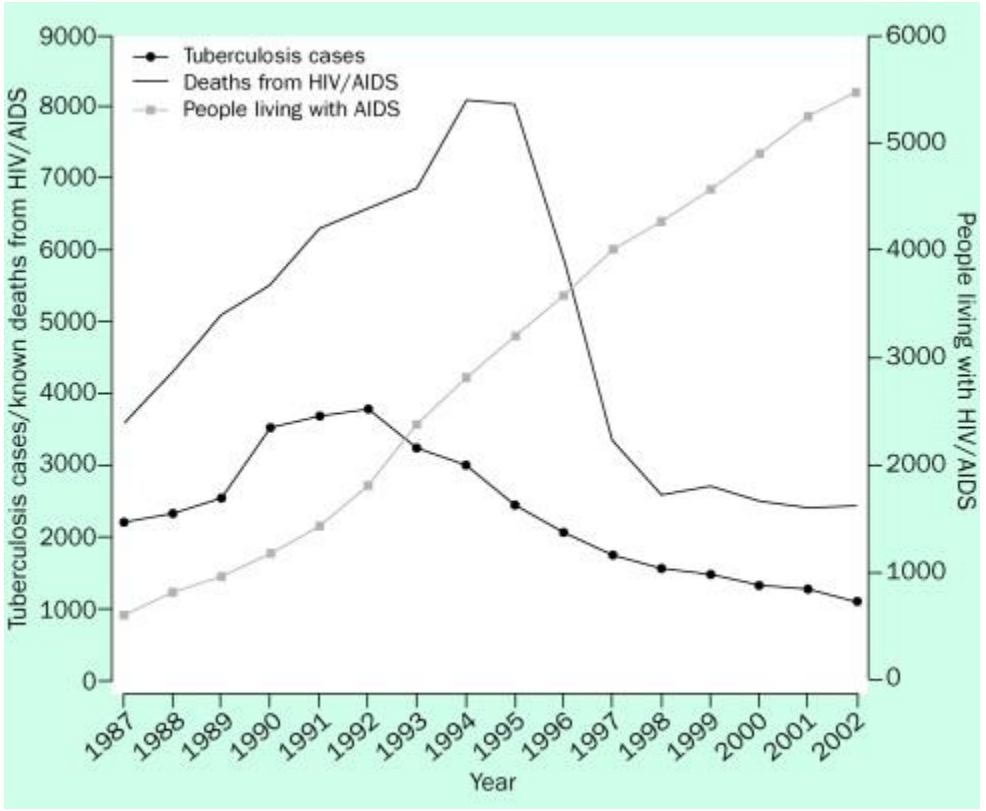
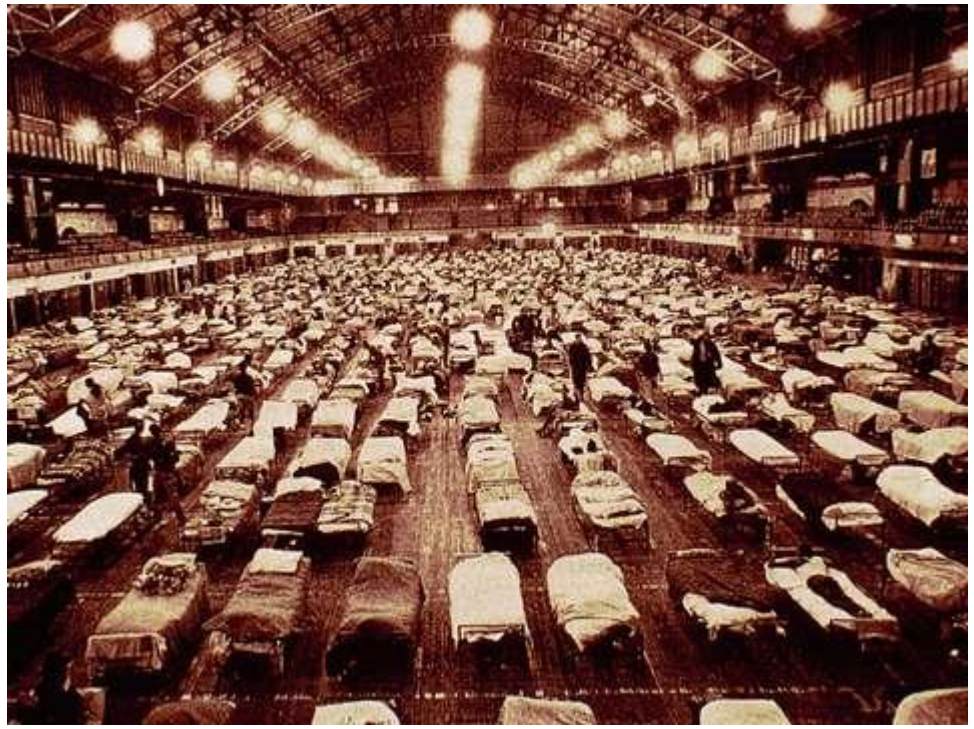
Contributing Factors of the Early 1990s Surge and MDR/TB Outbreak

- Concomitant HIV epidemic prior to advent of effective antiretroviral therapy
- Reduction in public health efforts and funding to control TB
- Increase in poverty, homelessness, substance use and crowded congregate living, including in shelters, jails and prisons
- Incomplete adherence and low treatment completion rates

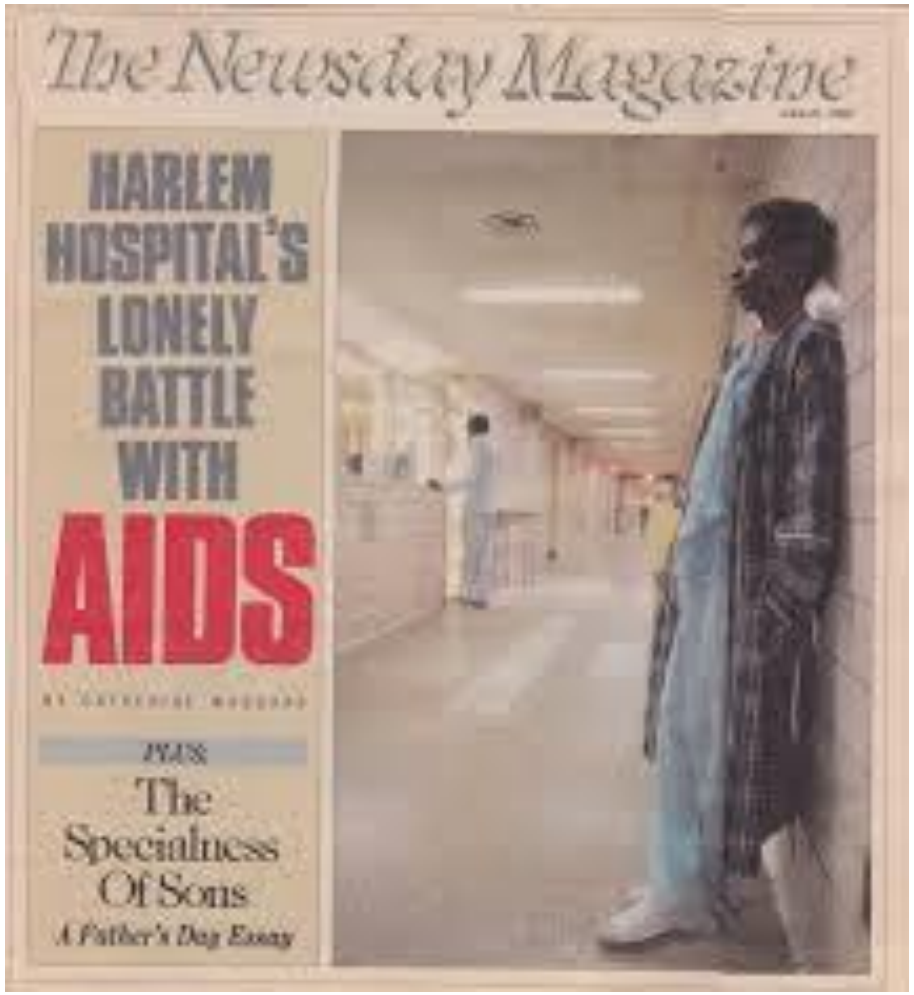


Comparison of tuberculosis cases, number of people living with HIV/AIDS, and number of known deaths from HIV/AIDS, NYC

Paolo et al., Lancet (2004)

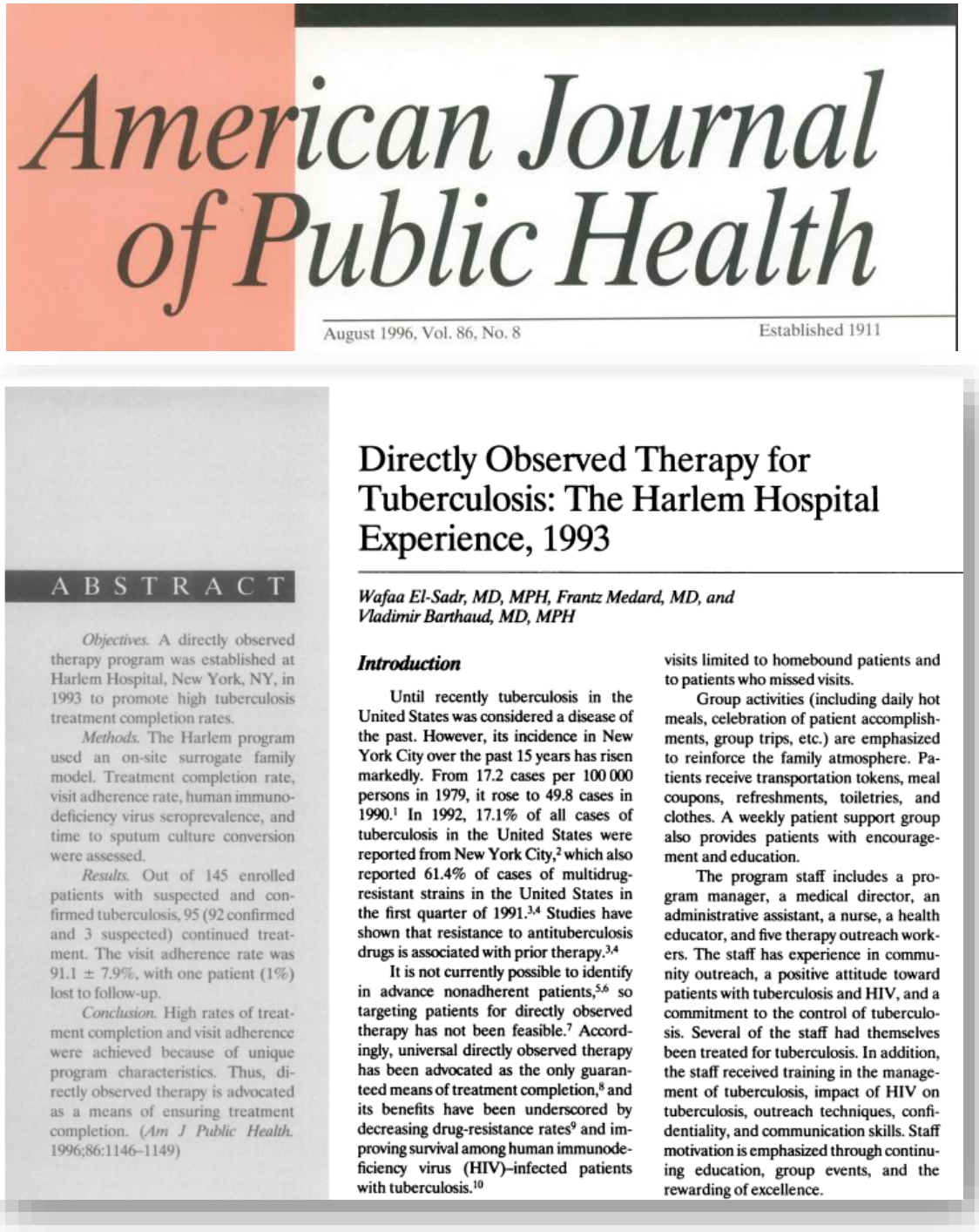


Nike Track and Field Center at the Armory



Responding: The Harlem Hospital Experience

- **Surrogate family model and directly observed therapy (DOT)**
  - Completion rate rose from 11% to 89% by the end of 1993
- **Multidisciplinary team, with several members who have been themselves treated for TB and MDR/TB**
- **Enhanced infection control measures** (e.g., prompt examination and isolation, negative pressure isolation rooms, masking)



American Journal of Public Health

August 1996, Vol. 86, No. 8 Established 1911

ABSTRACT

Objectives. A directly observed therapy program was established at Harlem Hospital, New York, NY, in 1993 to promote high tuberculosis treatment completion rates.

Methods. The Harlem program used an on-site surrogate family model. Treatment completion rate, visit adherence rate, human immunodeficiency virus seroprevalence, and time to sputum culture conversion were assessed.

Results. Out of 145 enrolled patients with suspected and confirmed tuberculosis, 95 (92 confirmed and 3 suspected) continued treatment. The visit adherence rate was 91.1 ± 7.9%, with one patient (1%) lost to follow-up.

Conclusion. High rates of treatment completion and visit adherence were achieved because of unique program characteristics. Thus, directly observed therapy is advocated as a means of ensuring treatment completion. (*Am J Public Health.* 1996;86:1146–1149)

Directly Observed Therapy for Tuberculosis: The Harlem Hospital Experience, 1993

Wafaa El-Sadr, MD, MPH, Frantz Medard, MD, and Vladimir Barthaud, MD, MPH

Introduction

Until recently tuberculosis in the United States was considered a disease of the past. However, its incidence in New York City over the past 15 years has risen markedly. From 17.2 cases per 100 000 persons in 1979, it rose to 49.8 cases in 1990.[1] In 1992, 17.1% of all cases of tuberculosis in the United States were reported from New York City,[2] which also reported 61.4% of cases of multidrug-resistant strains in the United States in the first quarter of 1991.[3,4] Studies have shown that resistance to antituberculosis drugs is associated with prior therapy.[3,4]

It is not currently possible to identify in advance nonadherent patients,[5,6] so targeting patients for directly observed therapy has not been feasible.[7] Accordingly, universal directly observed therapy has been advocated as the only guaranteed means of treatment completion,[8] and its benefits have been underscored by decreasing drug-resistance rates[9] and improving survival among human immunodeficiency virus (HIV)–infected patients with tuberculosis.[10]

visits limited to homebound patients and to patients who missed visits.

Group activities (including daily hot meals, celebration of patient accomplishments, group trips, etc.) are emphasized to reinforce the family atmosphere. Patients receive transportation tokens, meal coupons, refreshments, toiletries, and clothes. A weekly patient support group also provides patients with encouragement and education.

The program staff includes a program manager, a medical director, an administrative assistant, a nurse, a health educator, and five therapy outreach workers. The staff has experience in community outreach, a positive attitude toward patients with tuberculosis and HIV, and a commitment to the control of tuberculosis. Several of the staff had themselves been treated for tuberculosis. In addition, the staff received training in the management of tuberculosis, impact of HIV on tuberculosis, outreach techniques, confidentiality, and communication skills. Staff motivation is emphasized through continuing education, group events, and the rewarding of excellence.

Lessons That Still Ring True

- Social and structural issues are fundamental causes of health inequities
- Continued investment in public health is a must
- Disease surveillance, including of drug resistance, is critical to TB control
- HIV epidemic control is closely linked to TB control
- Beware of stigma and discrimination
- Engagement of communities and recipients of services is necessary
- A threat anywhere is a threat to all
- Delay costs lives!!!

Thank You