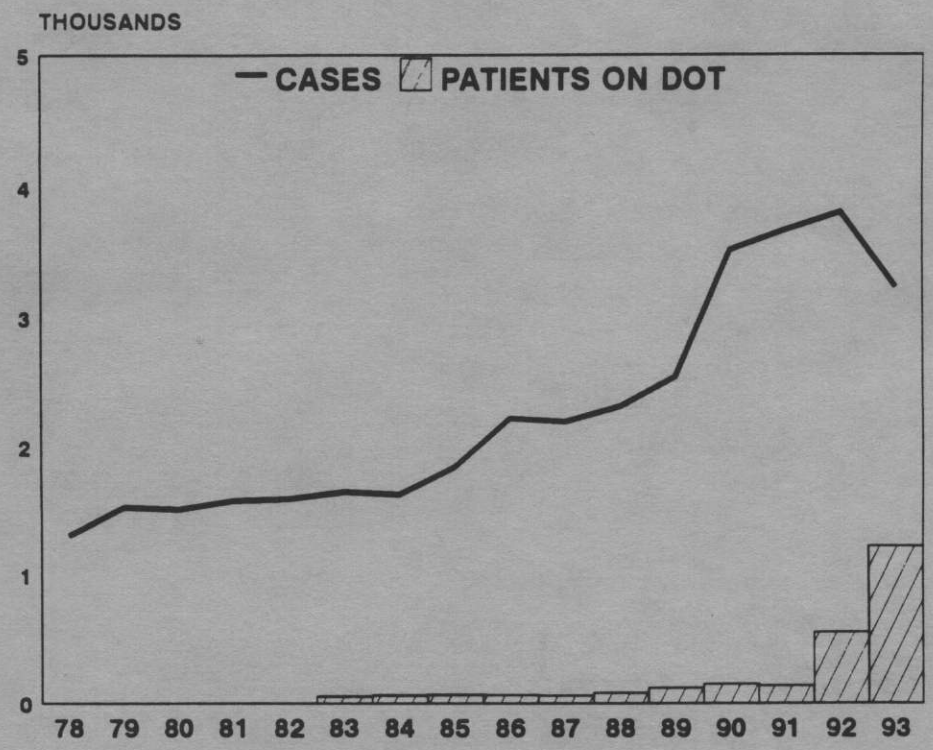
TUBERCULOSIS IN NEW YORK CITY 1993

Information Summary



Bureau of Tuberculosis Control
New York City Department of Health

Mission Statement

The mission of the Bureau of Tuberculosis Control is to prevent the spread of tuberculosis and eliminate it as a public health problem in New York City. The goals of the tuberculosis control program are:

1 To assure identification and appropriate treatment of all individuals with suspected or confirmed tuberculosis disease;

2 To ensure that high risk individuals (e.g., contacts, immunocompromised persons, foreign-born persons from areas of high tuberculosis prevalence) who are infected with tuberculosis but without tuberculosis disease receive preventive treatment and do not develop disease.

The Bureau achieves its goals through direct patient care, education, surveillance and outreach. Mandated activities include:

1 Ensuring that suspected and confirmed cases of tuberculosis identified in all facilities in New York City are reported to the Bureau and documented on the computerized, confidential tuberculosis disease registry;

2 Conducting intensive case interviews and maintaining an effective outreach program so that tuberculosis cases remain under medical supervision until completion of a full course of treatment, and that identified contacts receive appropriate medical care;

3 Monitoring and documenting the treatment status of all patients with active tuberculosis;

4 Setting standards and guidelines, and providing consultation, on the prevention, diagnosis and treatment of tuberculosis infection and disease in New York City;

5 Operating free chest clinics throughout New York City to provide state-of-the-art care for persons with suspected or confirmed tuberculosis disease and their close contacts; and

6 Ensuring free care for persons who have or are suspected of having active tuberculosis disease, in accordance with New York State Public Health Law 2202, Article 22, Title 1.

An Overview of Activities of the Bureau of Tuberculosis Control

The Bureau of Tuberculosis Control operates a multifaceted program encompassing surveillance, epidemiology, outreach, clinical services, education, training, and other activities.

Clinical Services

The Clinical Services Unit operates ten chest clinics located throughout the City. The primary activity of these clinics is to provide specialty care, including directly observed therapy, for individuals with active tuberculosis. The clinics also provide preventive therapy, especially to individuals at high risk for developing TB. Services include tuberculin skin testing, chest x-rays, sputum induction, medical and nursing visits, social services, HIV counseling and testing, and other services. The clinics use a multi-disciplinary team approach to case management, in order to enhance patient adherence and treatment completion.

Outreach Services

The Bureau's outreach workers monitor hospitalized patients and outpatients, evaluate contacts of individuals with TB disease, and update patient information on a computerized registry. The unit provides medical case management, travels throughout the City to directly observe patients as they ingest their medication, locates and returns patients to medical care,

and tests contacts of individuals with TB. Specialty groups offer comprehensive care at the 30th Street Shelter and at Rikers Island, and offer services with the Division of AIDS Services single room occupancy sites in Upper Manhattan. The city operates a controlled treatment center at Goldwater Memorial Hospital for use when all other efforts have been exhausted, so that the most difficult-to-treat patients can complete a full course of treatment while the public health is safeguarded.

Directly Observed Therapy

Directly Observed Therapy (DOT) is a program in which individuals with active tuberculosis ingest their medications under the direct observation of a trained health care worker. This program ensures that individuals with active disease receive individual attention and optimal medical supervision through the entire course of treatment. DOT is provided through Department of Health clinics, outreach services, and private providers funded by the New York State Department of Health, Medicaid and Ryan White Care Act Funds. Although it is labor intensive, DOT reduces hospitalizations, decreases the costs of care, and increases the number of individuals completing the full course of treatment. DOT is the new standard of care for patients with active tuberculosis.

Directly Observed Preventive Therapy

Directly Observed Preventive Therapy (DOPT) occurs when trained health workers observe individuals infected with TB as

they ingest prescribed medication to prevent the development of active disease. DOPT is particularly important for people with TB infection who are at high risk for developing TB disease, such as those who are seropositive for HIV, substance abusers, or who are homeless. In 1993, DOPT was provided in single room occupancy hotels and in an HIV-related prevention program. DOPT workers provided substantial screening through substance abuse treatment agencies, and worked closely with several community-based organizations to prepare for on-site DOPT treatment programs. These programs will be implemented in 1994.

Epidemiology and Surveillance

The New York City Health Code requires that all health facilities and private physicians report confirmed or suspected cases of tuberculosis to the Health Department within 24 hours of diagnosis. The Surveillance Unit ensures that this reporting is done in a timely and thorough manner. The Bureau's Surveillance Unit conducts active surveillance at hospitals and laboratories throughout the City.

The Epidemiology Unit was expanded in 1993. Epidemiologists are involved in ongoing evaluations related to disease prevention and program management. The unit also conducts outbreak investigations and periodic reviews of the status of clinical and outreach patients.

Medical Affairs

Medical Affairs is a multidisciplinary unit that deals with infection control, environmental and occupational concerns, and clinical aspects of the management of TB. The unit monitors TB patients with multidrug-resistant tuberculosis, and also monitors care of contacts of these individuals.

Education and Training

In addition to providing introductory and in-service training to Department of Health (DOH) staff and non-DOH health professionals, the Education and Training Unit responds to public requests for information. The unit also provides educational brochures, fliers, posters, publications and technical articles. It distributes materials at health fairs, Department of Health clinic facilities and field offices, and other sites requesting educational documents.

Introduction

New York City continues to have one of the highest case rates of tuberculosis in the country. This report presents the demographic and geographic distribution of tuberculosis cases reported and confirmed in New York City in 1993. Rate calculations of cases per 100,000 population are based upon 1990 census data.*

In 1993, 3,235 new cases of tuberculosis were reported in the City. This incidence represents a 15.1% annual decrease since 1992's 3,811 cases, but is still a 114% increase over 1980, when 1,514 cases were reported. Case rates had been rising since 1979, and peaked at 52.0 per 100,000 in 1992. Cases rates are now 44.2 per 100,000 population (Table 1, Figure 1). The 1993 case rate is still higher than any of the City's case rates which occurred in the 1970s and 1980s (Table 1). This rate, 44.2 per 100,000, is four and a half times the national case rate of 9.8, and in 1993 New York City represented 12.8% of the nation's 25,313 reported tuberculosis cases.

Age Distribution

In 1993, people with active TB ranged in age from less than one year old to ninety-nine years old. The number of cases among

*This report uses the 1990 census to calculate case rates. The 1992 report also used the 1990 census data. Case rates from years previous to 1991 were based on the 1980 census.

children under 5 years old remained essentially stable (66 to 67) in 1993 compared with 1992. Among those aged 0 to 4 years (Table 2), black children represented 39 of the 67 cases (58%) and Hispanic children represented 21 of the 67 cases (31%).

Overall, there were 128 TB cases reported in children younger than 15 years, a 7.6% increase from 1992. This increase likely represents a surveillance artifact, since the number of culture confirmed cases in this age group decreased slightly between 1992 and 1993. There were 738 TB cases among the 25 to 34 year olds, a 20.7% decrease in incidence compared to 1992. In the 35 to 44 year age group, there were 963 cases, a 21.0% decrease since 1992 (Figure 2). Cases among those aged 45 to 64 years decreased 14.2% from 922 cases in 1992 to 791 cases in 1993. Cases among individuals over age 65 years increased 13% (364 to 412) compared to 1992.

Racial/Ethnic Distribution

Blacks and Hispanics together represent almost 80% of tuberculosis cases reported in the City (Figures 3 and 4). Blacks (males and females) represented 52.6% of all cases (Table 3). Their case rate of 92.2 per 100,000 was the highest of any racial/ethnic group. Hispanics represented 26.7% of all cases and had a case rate of 48.4 per 100,000. Blacks had the largest decrease in cases (18.0%) from 1992 of any racial/ethnic group.

The case rate of white New Yorkers, 12.3 per 100,000 population, remained the lowest of the racial/ethnic groups, even

though it is higher than the national average of 9.8; this rate represents a 10.6% decrease in active cases since 1992. Asians represented 8.6% of all cases and had a case rate of 52.6 per 100,000. They experienced a small increase in cases (2.2%) compared to 1992, and were the only racial/ethnic group to experience an increase in cases. Among Asians, there was a 20% increase in TB cases in the 55 to 64 age group and a 30% increase in the 65 and over age group. Asian males 65 years and older had a case rate of 376.1 per 100,000, higher than that in any other racial/ethnic group. The age peak between 35 to 54 years was highest for blacks, Hispanics, and whites, whereas Asians had higher case rates in the older ages (Figure 5).

Distribution by Sex (Tables 4 and 5, Figures 6 and 7)

The incidence of tuberculosis among males is slightly more than two times that of females (61.5 vs. 28.8 cases per 100,000, respectively, Figure 6). The annual decrease in TB cases from 1992 to 1993 in males was 19.5%, whereas in females it was only 5.3%. Women constituted 34.6% of 1993 cases, vs. 31.0% of 1992 cases, 29.9% of 1991 cases, and 29.3% of 1990 cases. Substantial differences in TB case rates between the sexes start to occur in the 25 to 34 year age group. Males in this age group experienced 458 cases for a case rate of 68.9 per 100,000 population, whereas females experienced 280 cases for a case rate of 39.8 per 100,000. Males in the 35 to 44 year age group experienced 654 cases for a case rate of 123.0 per 100,000 population, whereas

females of this same age group experienced 309 cases for a case rate of 52.8 per 100,000 population, which is less than half the case rate of that of males. An even more substantial difference between the sexes occurred in the 45 to 54 year age group. Males in this age group experienced three and a half times the number of cases (415 for a case rate of 116.1 per 100,000 population) compared to females who experienced only 118 cases for a case rate of 28.3 per 100,000 population. There were 184 cases among males in the 55 to 64 year age group for a case rate of 63.9 and 74 cases and a case rate of 20.8 for females in this age group. In individuals over 65 years old, men had 232 cases and a case rate of 65.0 compared to 180 female cases and a case rate of 30.2.

Males

The largest proportional decrease during the past year was among black men in whom cases dropped 22.0%, from 1,411 to 1,100. Among white men, cases decreased 20.7%, from 319 in 1992 to 253 for 1993. Hispanic and Asian men also experienced decreases when compared to 1992, 17.0% and 8.3% respectively. Unlike previous years, men of all races aged 25 to 44 represented only about 53% of all male cases (Table 4) versus 60% in prior years.

As shown in Table 4, blacks continued to experience the highest incidence of tuberculosis among all racial/ethnic groups, with a case rate of 133.1 per 100,000 population. As in the previous nine years, incidence rates among black males in 1993 peaked in the 35 to 44 year old age group with a case rate of

314.9 per 100,000, which, after Asian men older than 65 years of age, was the second highest of any age, sex, or racial/ethnic group. Although the case rate among all males decreased 19.5% over 1992, it decreased by 28.4% in those aged 35 to 44 years, and decreased by 30.6% in black men in that age group.

Females

There was a 5.3% decrease among females (1183 to 1120 cases) from 1992 to 1993 (Table 5). However, Asian females experienced a 27.5% increase in cases (80 to 102) when compared to 1992, and white females a 17.1% increase (117 to 137). A 13.4% decrease in TB cases occurred in Hispanic females, and a 9.3% decrease occurred in blacks. The overall incidence in black women remains more than two times that of Hispanic women, and white women have maintained the lowest rate in all racial/ethnic groups (8.2 per 100,000 population).

The age peak for women, 35 to 44 years, is the same as that of males. However, the second highest age peak for women is among the 25 to 34 year age group, which differs from the men whose second highest age peak is in the 45 to 54 year age group.

Geographic Distribution

Incidence rates by health district of residence were calculated for 1993; age adjusted and crude rates are presented in Table 6. Age standardization is a numerical technique that adjusts observed rates in different age groups to a standard population age distribution so that different populations can be

compared. Age standardization of the rates removes age, per se, as a possible explanation for the difference in rates.

The four districts with the highest age-adjusted case rates (over 100 per 100,000 population) in 1993 were Central Harlem in Manhattan; Morrisania and Mott Haven in the Bronx, and Fort Greene in Brooklyn.

In 1993, all boroughs reported decreases in the number of TB cases when compared to 1992. The decreases were as follows: 27.2% in Manhattan, 17.6% in Staten Island, 16.7% in the Bronx, 7.0% in Brooklyn, and 1.8% in Queens. Figure 8 depicts the 1993 crude (or unadjusted for age) case rate for each borough per 100,000 population and distribution of TB cases by borough of residence.

Manhattan

With 943 cases, Manhattan had 29.1% of all the City's reported cases in 1993. Still, the borough had a 27.2% decrease in cases since 1992. The rate in Central Harlem remains the highest in the City at 181.7 per 100,000, yet the health district experienced a 23.4% decrease in cases since 1992. In fact, all health districts in Manhattan experienced declines in the number of TB cases when compared with 1992. The decreases were as follows: 42.8% in the Lower West Side, 31.2% in the Lower East Side, 25.6% in East Harlem, 18.8% in Riverside, 17.6% in Kips Bay-Yorkville, and 12.7% in Washington Heights.

Bronx

With 588 cases, the Bronx had 18.2% of the City's reported cases in 1993, a 16.7% decrease in cases when compared to 1992. With a case rate of 109.3 per 100,000, Morrisania had the third highest age-adjusted case rate in the city, and experienced an 8.9% increase in cases. Mott Haven had the fourth highest age-adjusted rate in the City (107.8), but experienced a 34.2% decrease in cases. In addition, both Fordham-Riverdale and Tremont had substantial decreases in cases, 27.2% and 23.6% respectively, and Pelham Bay experienced a 6.8% increase in TB cases.

Brooklyn

With 1,108 cases, Brooklyn had 34.3% of all the City's reported cases in 1993, the most of any borough, and replaced Manhattan which had the most cases from 1978 to 1992. However, cases decreased 6.9% in Brooklyn when compared to 1992. Fort Greene had the second highest case rate in the City (110.3), but had a 9.0% decrease in cases. Three health districts with substantial declines in cases were: Brownsville - 23%, Bedford - 17.4%, and Williamsburg-Greenpoint - 12.8%. Both Bay Ridge and Gravesend experienced increases, 36.8% and 16.7% respectively.

Queens

With 540 cases, Queens had 16.7% of the City's reported cases in 1993, a 1.8% decrease in cases from 1992. As in previous years, Corona was the only health district in the borough which had a case rate (44.5) above the City average of

44.2, even though it experienced a substantial drop (21.3%) in the number of cases. Astoria was the only other health district with a decrease in cases (20.2%). Otherwise, Maspeth-Forest Hills experienced an increase of 60.6% (33 to 53 cases) when compared to 1992, and both Jamaica West and Flushing had increases, 18.4% and 13.7% respectively.

Staten Island

With 56 cases of tuberculosis, Staten Island had 1.7% of the City's reported cases in 1993, yielding an age adjusted rate of 15.3 per 100,000 population, the lowest of any borough. Cases decreased by 17.6% when compared with 1992.

Area of Birth

The percent of newly reported cases occurring among those born outside the continental United States increased to 27.3% from 22.9% in 1992 (Table 7, Figure 9). This increase represents only a slight increase in the number of cases from this immigrant group, with a larger decrease in cases from the U.S. born population. The number of cases of TB among those born outside the U.S. was 883 in 1993, compared with 872 in 1992, an increase of 1.3%. Excluding cases from Puerto Rico, there was an increase of 68 cases (10%) from 677 in 1992 to 745 in 1993.

A total of 75 countries was reported as place of birth for individuals with tuberculosis who were born outside of the United States. The Caribbean area accounted for 386 of the 883 (43.7%) cases among those born outside of the United States, the largest group represented.

Drug Resistance

During 1993, 2,844 (88%) of the City's 3,235 newly reported TB cases were reported as having positive cultures for M. tuberculosis. Among these 2,844 individuals, drug susceptibility results were available for 2,626 (92%) and 678 (26%) had second-line testing performed and reported. Of individuals with drug susceptibility results, 296 of 2626 (11%) were found to have isolates which were resistant to at least isoniazid and rifampin. This number includes both individuals with initial multidrug resistance, and those who developed multidrug resistance during the course of treatment. Approximately 7% of these newly counted cases with multidrug resistance reported a prior history of tuberculosis.

Site of Disease

In 1993, pulmonary tuberculosis was the primary site of disease for 85.1% of all cases. Of persons with extrapulmonary disease, lymphatic tuberculosis was the most common form of disease (4.1%), followed by pleural tuberculosis (2.9%). Of all cases reported in 1993, 8.1% had both pulmonary and extrapulmonary disease (Table 8).

Homelessness

Data on homelessness and TB have been compiled by the city since 1985. Computerized matching of homeless shelter names and addresses to the TB Registry database in 1993 has identified 283

(8.7%) newly reported cases who were homeless or had used the public shelter system. This represents a decrease from the 16.9% who where reported as homeless in 1992.

Mortality

Mortality figures presented in this year's report are based on statistics issued by the Bureau of Health Statistics and Analysis of the New York City Department of Health. In 1993, there were 166 deaths in New York City with tuberculosis listed as the underlying cause on the death certificate. The crude tuberculosis mortality rate for 1993 was 2.3 per 100,000 (Table 9). There were an additional 374 deaths in which TB was listed as a secondary cause of death. Of these deaths, 288 (77%) listed AIDS or HIV infection as the underlying cause of death.

TB and HIV Infection

For the second consecutive year, this report also examines documented HIV status among TB cases in New York City. In 1993, nearly 50% of TB cases had a known and reported HIV status. In all age groups, males had a higher reported rate of HIV infection than females. Males 35 to 44 years of age had the highest rate of known and reported HIV infection (53%). Since 1990, the Department of Health has collected information on the HIV-serostatus of individuals with active tuberculosis. This information is necessary for the public health control of tuberculosis (e.g., to determine the appropriate duration of

anti-tuberculosis treatment). Table 10 presents the documented and reported HIV-serostatus of individuals with active tuberculosis by age and sex. Since not all individuals with tuberculosis undergo testing for HIV, and since not all known HIV test results are reported to the Bureau of Tuberculosis Control, the proportion of HIV-seropositivity reported on these tables are minimum estimates of the actual proportion of tuberculosis cases who are HIV-infected.

Of 3,235 TB cases, 33.0% were reported as HIV-seropositive, 16.2% were reported as HIV-seronegative, and 50.8% had an unreported and/or unknown HIV status. These percentages remain relatively unchanged from 1992. Of the 2,115 male TB cases, 36.0% were reported as HIV-seropositive, 15.4% were reported as HIV-seronegative, and 48.7% had an unavailable HIV status. Of the 1,120 female TB cases, 27.5% were reported as HIV-seropositive, 17.8% were reported as HIV-seronegative, and 54.7% had an unavailable HIV status (Figure 10).

Directly Observed Therapy (DOT)

The number of individuals on DOT in 1993 increased 121% from 555 in 1992 to 1227 in 1993 (Figure 11). Figure 12 shows the breakdown of cases on DOT by type of provider. Non-DOH facilities, which are funded by the New York State Department of Health, Medicaid, and Ryan White Care Act Funds, provided DOT to 452 (36.8%) cases. DOH Clinics and Outreach provided DOT to 489

(39.9%) and 241 (19.6%) respectively. Forty-five (3.7%) individuals received DOT at the 30th Street TB Shelter.

Case Counting Methodology

For 1993, there were 3,235 reported and confirmed new cases of tuberculosis in New York City. This number includes 391 persons who did not have a reported positive culture for M. tuberculosis. Most of these individuals had clinical symptoms suggestive of TB, were treated with anti-TB drugs, and had clinical response to treatment which supported the diagnosis of TB disease. Cases counted in 1993 were those verified during this period. Some cases had disease first suspected in 1992; other individuals who presented in late 1993 will be counted in 1994 if active tuberculosis disease is confirmed. Figure 13 represents the trend in cases by the year of diagnosis, rather than year of verification. This figure includes both culture-confirmed and clinically-confirmed cases. The 1993 numbers shown in Figure 13 are less than the 1993 incidence because some of the cases counted in 1993 were diagnosed in 1992, and because the 1994 count will include cases diagnosed in 1993. The 1993 total in this figure includes individuals who submitted a specimen for mycobacteriology culture in late 1993 if the culture was reported as positive for M. tuberculosis by June, 1994. As shown by Figure 13, the Bureau of Tuberculosis Control is now verifying disease in more individuals who do not have positive cultures, but for whom a clinical diagnosis of TB is confirmed.

Table 1

Tuberculosis Incidence
New York City, 1920 - 1993

Year	Number*	Rate Per 100,000**
1920	14,035	246.9
1930	11,821	170.2
1940	8,212	110.0
1950	6,518	98.0
1960	4,699	60.4
1970	2,590	32.8
1971	2,572	32.6
1972	2,275	28.8
1973	2,101	26.6
1974	2,022	25.6
1975	2,151	27.2
1976	2,151	27.2
1977	1,605	21.1
1978***	1,307	17.2
1979	1,530	20.1
1980	1,514	19.9
1981	1,582	22.4
1982	1,594	22.5
1983	1,651	23.4
1984	1,629	23.0
1985	1,843	26.0
1986	2,223	31.4
1987	2,197	31.1
1988	2,317	32.8
1989	2,545	36.0
1990	3,520	49.8
1991	3,673	50.2
1992	3,811	52.0
1993	3,235	44.2

* For "phthisis," or pulmonary cases, 1920-1940; thereafter all forms of tuberculosis.

** Population based on census data for each decade.

*** Case definition revised in 1978 to include persons who had verified disease in the past and were discharged or lost to supervision for more than 12 months and had verified disease again.

FIGURE 1

TUBERCULOSIS CASES AND RATES
NEW YORK CITY, 1978 - 1993

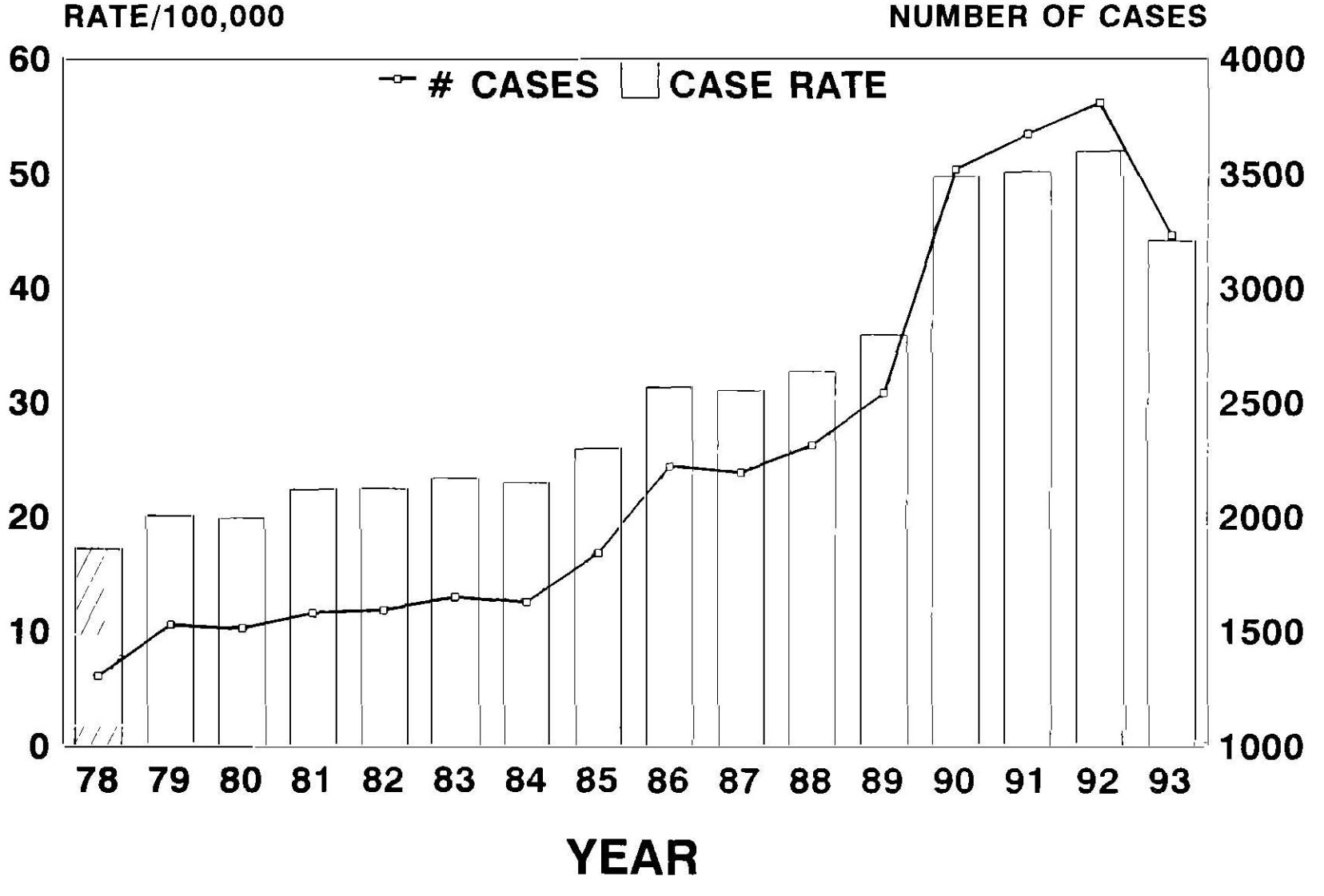


Table 2

Tuberculosis Cases by Race, Ethnicity and Age
In Children Under 5 Years
1993

RACE/ ETHNICITY	<1 YEAR	1-2	2-3	3-4	4-5	TOTAL
White	1	-	-	-	3	4
Black	4	13	7	8	7	39
Hispanic	8	3	4	4	2	21
Asian	2	-	-	-	1	3
TOTAL	15	16	11	12	13	67

FIGURE 2

TUBERCULOSIS CASES BY AGE
NEW YORK CITY, 1990 - 1993

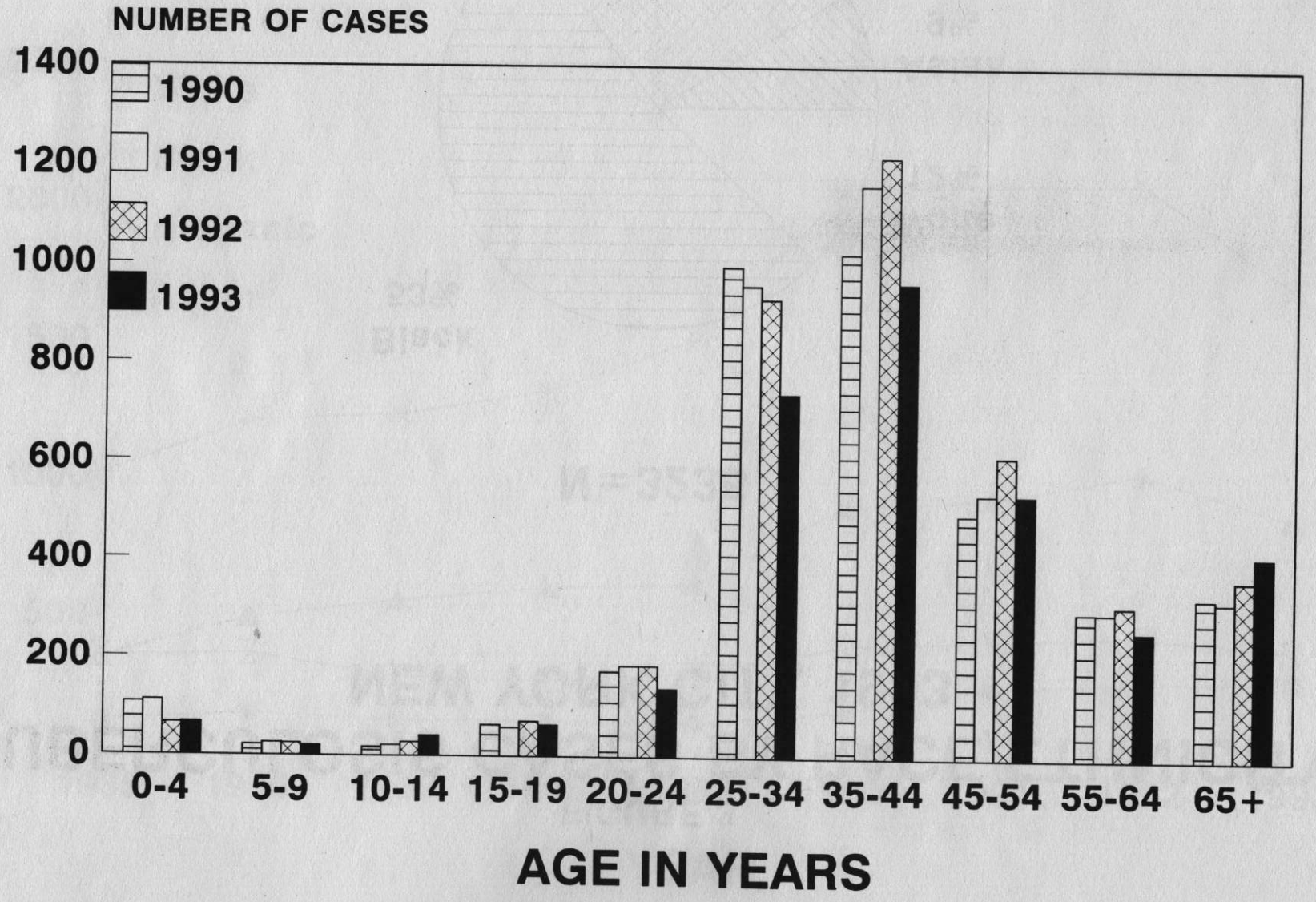


FIGURE 3

TUBERCULOSIS CASES BY RACE/ETHNICITY NEW YORK CITY, 1993

N=3235

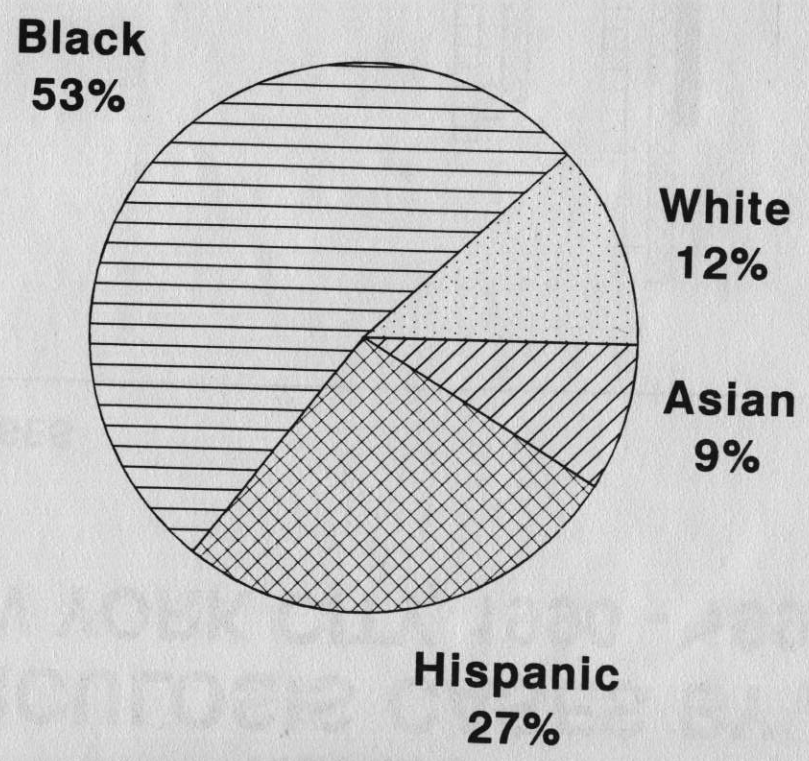


FIGURE 4

TUBERCULOSIS CASES BY RACE/ETHNICITY
NEW YORK CITY, 1985 - 1993

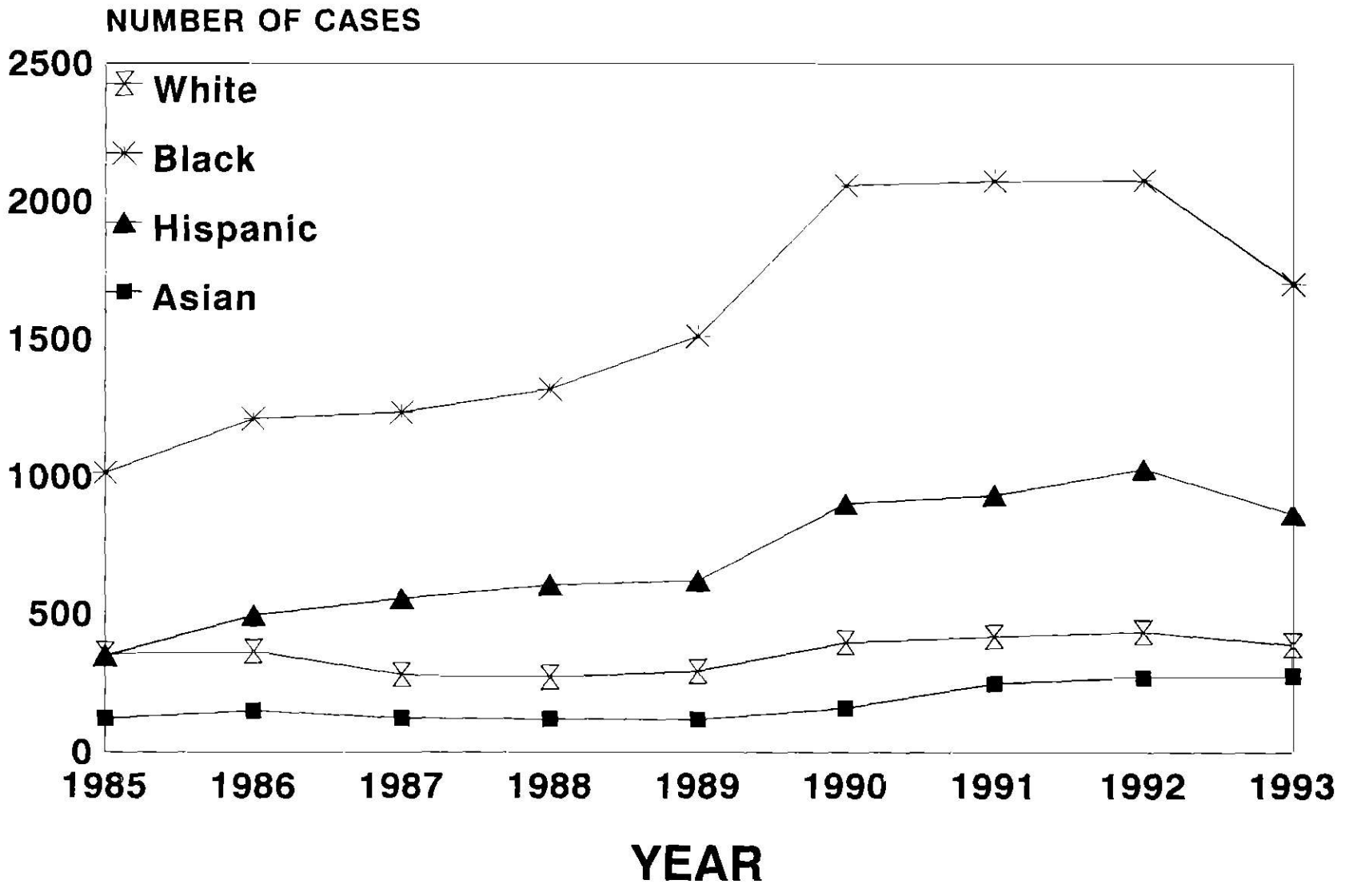


TABLE 3
Tuberculosis Incidence (Rates per 100,000)
by Race/Ethnicity and Age in Years
New York City, 1993

Age Group
N
(Rate)

Race	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65+	Total
White	4	1	1	6	8	69	88	60	40	113	390
	2.6	0.8	0.8	4.2	3.8	12.1	18.0	17.5	11.6	17.4	12.3
Black	39	12	19	33	68	375	563	315	129	150	1703
	25.6	8.4	13.1	22.6	44 2	112.7	206.5	158.2	90.5	94.1	92.2
Hispanic	21	6	17	19	45	228	264	134	59	71	864
	12.6	4.0	11.7	13.1	27.0	66.0	101 3	76.7	48.9	65.3	48.4
Asian	3	1	4	6	18	66	48	24	30	78	278
	7.9	3.1	12.1	16.2	41.0	55.0	50.4	42.5	79.3	227.6	52.6
Total	67	20	41	64	139	738	963	533	258	412	3235
	13.1	4.4	9.1	13.6	24.1	53.9	86.2	68.9	40.0	43.2	44.2

FIGURE 5

TUBERCULOSIS CASES BY AGE AND RACE/ETHNICITY NEW YORK CITY, 1993

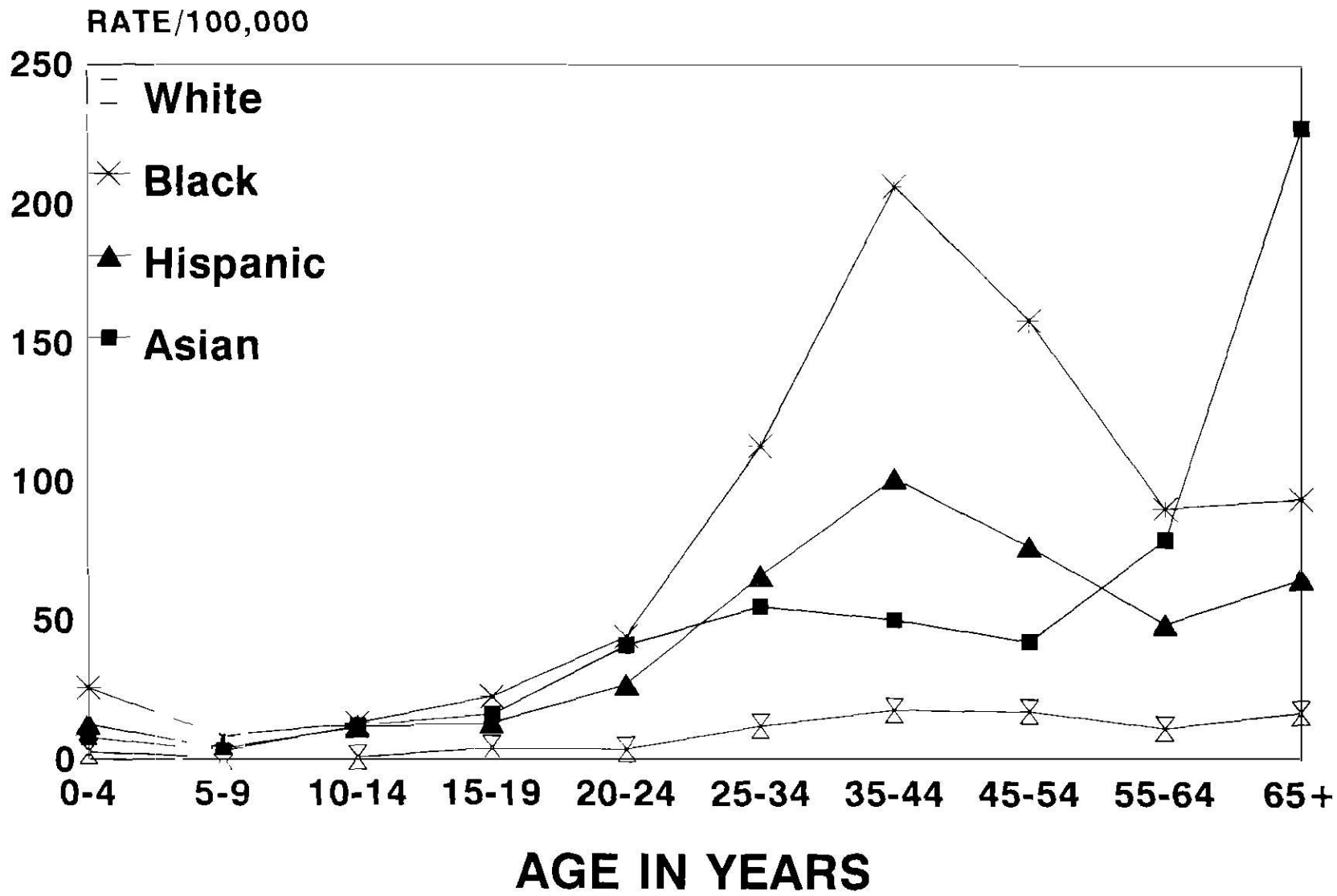


TABLE 4
Tuberculosis Incidence (Rates per 100,000) in Males
by Race/Ethnicity and Age in Years
New York City, 1993

Age Group
N
(Rate)

Race	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65+	Total
White	3 3.8	0 0.0	0 0.0	3 4.2	5 4.8	48 16.7	59 24.1	46 27.8	29 18.1	60 24.3	253 16.9
Black	21 27.3	6 8.3	12 16.7	17 23.6	35 49.2	224 150.7	370 314.9	245 293.3	96 165.9	74 134.6	1100 133.1
Hispanic	. 12 14.2	2 2.6	11 14.9	12 16.2	20 23.9	145 86.8	198 164.5	108 136.2	38 73.2	40 101.4	586 68.9
Asian	1 5.1	0 0.0	1 5.9	3 15.8	8 36.7	41 66.8	27 54.8	16 55.2	21 114.7	58 376.1	176 65.7
Total	37 14.2	8 3.4	24 10.5	35 14.8	68 24.3	458 68.9	654 123.0	415 116.1	184 63.9	232 65.0	2115 61.5

TABLE 5
Tuberculosis Incidence (Rates per 100,000) in Females
by Race/Ethnicity and Age in Years
New York City, 1993

Age Group
N
(Rate)

Race	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 34	35 – 44	45 – 54	55 – 64	65+	Total
White	1	1	1	3	3	21	29	14	11	53	137
	1.3	1.6	1.6	4.3	2.8	7.4	11.9	7.9	6.0	13.1	8.2
Black	18	6	7	16	33	151	193	70	33	76	603
	23.9	8.5	9.6	21.5	39.9	82.0	124.4	60.6	39.0	72.8	59.1
Hispanic	9	4	6	7	25	83	66	26	21	31	278
	11.0	5.4	8.4	9.8	30.1	46.5	47.1	27.2	30.6	44.8	29.8
Asian	2	1	3	3	10	25	21	8	9	20	102
	10.9	6.3	18.5	16.5	45.2	42.6	45.7	29.2	46.1	106.1	39.1
Total	30	12	17	29	71	280	309	118	74	180	1120
	12.0	5.3	7.6	12.4	24.0	39.8	52.8	28.3	20.8	30.2	28.8

FIGURE 6

DISTRIBUTION OF TB CASES BY SEX AND AGE NEW YORK CITY, 1993

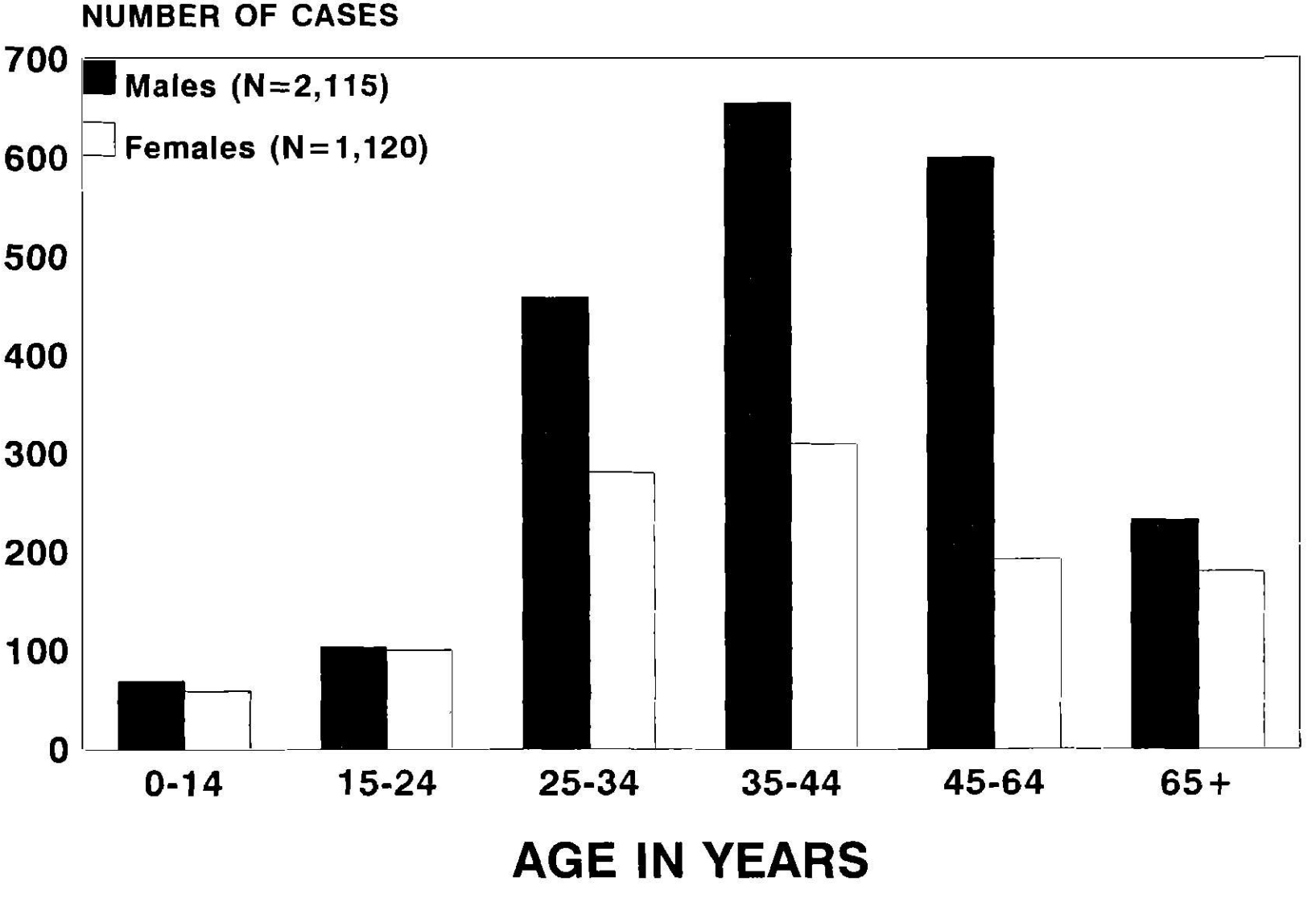


FIGURE 7

TREND OF TB CASE RATES BY SEX
NEW YORK CITY, 1988 - 1993

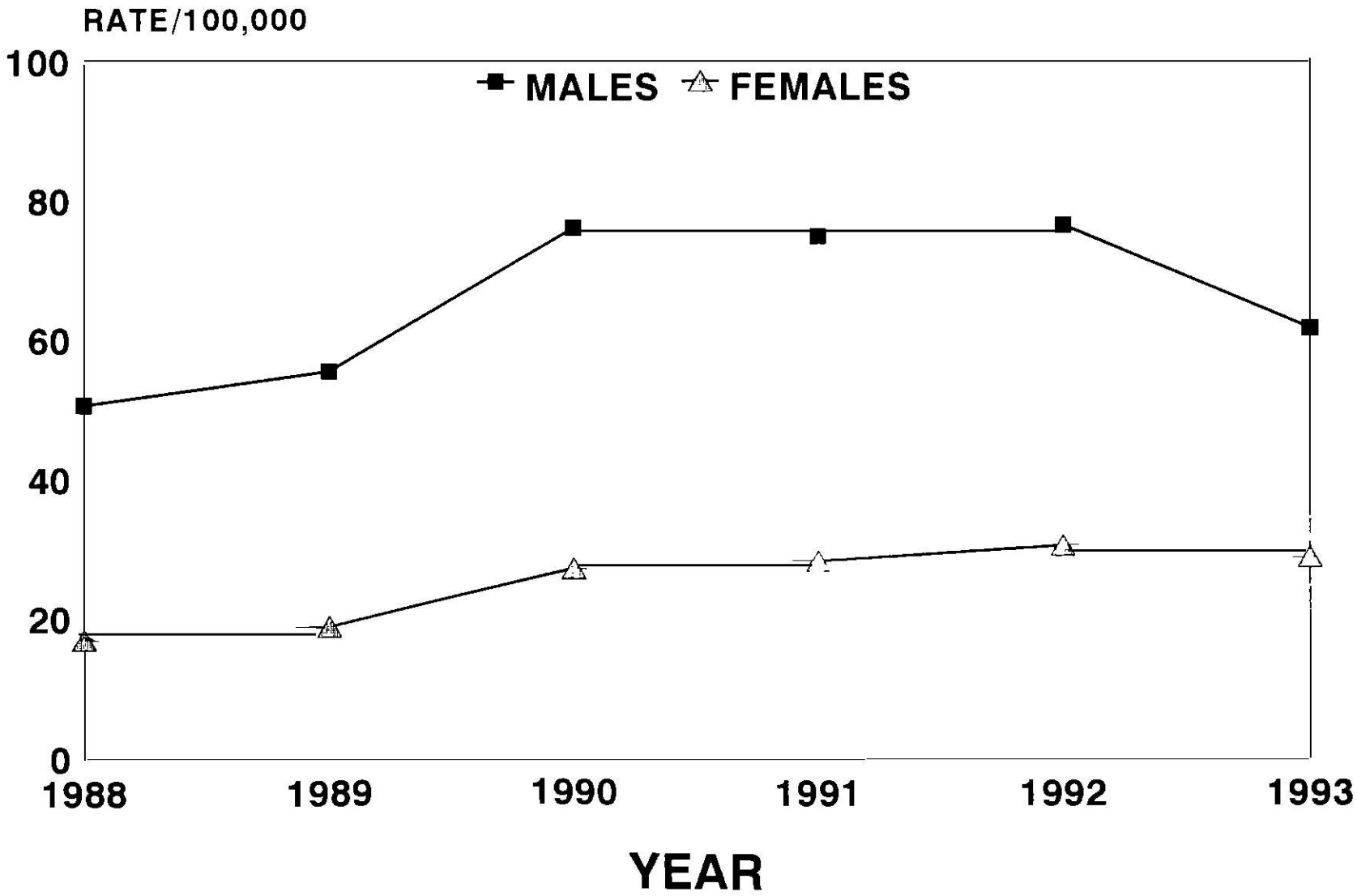


TABLE 6

Crude and Age–Adjusted Tuberculosis Rates
New York City, 1980, 1992, 1993

Borough	Health District	Cases	Rate per 100,000 population			
			1993 Crude	1993 Age Adjusted*	1992 Crude	1980 Age Adjusted**
Manhattan	Central Harlem	196	169.7	181.7	221.7	78.6
	East Harlem	90	70.7	73.1	95.1	27.5
	Kips Bay–Yorkville	42	17.8	14.4	21.6	9.9
	Lower East Side	181	75.6	69.5	109.8	68.3
	Lower West Side	159	54.0	44.8	94.5	34.6
	Riverside	138	66.0	59.0	81.4	27.9
	Washington Heights	137	51.4	52.9	58.9	26.5
	Total Manhattan	943	63.4		87.1	
Bronx	Fordham–Riverdale	64	26.1	27.5	35.9	16.5
	Morrisania	135	93.3	109.3	85.7	31.4
	Mott Haven	125	96.3	107.8	146.4	28.8
	Pelham Bay	47	21.5	20.1	20.2	9.8
	Tremont	126	66.1	76.0	86.6	33.3
	Westchester	91	33.0	34.0	34.5	9.3
	Total Bronx	588	48.8		58.6	
Brooklyn	Bay Ridge	52	21.8	20.1	15.9	8.8
	Bedford	194	83.3	89.1	100.9	46.7
	Brownsville	141	50.6	54.2	65.7	21.4
	Bushwick	127	69.6	83.3	74.5	37.0
	Flatbush	193	38.4	39.2	35.8	18.2
	Fort Greene	162	107.8	110.3	118.5	55.2
	Gravesend	63	22.2	21.9	19.0	13.2
	Red Hook–Gowanus	54	51.1	49.6	53.0	24.2
	Sunset Park	47	27.6	29.8	26.4	15.8
	W'burg–Grnpt.	75	48.1	52.2	55.1	27.0
	Total Brooklyn	1108	48.2		51.8	
Queens	Astoria–L.I.C.	71	30.0	29.5	37.7	17.7
	Corona	133	45.7	44.5	58.1	13.5
	Flushing	83	18.2	17.3	16.0	10.3
	Jamaica East	110	32.6	33.7	32.6	17.8
	Jamaica West	90	24.9	25.2	21.0	8.6
	Maspeth–Forest Hills	53	19.7	18.5	12.3	5.7
	Total Queens	540	27.7		28.2	
Staten Island	Richmond	56	14.8	15.3	17.9	7.3
TOTAL NYC		3235	44.2	44.2	52.0	19.9

* 1993 and 1992 crude rates are based on the 1990 Census for New York City.
1993 age–adjusted rates are based on the 1990 Census by the method of direct adjustment.
** 1980 age–adjusted rates are based on the 1980 Census by the method of direct adjustment.

FIGURE 8

TUBERCULOSIS CASE RATES BY BOROUGH NEW YORK CITY, 1993 (3235 CASES)

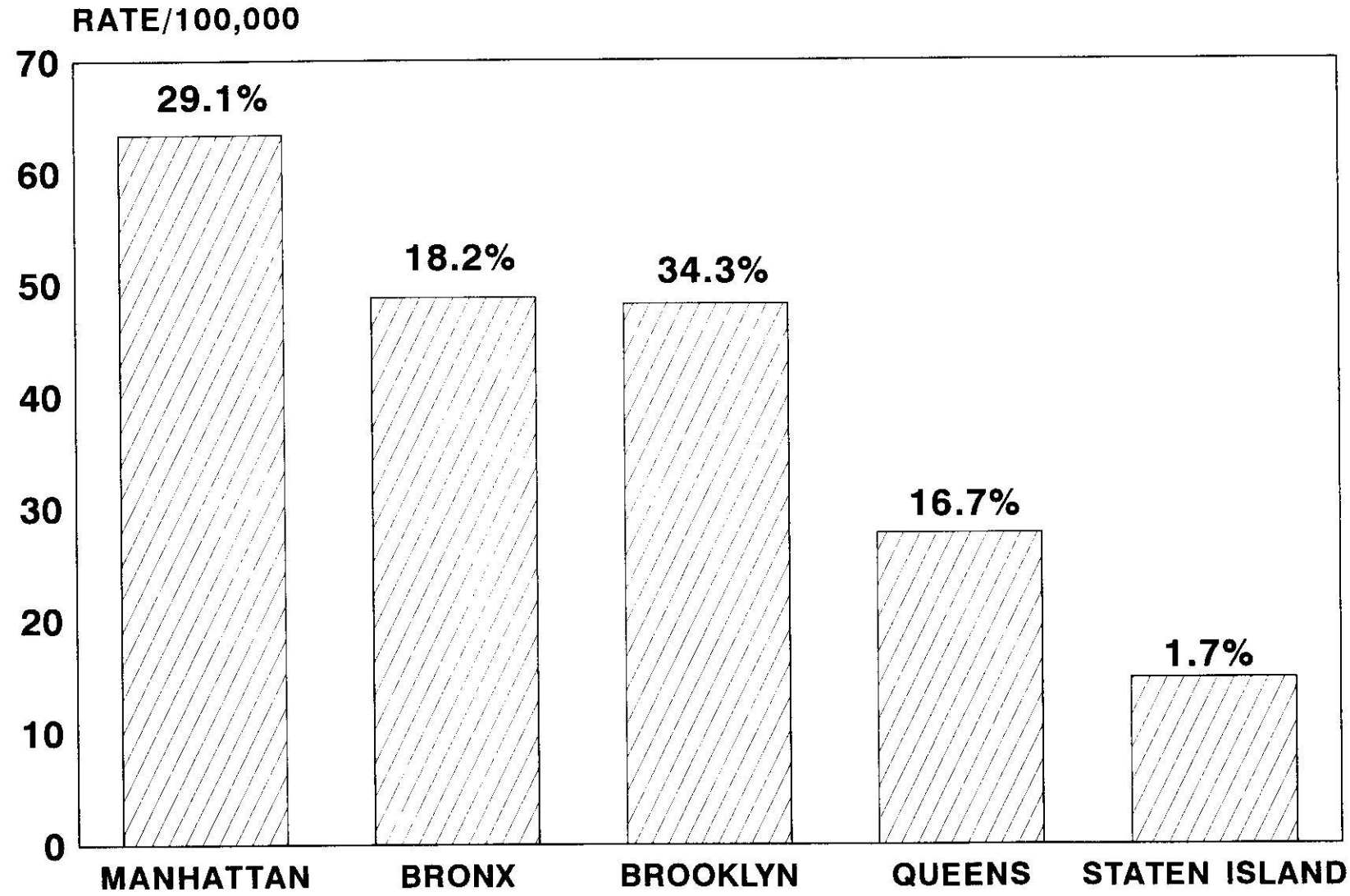


Table 7

Tuberculosis Cases
By Age in Years and Area of Birth
New York City, 1993

AGE GROUPS

AREA OF BIRTH	0-9	10-19	20-24	25-34	35-44	45-54	55+	TOTAL
AFRICA	1	1	1	10	7	2	1	23
ASIA(1)	2	5	6	20	19	5	56	113
CANADA	0	0	2	1	0	0	0	3
CARIBBEAN(*2)	8	16	15	103	99	67	78	386
CENTRAL/S AMER(3)	10	21	12	44	43	16	27	173
EUROPE(4)	3	0	5	8	8	12	44	80
INDO/PAKISTAN(5)	0	3	4	14	8	4	14	47
MIDDLE EAST	0	1	1	1	3	1	2	9
SOUTHEAST ASIA(6)	0	2	3	15	11	5	13	49
NON USA	24	49	49	216	198	112	235	883
USA	63	56	90	522	765	421	435	2352
TOTAL	87	105	139	738	963	533	670	3235

* Includes Puerto Rico and the U.S Virgin Islands

(1) China (73), Korea (28), Hong Kong (7), Other (5)

(2) Puerto Rico (138), Haiti (97), Dominican Republic (75), Jamaica (25), Cuba (16), Trinidad & Tobago (15), U.S. Virgin Islands (6), Other (14)

(3) Mexico (37), Ecuador (36), Peru (22), Columbia (17), Guyana (17), Honduras (13), Brazil (7), Panama (6), Other (18)

(4) Russia (23), Poland (9), Italy (8), Yugoslavia (7), Romania (5), France (5), Other (23)

(5) India (20), Pakistan (14), Bangladesh (9), Other (4)

(6) Philipines (31), Vietnam (13), Other (5)

FIGURE 9

FOREIGN-BORN CASES
NEW YORK CITY, 1990 - 1993

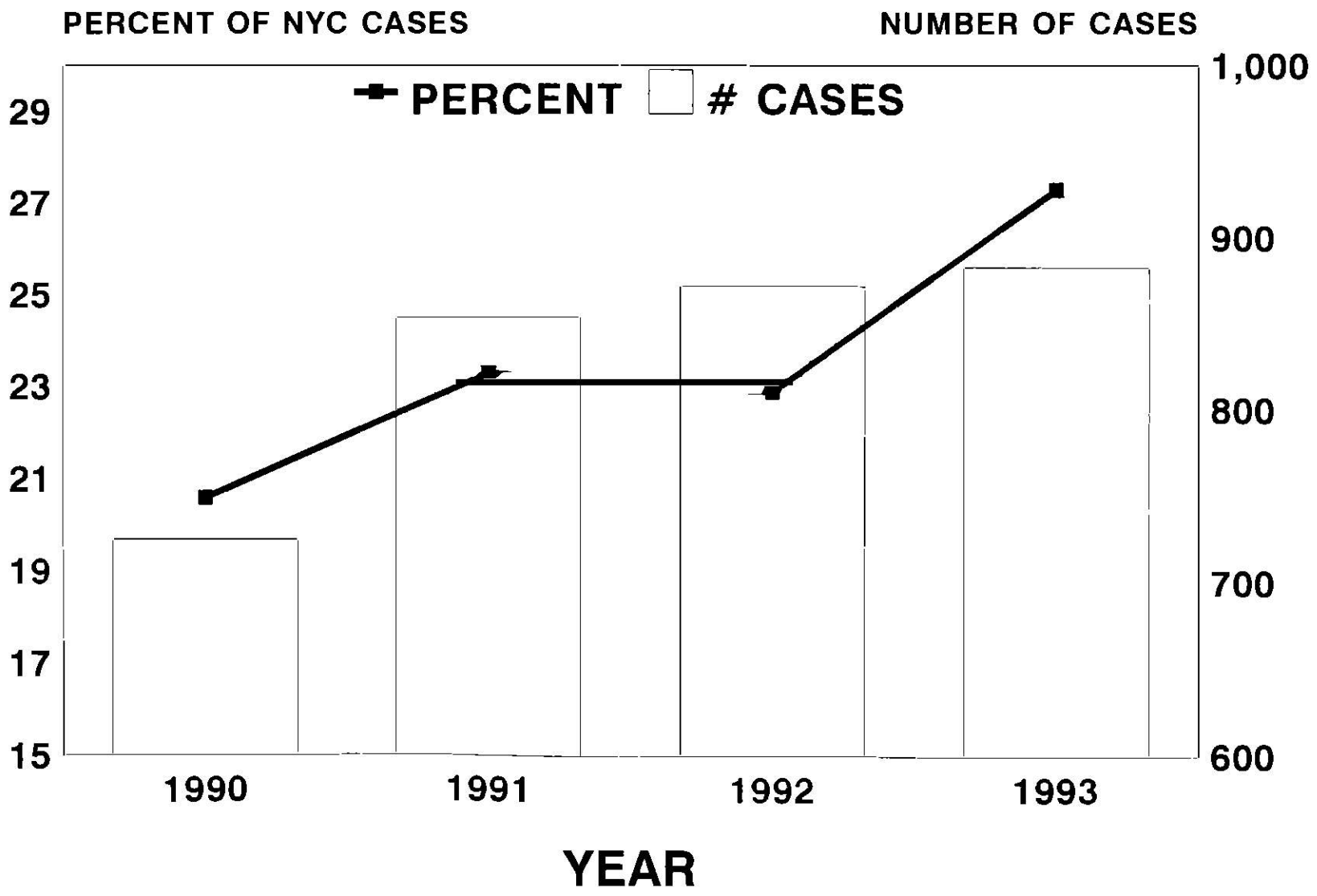


Table 8

Tuberculosis Cases by
Primary Site of Disease
New York City, 1993

	Number of Cases	(%)
Pulmonary	2,753	(85.1)
Lymphatic	134	(4.1)
Pleural	93	(2.9)
Bone/Joint	75	(2.3)
Meningeal	46	(1.4)
Genitourinary	33	(1.0)
Peritoneal	27	(0.8)
Miliary	17	(0.5)
Other	57	(1.8)
Total	3,235	(100.0)
Both Pulmonary and Extrapulmonary	263	(8.1)

Table 9

Tuberculosis Deaths and Rate (per 100,000)
New York City
1910 - 1993

Year	# Deaths	Rate
1910	8,832	197.5
1920	7,915	144.1
1930	4,574	68.2
1940	3,680	50.0
1950	2,173	27.4
1960	824	10.6
1970	432	5.5
1980	143	2.0
1981	155	2.2
1982	168	2.4
1983	151	2.1
1984	168	2.4
1985	155	2.2
1986	186	2.6
1987	219	3.1
1988	247	3.5
1989	233	3.3
1990	250	3.5
1991	241	3.3
1992	199	2.7
1993	166	2.3

Table 10

HIV Status of Tuberculosis Cases by Sex
New York City, 1993

	FEMALE			MALE			TOTAL		
AGE	HIV(+)	HIV(-)	NA*	HIV(+)	HIV(-)	NA	HIV(+)	HIV(-)	NA
0-14	3	11	45	5	23	41	8	34	86
15-24	7	28	65	12	13	78	19	41	143
25-34	104	48	128	204	67	187	308	115	315
35-44	149	41	119	345	73	236	494	114	355
45-54	32	18	68	152	53	210	184	71	278
55-64	7	11	56	33	29	122	40	40	178
65+	6	42	132	9	68	155	15	110	287
TOTAL	308	199	613	760	326	1029	1068	525	1642

*Not available

FIGURE 10

HIV STATUS OF TUBERCULOSIS CASES BY SEX
NEW YORK CITY, 1993

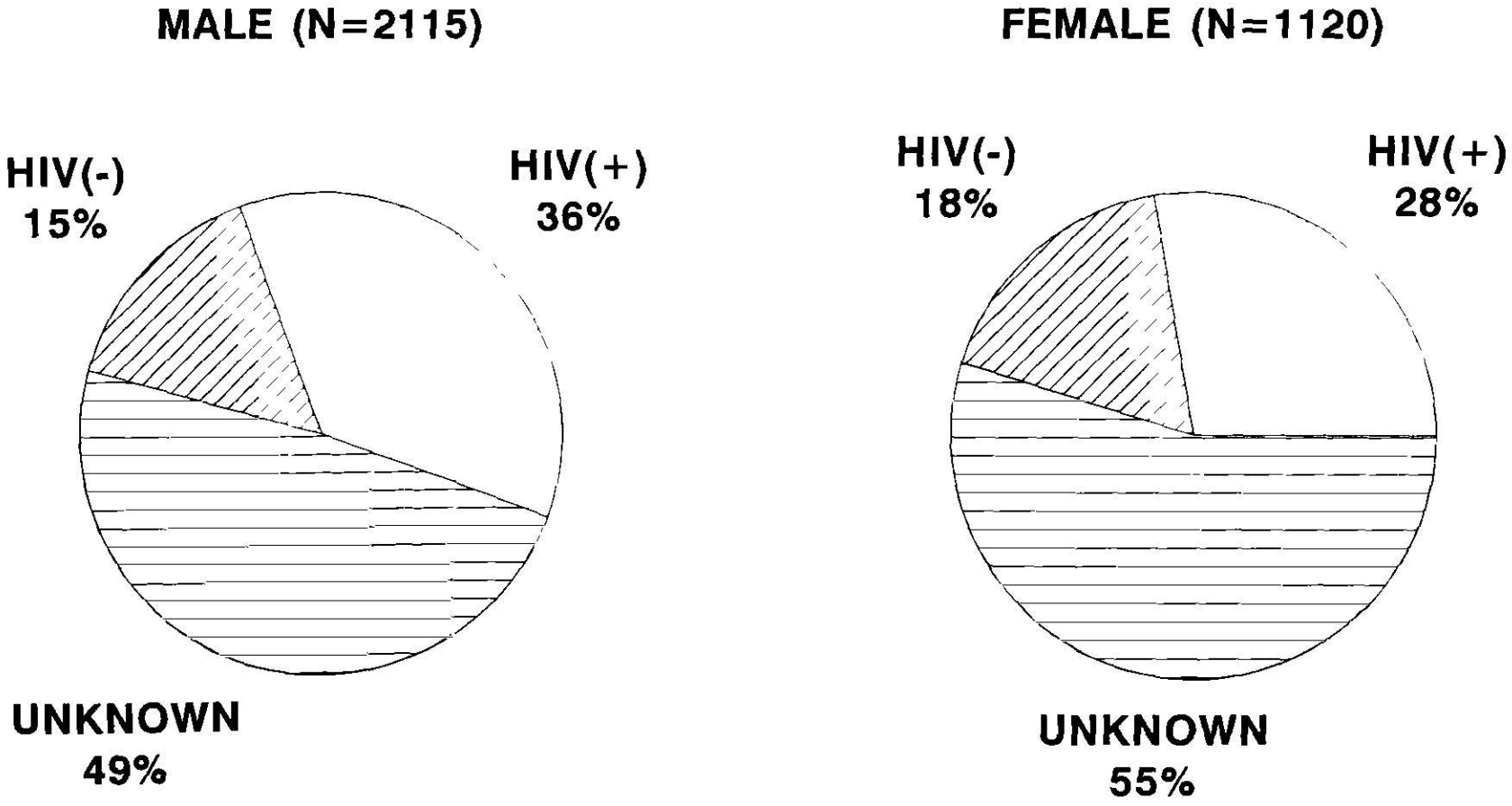


FIGURE 11

TUBERCULOSIS CASES
NEW YORK CITY, 1978 - 1993

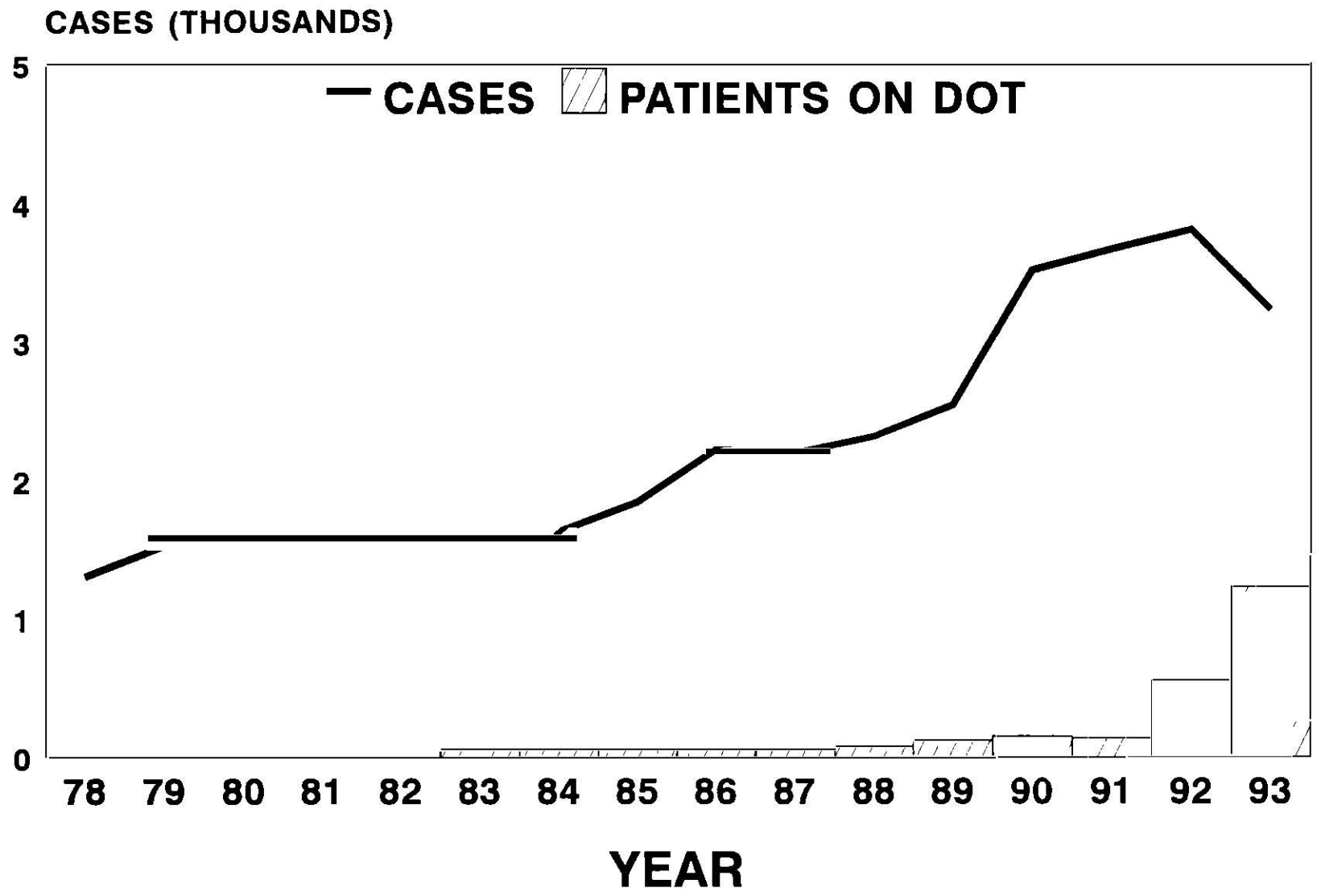


FIGURE 12

TUBERCULOSIS PATIENTS ON DOT
NEW YORK CITY, 1983 - 1993

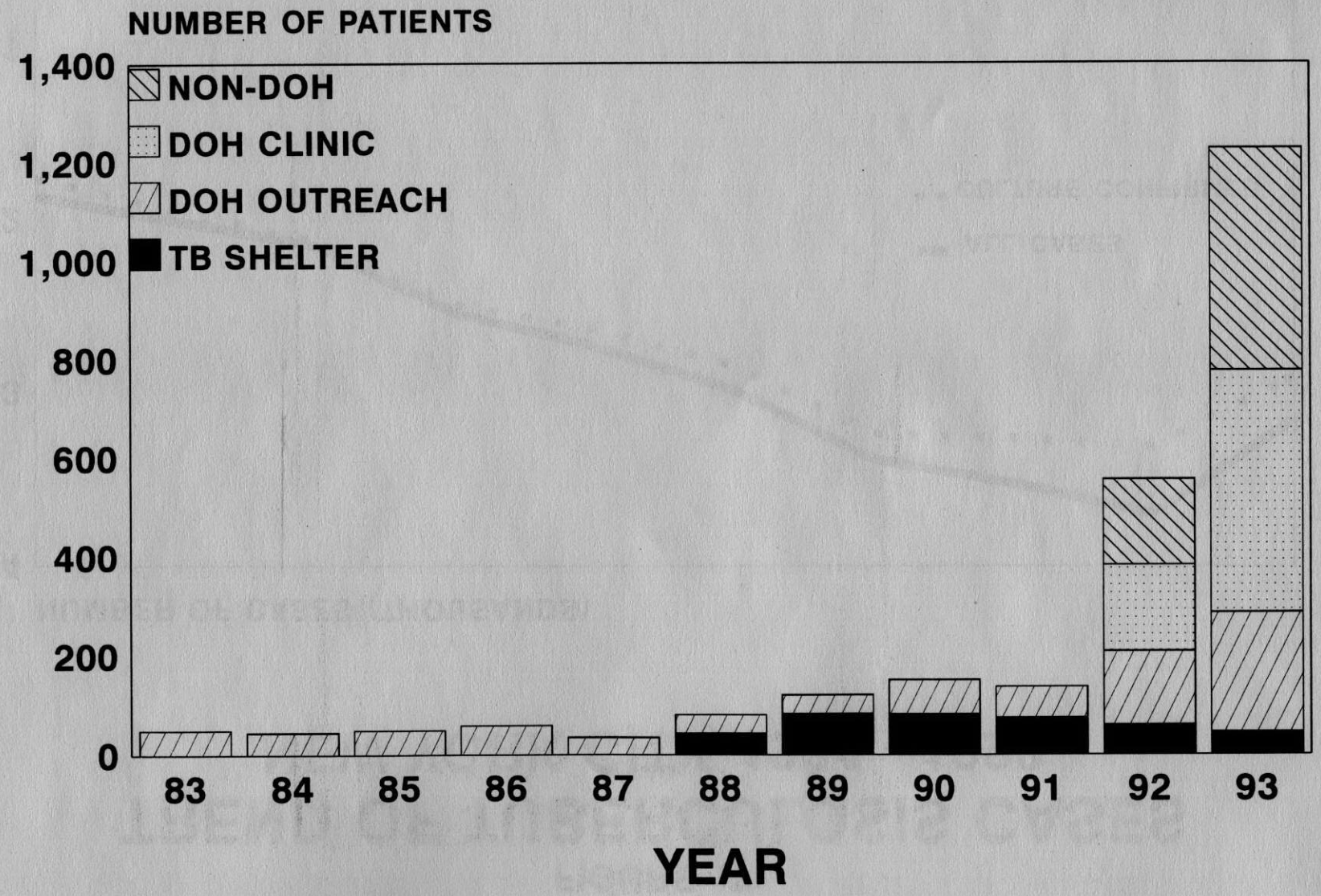
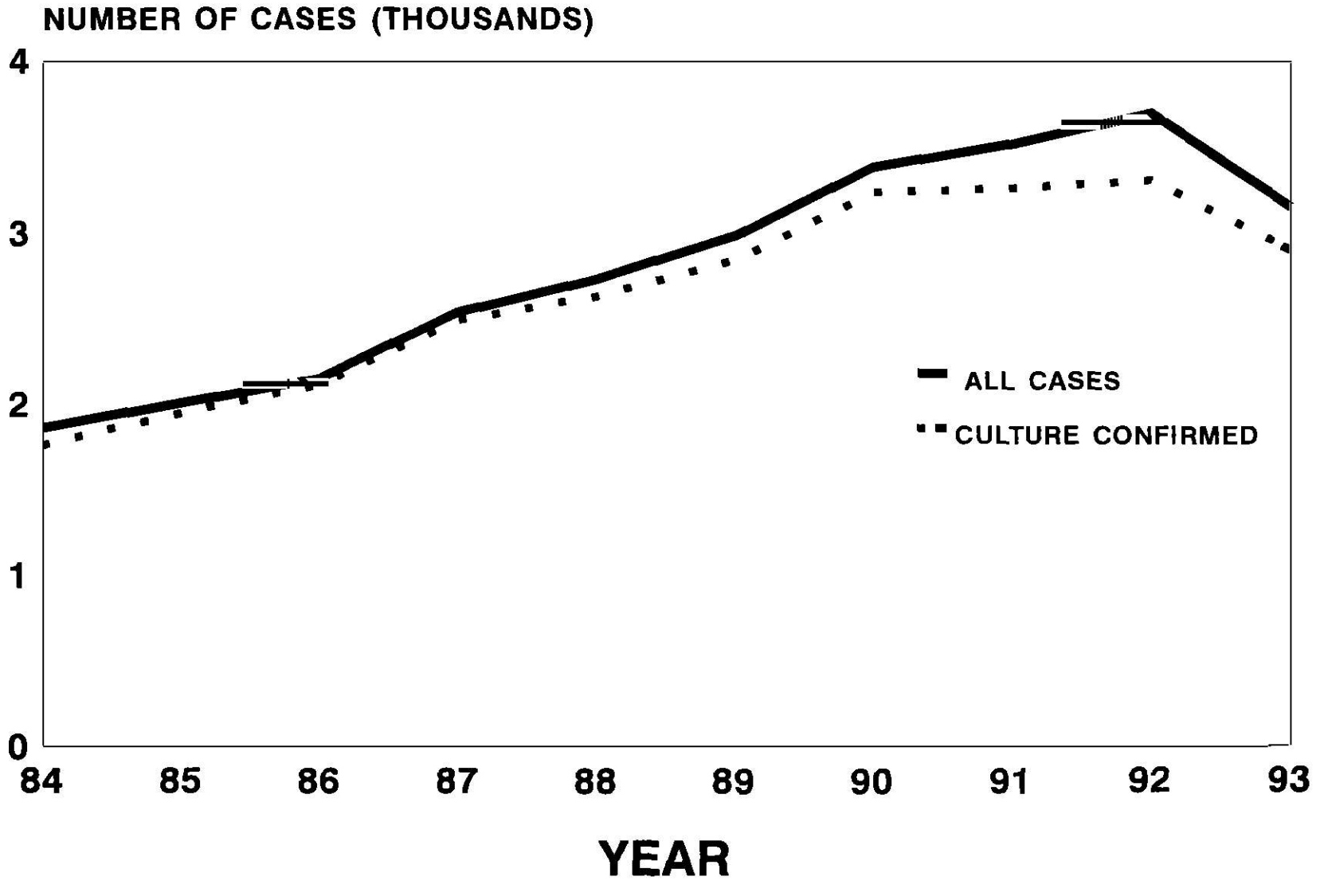


FIGURE 13

TREND OF TUBERCULOSIS CASES
NEW YORK CITY, 1984 - 1993



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