TUBERCULOSIS IN NEW YORK CITY

1989

INFORMATION SUMMARY

NEW YORK CITY

DEPARTMENT OF HEALTH

This report describes the demographic and geographic distribution of tuberculosis cases in New York City in 1989. Rate calculations of cases per 100,000 population are based upon 1980 census data.

Tuberculosis cases in New York City increased again in 1989. Rates have been rising since 1979 and are now 36 per 100,000 population (Figure 1), almost quadruple the national rate of 9.5. In 1989 there were 2,545 new cases of tuberculosis reported. This incidence represents a 9.8% increase over 1988's 2,317 cases and a 68% increase over 1980 when 1,514 cases were reported. The 1989 case rate is the highest in two decades (Table 1).

Rates continued to climb upward among 25-44 year olds in all racial/ethnic groups, but particularly in black and Hispanic males (Figures 2 - 6). The high incidence of disease in this age group is particularly distressing because these are the individuals of child bearing age. In 1987 there were 48 cases among children under 15 years old; whereas in 1988 the number of cases almost doubled to 91, and in 1989 there were 74 cases.

Ethnic/Racial Distribution of Tuberculosis Cases

Non-Hispanic blacks (males and females) had the highest rate of disease (Figure 3). They represented 59.4% of all cases and their case rate of 89.3 per 100,000 was an increase of 14.8% over 1988. Hispanics had a lower case rate than blacks (44.2) and experienced a small increase in incidence (2.5%) from 1988. The

increase in disease among blacks and Hispanics has been consistent since 1984 (Figures 3 and 4).

The case rate of non-Hispanic white New Yorkers remained the lowest of the ethnic/racial groups. The rate of 8.0 per 100,000 population (Table 2) is slightly lower than the national average. Although the Asian case rate of 51.1 is higher than among Hispanics, they represent a relatively small proportion of the overall city population; the highest case rate in that group is in the oldest population.

Distribution of Tuberculosis Cases by Sex

The incidence of tuberculosis among males is about two and a half times that of females - in 1989, it was 55.6 and 19.1 per 100,000, respectively (Figure 6).

Males

From 1988 to 1989 the incidence rate of tuberculosis for males of all ages increased 9.4%, from 50.8 to 55.6 cases per 100,000 population (Table 3). The largest increase during the past year was among 25-44 year olds, a group in which the number of cases rose 13.3% from 976 to 1107. As in previous years, those aged 25 to 44 represented about 60% of all male cases.

Non-Hispanic black males continued to experience the highest incidence of tuberculosis among all ethnic/racial groups, with a case rate of 138.7 per 100,000 population (Figure 7). The actual number of cases in this group increased 13.0% from 929 in 1988 to 1050 in 1989. As in the previous five years, incidence rates among

black males in 1989 peaked in the 35-44 year old age group with a case rate of 405.6 per 100,000, the highest in any age, sex, or race cohort, and almost 43 times the national average. Figure 7 shows rates among black males for the years 1984 to 1989. A steady annual increase is seen among those 25-44 years, with the peak age consistently at 40 years.

Among the males with tuberculosis in 1989, 60.8% were in the 25-44 year age range; in 1988 and 1987, 59% were in that age group. Among black males, the proportion was 63% in 1989; it was 61% in 1988 and 63% in 1987. Although the case rate among all males increased 9.4% over 1988 and 1989, it increased in those aged 25-44 by 13.4% and in black men by 13.0%. Figure 5 depicts the trend of disease of males ages 25-44 years over the six year period, 1984 to 1989. Of note is the steadily increasing incidence among blacks and Hispanics in that age group over time.

While rates among black males of all ages increased by 13.0% in 1989, Hispanic males experienced a 2.0% increase in incidence. Figure 8 shows the steady increase of cases in this age group since 1984.

White males experienced an increased incidence of disease in 1989 (226 cases vs 199 in 1988). Although the age-specific rates are high for Asians, the 78 cases reported in 1989 are the smallest number for males in all ethnic/racial groups and 2.8 times less than that of the next lowest group. Males 65 years and older had a case rate of 39.5% per 100,000.

Females

There was an 11% increase among females (654 to 727 cases) from 1988 to 1989 (Table 5). The overall incidence in black women is over three times that of Hispanic women, and white women have maintained the lowest rate in all ethnic/racial groups (3.5 per 100,000 population). The 39 cases among Asian women is too few to make meaningful comparisons.

Figure 9 shows the consistent rise in cases over a five year period among black women 25-44, although the rates are lower than those of black men, and the rate of increase is much smaller. The age peak for women, however, is somewhat younger than for males; women have the highest rates at 30 years old, a decade earlier than that of black males.

Figure 10 shows that a slight decline in incidence occurred among Hispanic women in 1988, and remained steady in 1989, although there has been an increasing trend of disease over the past years, especially in the 20-40 year old range. The age peak for Hispanic females is also a decade younger (at around 30 years) than Hispanic males. White females showed no consistent pattern of disease.

Age Distribution

There was a 90% increase in reported cases among individuals younger than 15 years - from 48 cases in 1987 to 91 cases in 1988.

There was a 9.9% increase in incidence among 25-34 year olds but those 35-44 showed a 20.6% increase. Cases among those aged 45 and older remained about the same as in 1988. Figure 2 shows the case rates over an eight-year period by age group. The consistent rise in cases over time among those aged 25 - 44 is particularly striking.

Childhood Cases

The most dramatic increase in cases from 1987 to 1988 was among children under 15 years old. The almost doubling of cases of all children in this age group did not continue in 1989. Black children represented 30 of the 41 cases (73%) among those aged 0 to 5 in 1989 (Table 5).

Geographic Distribution

Age adjusted incidence rates by health district of residence were calculated for 1980, 1988 and 1989 (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.

Only twelve health districts experienced decreases in reported cases of tuberculosis or remained at the same level as 1988. The five districts with the highest rates in 1989 were Central Harlem and the Lower East Side in Manhattan; Bedford and Ft. Greene in Brooklyn, and Morrisania in the Bronx.

Manhattan

Except for the Lower West Side, Washington Heights and East Harlem, all health districts in Manhattan experienced increases in tuberculosis case rates in 1989. The most notable changes are the increase of 25.6% in Riverside. The rate in Central Harlem remains the highest in the City at 175.6 per 100,000 and the Lower West Side is 95.8. Overall, Manhattan experienced an increase of cases of 4.8% over 1988.

Bronx

Overall the Bronx experienced a 0.4% decrease in cases over 1988, the only citywide decrease. The 28.4% decrease in Mott Haven is attributable to the decrease in cases reported by Lincoln Hospital. Morrisania represents the fourth highest age-adjusted case rate in the city. Of note is the 22.1% increase of cases in Tremont and the 19.1% increase in Morrisania over 1988.

Brooklyn

Brooklyn's increase of 152 cases represent two thirds of the increase in cases from 1988. Their 21.7% increase in cases was the highest in the city. Nine of Brooklyn's 10 health districts reported an increase in cases in 1989. In Red Hook - Gowanis cases more than doubled (from 14 to 36), and Bedford and Flatbush saw increases of 32 and 37 cases, respectively.

Queens

Jamaica East had a 39.1% increase over last year and Flushing had an increase of 25.3%. Except for Astoria, L.I.C., incidence increased in all health districts in Queens. The largest increase

(45%) occurred in Astoria-LIC. Overall, Queens saw a 10.5% increase in cases in 1989.

Staten Island

Twenty-four cases of tuberculosis were reported from Staten Island in 1988, yielding an age adjusted rate of 8.0 per 100,000. This is a 3 case increase since 1988 and represents the lowest rate in the City.

Distributions of Age-Specific Tuberculosis by Area of Birth

In 1989, as in the five previous years, approximately one-quarter of all newly reported cases of tuberculosis occurred among individuals born outside the continental United States (Table 7). The Caribbean area accounted for 320 of the 587 (55%) of those born outside the continental United States, the largest group represented. A total of 73 countries were reported as place of birth for those tuberculosis cases born outside the continental United States.

Tuberculosis among Immigrants and Aliens

The United States Public Health Service's Foreign Quarantine Service screens immigrants for tuberculosis before they enter this country. The screening process consists of a general physical examination and, for persons 15 years of age and older (one year of age for Indochinese refugees), a chest x-ray. Those under 15 years old receive a chest x-ray if clinically indicates, or if they are

members of a family where one or more persons had an abnormal x-ray.

Individuals with abnormal results on chest x-rays are then classified for tuberculosis control purposes as either having, or as suspected of having, tuberculosis in an active state (Class A), or as infected, with no evidence of active disease (Class B).

Among New York City immigrants during 1989, 114 Class A and 2,499 Class B aliens were screened within two weeks of entering into the U.S. Among these there were no Class A and one Class B discovered to have tuberculosis on the basis of a positive culture for M.tuberculosis.

Table 8 summarizes these data for the years 1977 to 1989. Except for 1987, the number of Class A aliens entering the country has remained relatively stable over the past 12 years. However, the numbers of Class B aliens shows an increasing trend over the past four years, with a 62% increase from 1988 to 1989.

Location of Disease

In 1989 pulmonary tuberculosis accounted for 83.3% of all cases. Of persons with extrapulmonary disease, lymphatic tuberculosis was the most prevalent form of disease. Of all cases reported in 1989, 8.3% had both pulmonary and extrapulmonary disease, an increase from the 5.9% reported in 1988. Table 9 compares the site of disease in the two year period.

Reactivated Cases

Patients who were previously treated for tuberculosis are considered to be new cases if they have not been under medical supervision for twelve months and are diagnosed again with disease. There were 88 reactivated cases in 1989, which represents a 35% increase over the 65 reactors reported in 1988 (Table 10). Seventy-nine per cent of reactivators were males, and 60% of these reactivated cases occurred among those ages 25-44 years old. Reactivators accounted for 3.5% of all cases in 1989.

Tuberculosis Mortality

Mortality figures presented in this year's report are based on statistics issued by the Bureau of Health Statistics and Analysis.

In 1989 there were 233 deaths in New York City with tuberculosis listed as the underlying cause on the death certificate. The crude tuberculosis mortality rate of 3.3 is a slight decrease from 1988. (Table 11, Figure 1). This death rate, however, is far in excess of the national mortality statistics which reports a provisional 1988 rate of 0.8%.

Table 2

Tuberculosis Incidence Rates (per 100,000)
By Race/Ethnicity and Age, Sexes Combined
New York City, 1989

Race	N (Rate)	Age Group									
	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
White	1	-	-	1	6	66	74	37	31	78	294
	(0.6)	-	-	(0.5)	(2.1)	(10.7)	(19.1)	(8.8)	(6.3)	(10.5)	(8.0)
Black	30	15	10	27	71	429	502	217	117	93	1511
	(12.1)	(11.0)	(6.2)	(15.3)	(47.3)	(157.6)	(227.7)	(126.3)	(84.2)	(76.0)	(89.3)
Hispanic	9	4	2	19	58	211	167	78	33	40	621
	(6.2)	(3.0)	(1.4)	(13.2)	(42.8)	(84.9)	(92.9)	(58.6)	(39.2)	(60.9)	(44.2)
Asian	1	2	-	5	7	26	22	14	13	29	119
	(5.2)	(11.2)		(29.9)	(38.1)	(49.8)	(58.8)	(60.3)	(81.9)	(187.2)	(51.1)
Total	41	21	12	52	142	732	765	346	194	240	2545
	(8.7)	(4.7)	(2.4)	(9.2)	(23.5)	(60.9)	(91.9)	(46.0)	(26.3)	(25.2)	(36.0)

Table 3

Tuberculosis Incidence Rates(per 100,000) in Males,
by Race/Ethnicity and Age
New York City, 1989

	Age Group										
Race	N (Rate) 0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
White	-	-	-	1	4	48	65	31	27	50	226
	-	-	-	(0.9)	(2.8)	(15.6)	(34.1)	(15.7)	(12.2)	(17.6)	(13.2)
Black	18	9	4	14	39	285	381	158	85	57	1050
	(23.3)	(13.2)	(5.0)	(16.3)	(59.3)	(242.3)	(405.6)	(217.5)	(148.1)	(129.1)	(138.7)
Hispanic	5	3	-	11	39	157	140	63	27	21	466
	(6.8)	(4.5)	-	(15.6)	(63.6)	(140.3)	(171.6)	(107.5)	(75.3)	(84.7)	(71.0)
Asian	1	1	-	5	3	13	18	11	10	15	77
	(10.3)	(10.9)	-	(58.3)	(34.4)	51.8	(97.8)	(92.8)	(125.9)	(196.6)	(66.6)
TOTAL	24	13	4	31	85	503	604	263	149	143	1819
	(10.0)	(5.7)	(1.6)	(11.1)	(30.2)	(88.4)	(155.3)	(76.5)	(45.8)	(39.5)	(55.6)

Table 4

Tuberculosis Incidence Rates (per 100,000) in Females,
By Race/Ethnicity and Age
New York City, 1989

Race	N (Rate)	Age Group									
	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
White	1	-	-	-	2	18	9	6	4	28	68
	(1.3)	-	-	-	(1.3)	(5.9)	(4.6)	(2.7)	(1.5)	(6.1)	(3.5)
Black	12	6	6	13	32	144	121	59	32	36	461
	(17.0)	(8.8)	(7.4)	(14.3)	(37.9)	(93.2)	(95.6)	(59.5)	(39.2)	(46.0)	(49.3)
Hispanic	4	1	2	8	19	54	27	15	6	19	155
	(5.6)	(1.6)	(2.9)	(11.0)	(25.6)	(39.5)	(27.5)	(20.1)	(12.4)	(46.4)	(20.7)
Asian	-	1	-	-	4	13	4	3	3	14	42
	-	(11.5)	-	-	(41.4)	(47.9)	(17.3)	(26.4)	(37.9)	(178.0)	(35.5)
TOTAL	17	8	8	21	57	229	161	83	45	97	726
	(7.4)	(3.6)	(3.2)	(7.4)	(17.7)	(36.2)	(36.3)	(20.3)	(10.9)	(16.5)	(19.1)

Table 5

Tuberculosis Cases by Race, Ethnicity and Age
In Children Under 5 Years
1989

	Age In Months					
	0-11	12-23	24-35	36-47	48-59	Total
White	1					1
Black	4	10	6	5	5	30
Hispanic	3	4	1	-	1	9
Asian	-	-	-	-	1	1
Total	8	14	7	5	7	41

Table 6

Age-adjusted* Tuberculosis Rates
New York City, 1980, 1988, and 1989

Borough	Health District	Cases	Rate per 100,000 Pop.		
		1989	1989	1988	1980
Manhattan	Central Harlem	204	175.6	158.9	78.6
	East Harlem	87	71.8	75.4	27.5
	Kips Bay-Yorkville	20	6.4	5.9	9.9
	Lower East Side	237	95.8	84.6	68.3
	Lower West Side	126	37.3	44.4	34.6
	Riverside	98	41.7	34.4	27.9
	Washington Heights	129	53.9	55.5	26.5
Bronx	Fordham-Riverdale	56	25.4	31.5	16.5
	Morrisania	106	91.1	77.2	31.4
	Mott Haven	73	73.7	96.2	28.8
	Pelham Bay	29	13.8	13.2	9.8
	Tremont	94	64.1	49.6	33.3
	Westchester	48	17.4	15.9	9.3
Brooklyn	Bay Ridge	19	7.4	7.0	8.8
	Bedford	186	91.9	75.9	46.7
	Brownsville	112	45.1	37.4	21.4
	Bushwick	74	52.1	47.0	37.0
	Flatbush	152	32.0	24.2	18.2
	Fort Greene	120	84.6	65.8	55.2
	Gravesend	45	16.6	14.8	13.2
	Red Hook-Gowanus	36	30.5	11.3	24.2
	Sunset Park	36	23.8	19.2	15.8
	W'burg-Gnspt.	74	57.5	62.6	27.0
Queens	Astoria-L.I.C.	70	29.1	36.6	17.7
	Corona	69	25.3	23.3	13.5
	Flushing	50	11.0	8.4	10.3
	Jamaica East	89	29.6	21.6	17.8
	Jamaica West	52	15.5	15.4	8.6
	Maspeth-Forest Hills	27	10.1	6.5	5.7
Staten Island	Richmond	27	8.0	7.3	7.3

*By the direct method, according to the population distribution of New York City in 1980.

Table 7

Numbers of Tuberculosis Cases
By Age and Area of Birth, New York City, 1989

AREA OF BIRTH	AGE GROUPS 0-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
AFRICA	-	-	-	2	5	4	1	2	-	15
EUROPE	-	-	-	-	9	3	3	5	18	38
CENTRAL/SOUTH AMERICA	-	-	7	23	36	17	17	5	5	100
CARIBBEAN*	5	1	15	19	93	97	51	24	15	320
SOUTHEAST ASIA	-	-	1	1	5	1	1	-	1	10
INDO/PAKISTAN	2	-	2	4	9	6	1	3	3	30
ASIA	2	-	2	3	9	15	11	12	16	70
OTHER	-	-	1	-	1	1	-	-	1	4
TOTAL NON CONTINENTIAL U.S.A.*	9	1	28	52	167	145	75	51	59	587
CONTINENTAL USA	53	11	24	91	563	621	270	144	181	1958
TOTAL	62	12	52	143	730	766	345	195	240	2545

*Includes Puerto Rico

Table 8

Tuberculosis Screening and Cases Identified Among Immigrants*
1977 - 1989

	CLASS A		CLASS B		
Year	Number Screened	TB Cases	Number Screened	TB Cases	Class A & B Total
1977	129	3	1,129	0	1,258
1978	184	2	998	0	1,182
1979	129	4	786	0	915
1980	86	6	788	0	874
1981	124	2	700	1	824
1982	113	4	883	0	996
1983	52	5	774	0	826
1984	71	1	756	0	827
1985	147	4	1,050	0	1,197
1986	187	0	1,156	0	1,343
1987	362	6	1,450	3	1,812
1988	171	0	1,542	1	1,713
1989	114	0	2,499	1	2,613

* Within two weeks of arrival in U.S.

Table 9

LOCATION OF DISEASE

	1989		1988	
Pulmonary	2,120	83.3%	1,920	82.9%
Lymphatic	126	4.9	132	5.7
Pleural	94	4.5	100	4.3
Bone/Joint	48	2.0	34	1.5
Meningeal	33	1.0	29	1.3
Miliary	18	.9	16	.7
Genitourinary	23	1.7	29	1.3
Peritoneal	39	.6	22	.9
Other	44	1.9	35	1.5
Pulmonary and Extrapulmonary	183	8.3	136	5.9

Table 10

Newly Reported Tuberculosis Cases With Disease Again (Reactivation) By Sex and Age New York City, 1989

Sex	Age Group 20-24	25-44	45-54	55-64	65+	TOTAL
Male	4	41	15	9	1	70
Female	-	12	5	1	-	18
TOTAL	4	53	20	10	1	88

Table 11

Tuberculosis Deaths and Rates (per 100,000)
New York City, 1978 - 1987

Year	# of TB Deaths	Rate
1978	181	2.3
1979	121	1.5
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

Figure 1

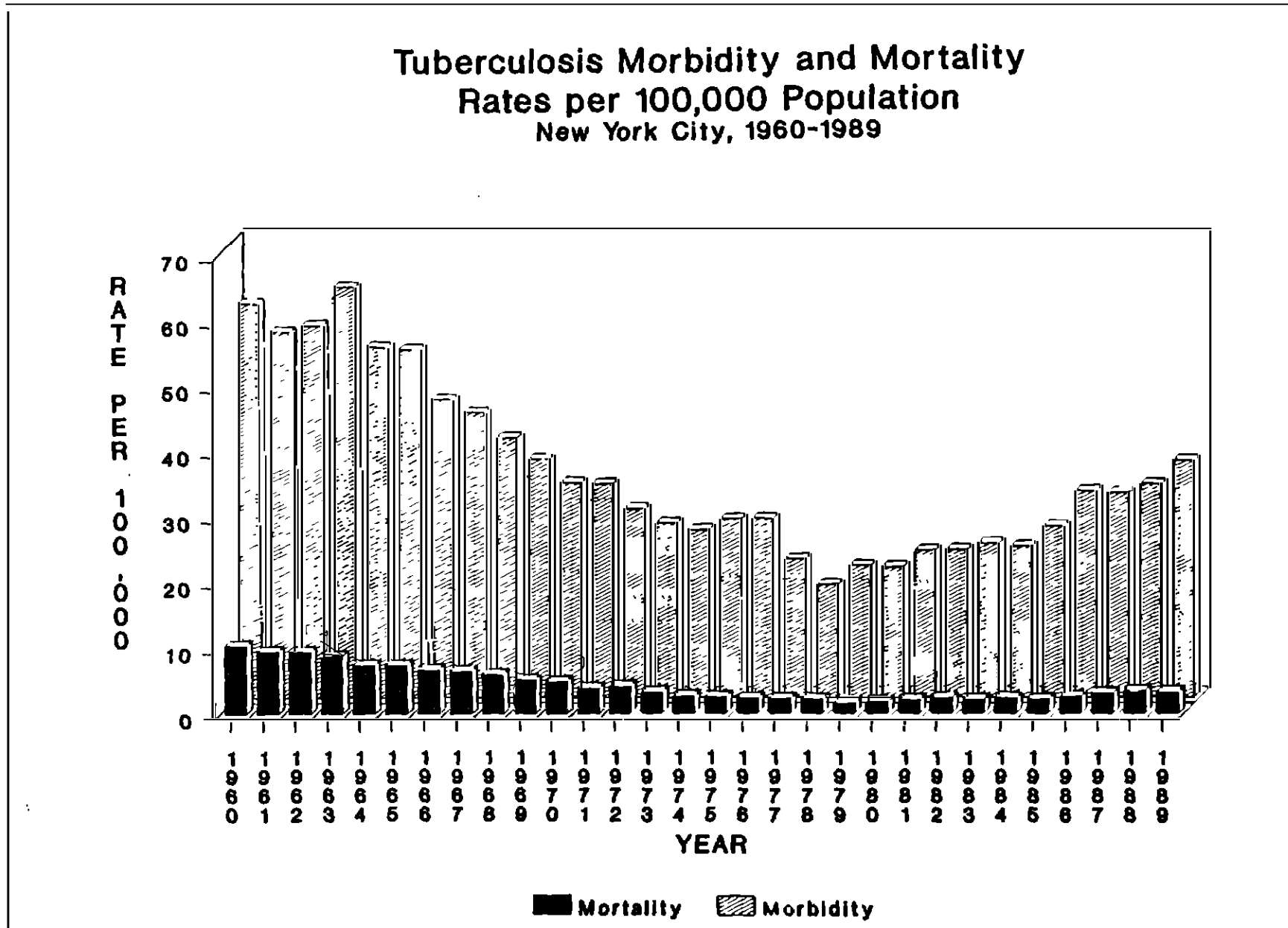

Tuberculosis Morbidity and Mortality
Rates per 100,000 Population
New York City, 1960-1989
RATE PER 100,000
0
10
20
30
40
50
60
70
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
YEAR
Mortality
Morbidity

Figure 2

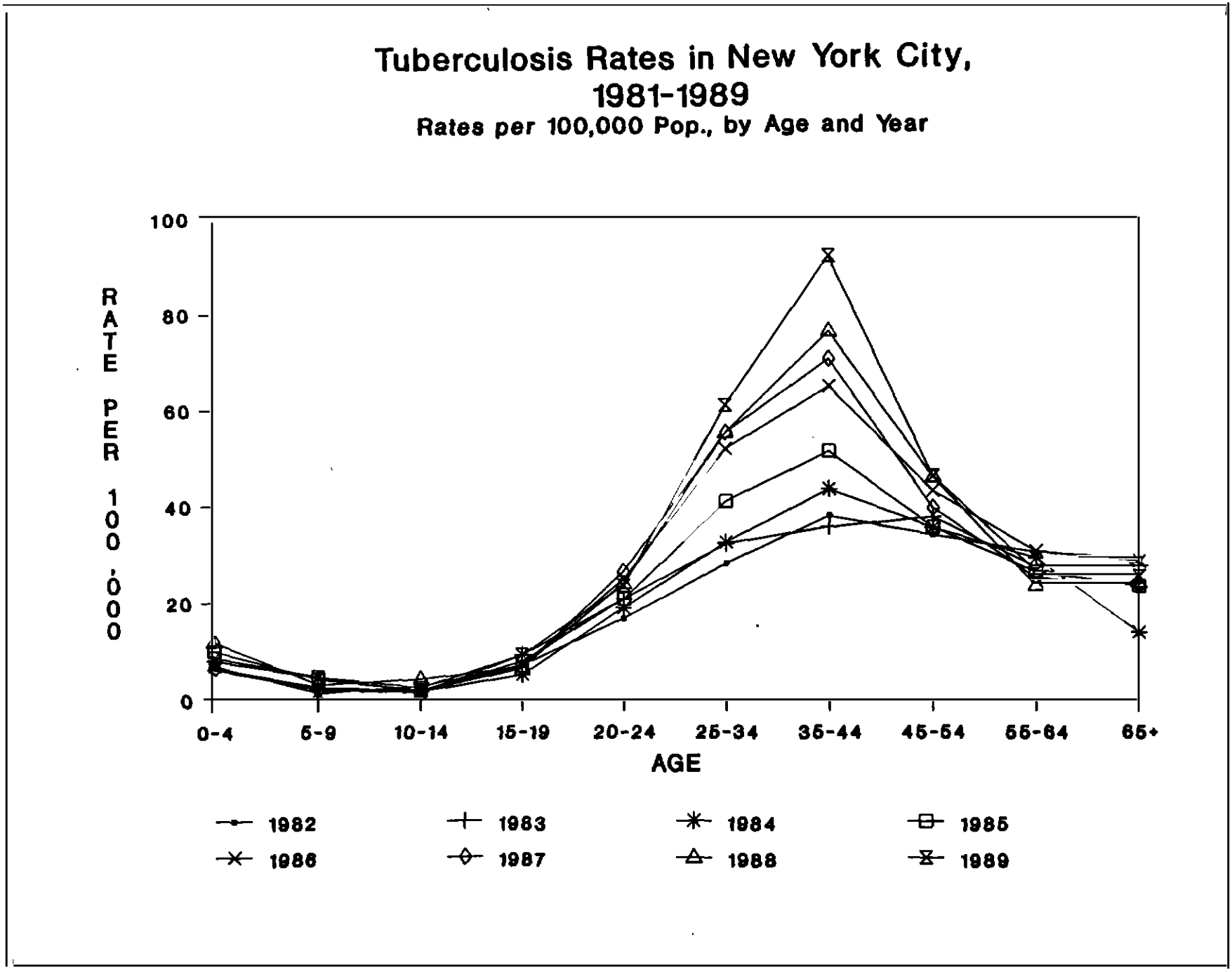

Tuberculosis Rates in New York City,
1981-1989
Rates per 100,000 Pop., by Age and Year
RATE PER 100,000
100
80
60
40
20
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
1982
1983
1984
1985
1986
1987
1988
1989

Figure 3

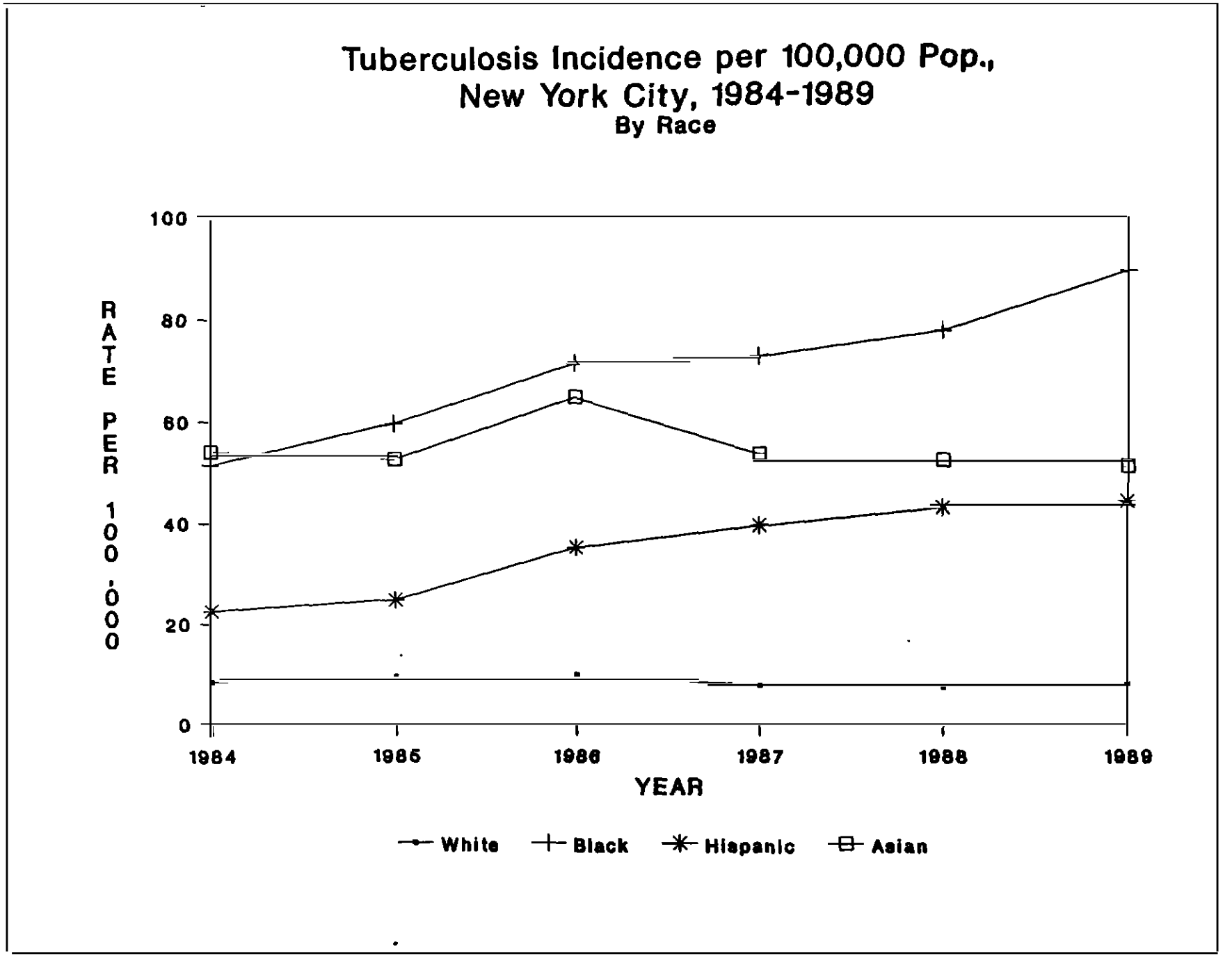

Tuberculosis Incidence per 100,000 Pop.,
New York City, 1984-1989
By Race
RATE PER 100,000
100
80
60
40
20
0
1984
1985
1986
1987
1988
1989
YEAR
White
Black
Hispanic
Asian

Figure 4

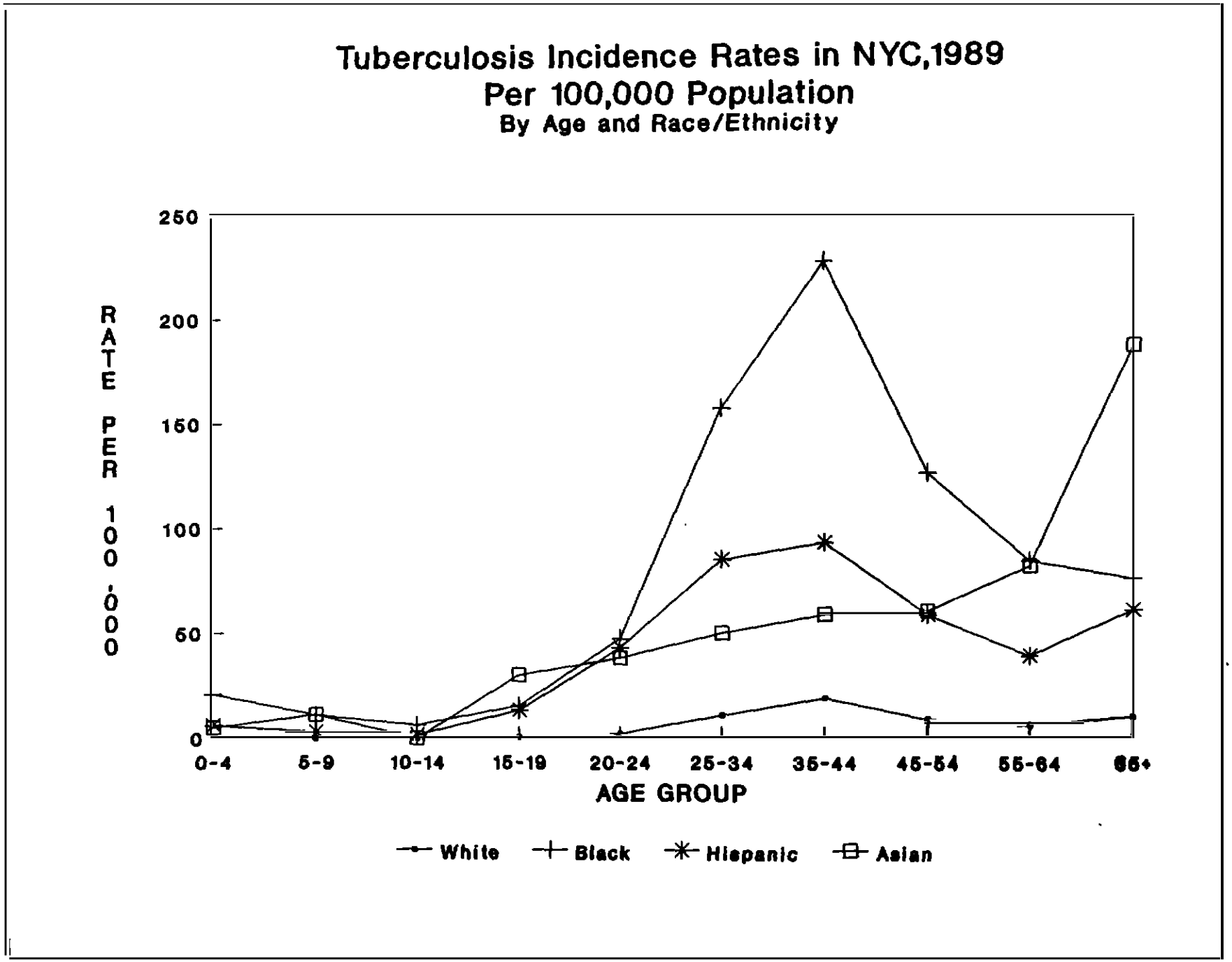

Tuberculosis Incidence Rates in NYC,1989
Per 100,000 Population
By Age and Race/Ethnicity
RATE PER 100,000
250
200
150
100
50
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE GROUP
White
Black
Hispanic
Asian

Figure 5

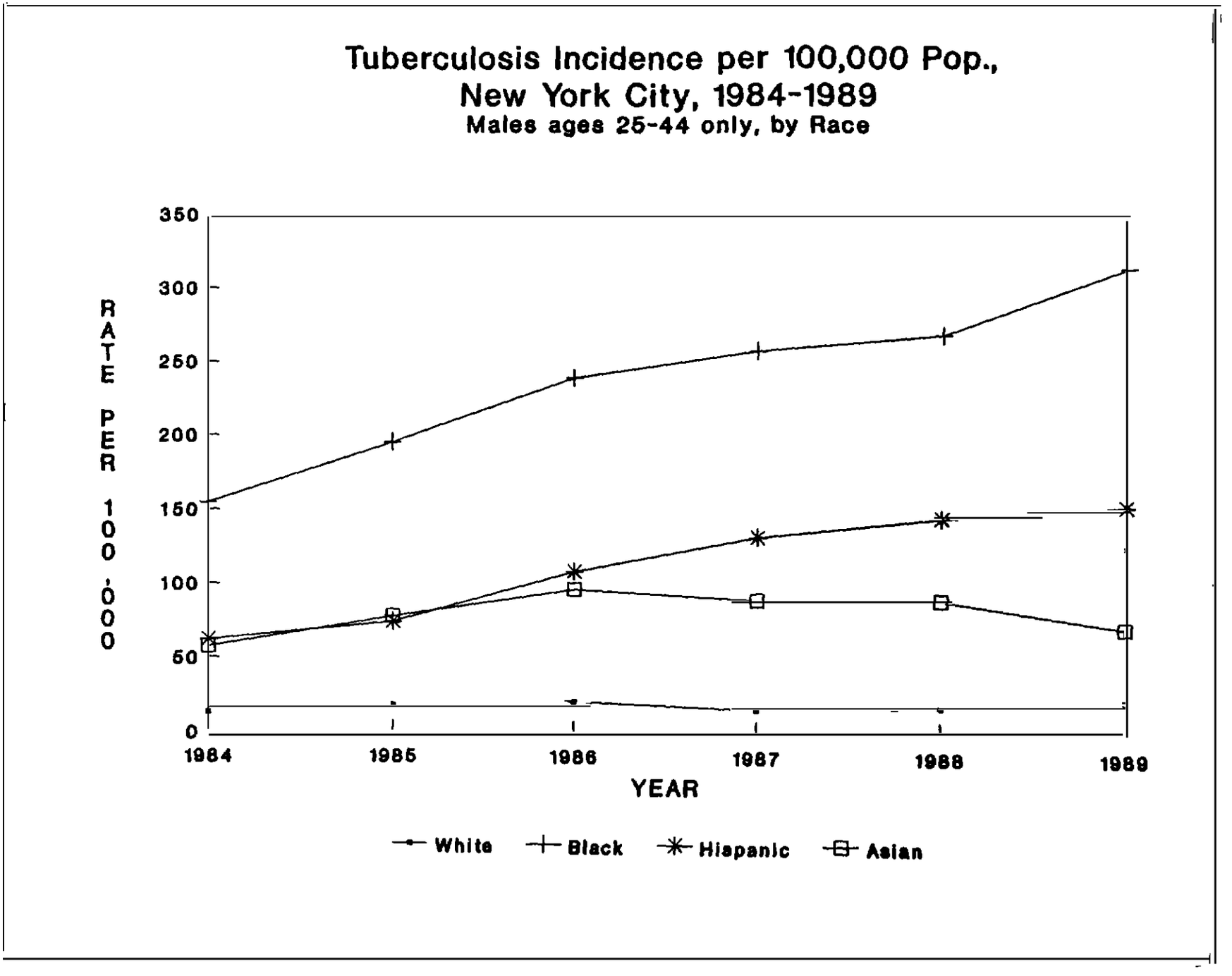

Tuberculosis Incidence per 100,000 Pop.,
New York City, 1984-1989
Males ages 25-44 only, by Race
RATE PER 100,000
350
300
250
200
150
100
50
0
1984
1985
1986
1987
1988
1989
YEAR
White
Black
Hispanic
Asian

Figure 6

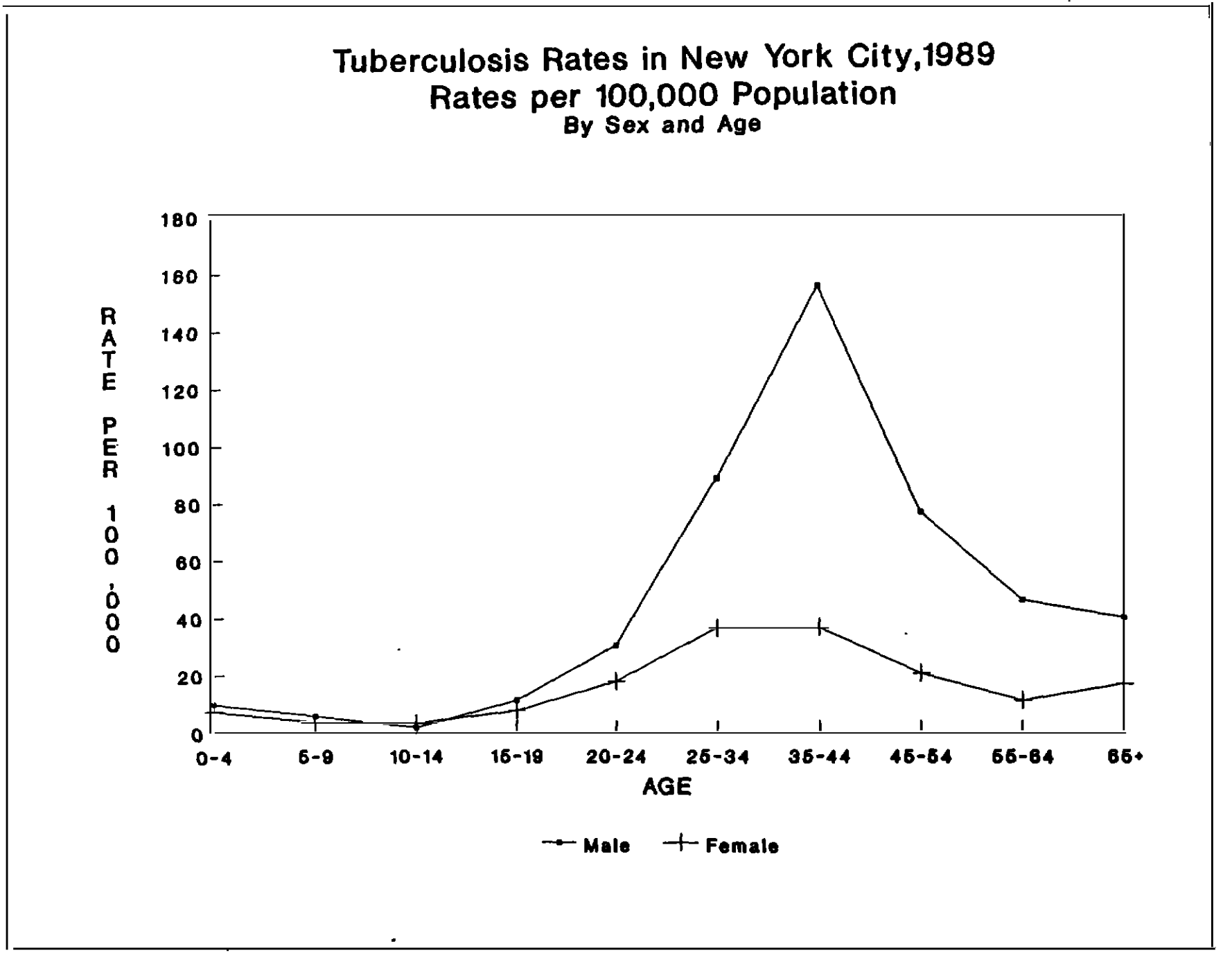

Tuberculosis Rates in New York City,1989
Rates per 100,000 Population
By Sex and Age
RATE PER 100,000
180
160
140
120
100
80
60
40
20
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
Male
Female

Figure 7

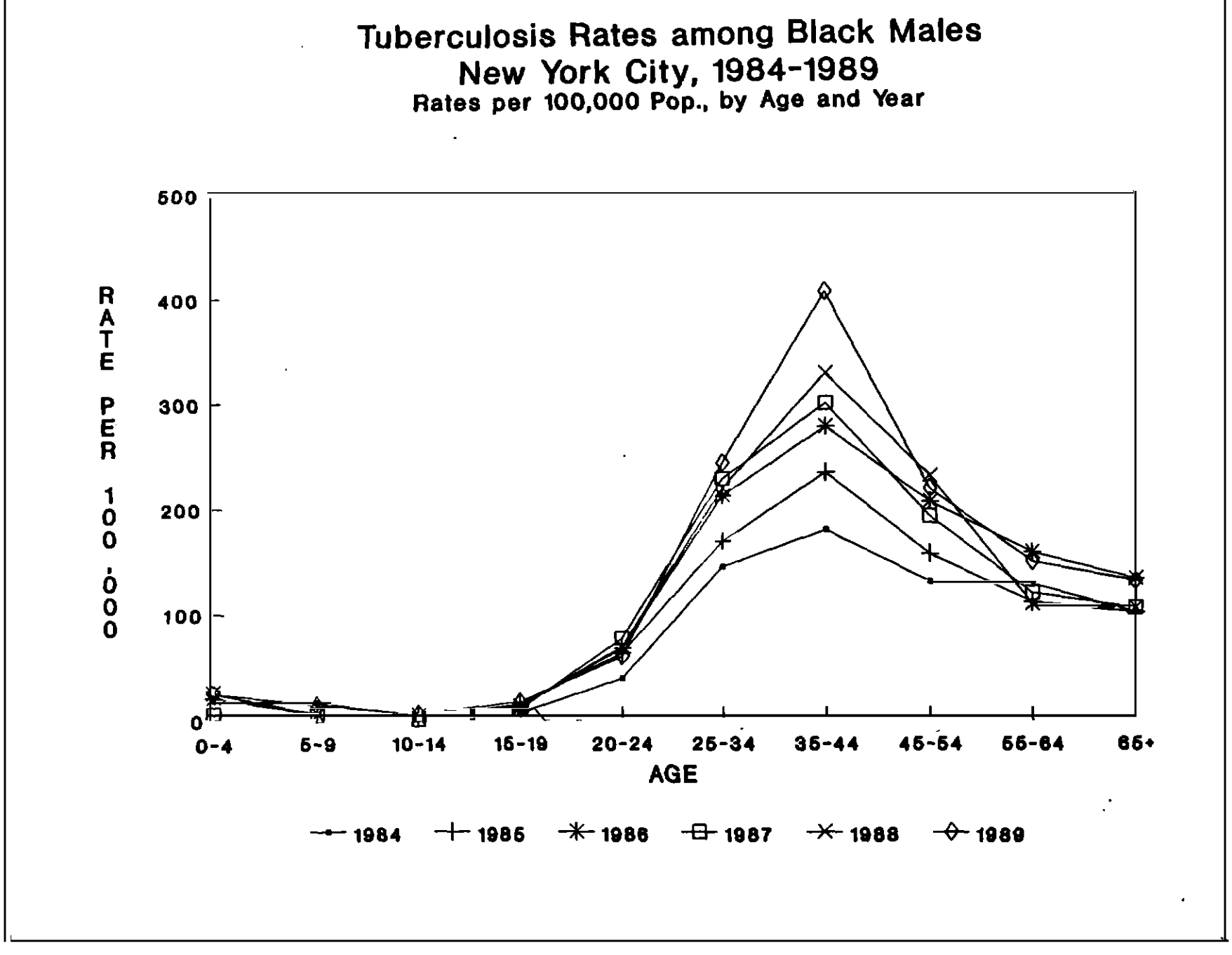

Tuberculosis Rates among Black Males
New York City, 1984-1989
Rates per 100,000 Pop., by Age and Year
RATE PER 100,000
500
400
300
200
100
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
1984
1985
1986
1987
1988
1989

Figure 8

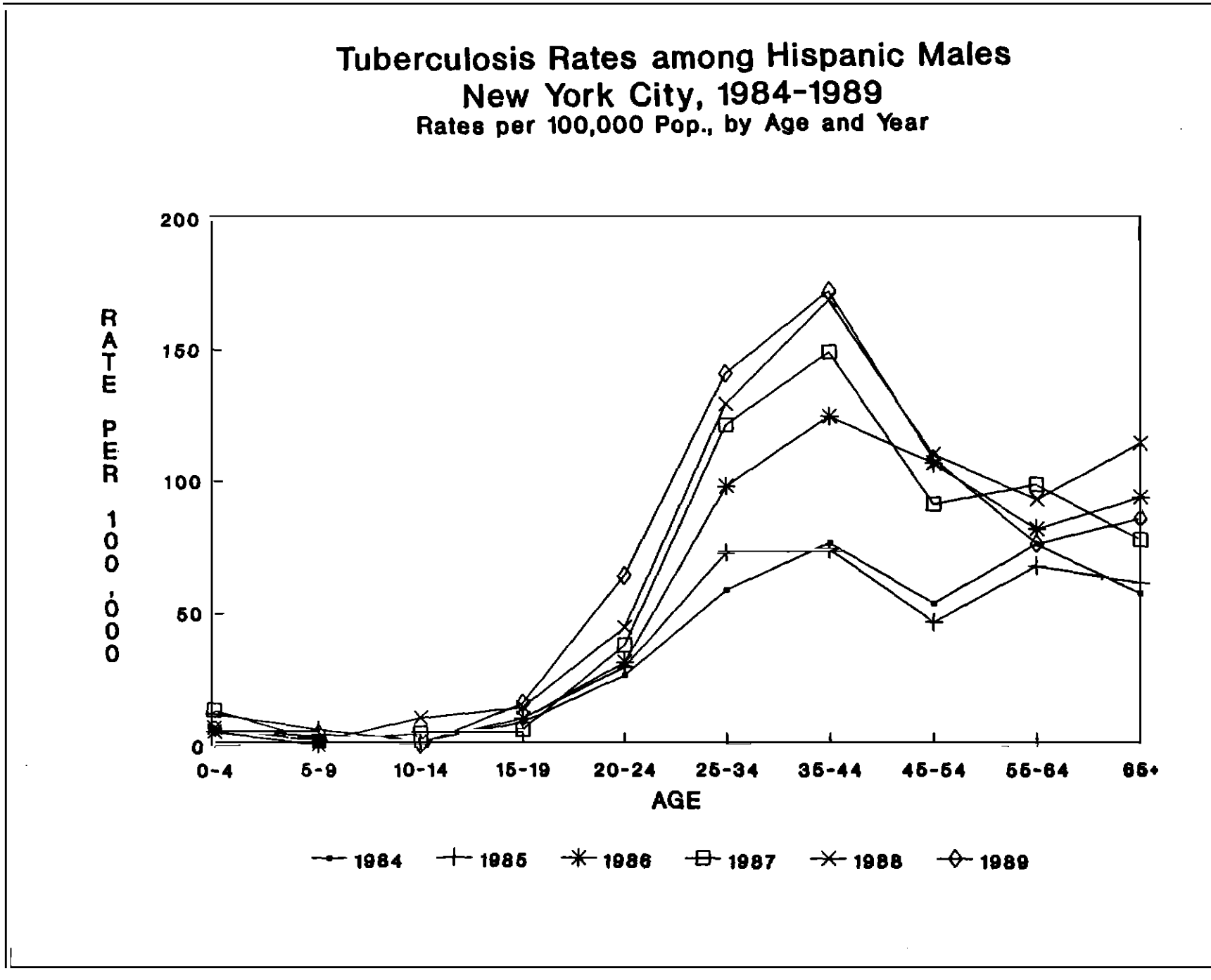

Tuberculosis Rates among Hispanic Males
New York City, 1984-1989
Rates per 100,000 Pop., by Age and Year
RATE PER 100,000
200
150
100
50
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
1984
1985
1986
1987
1988
1989

Figure 9

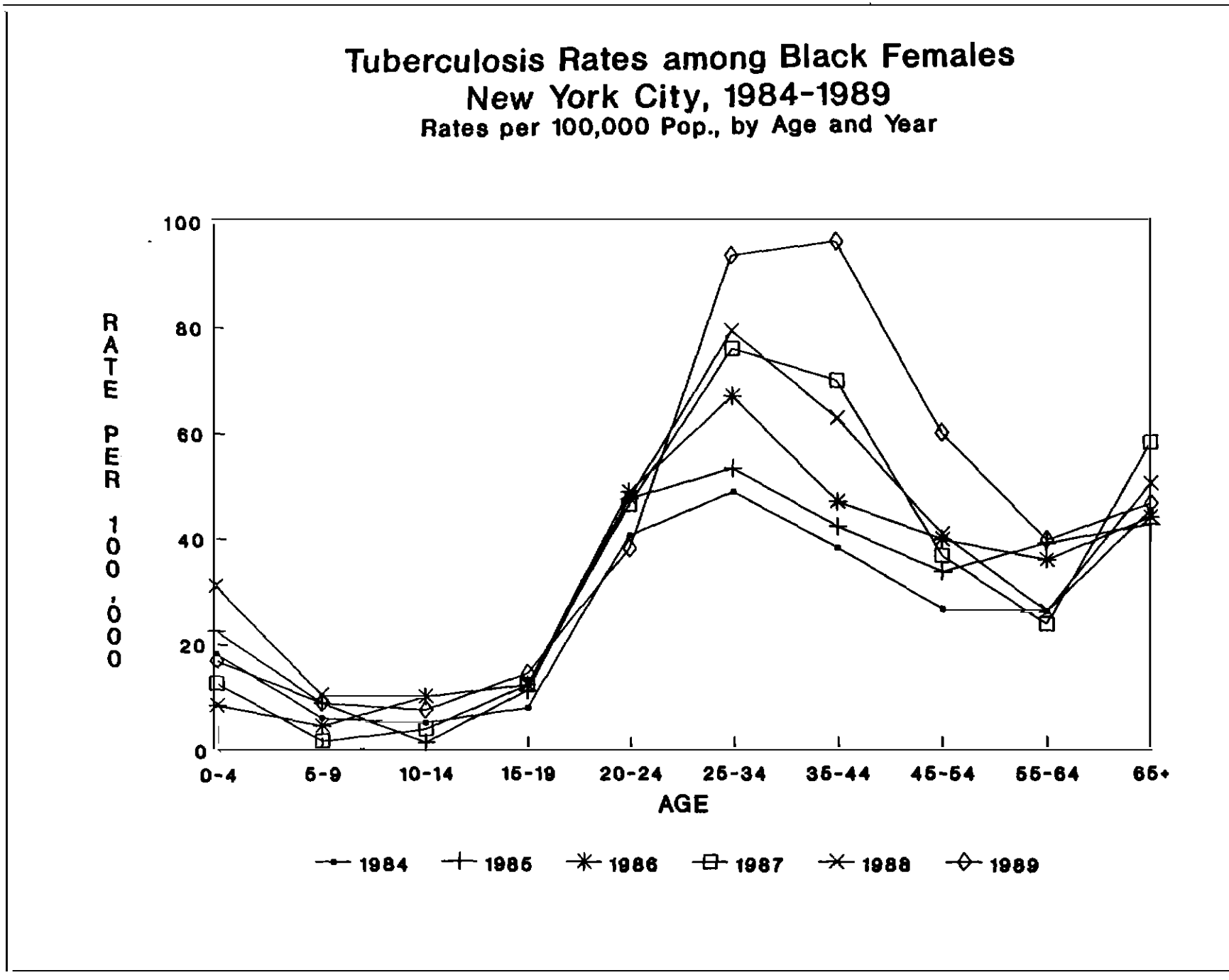
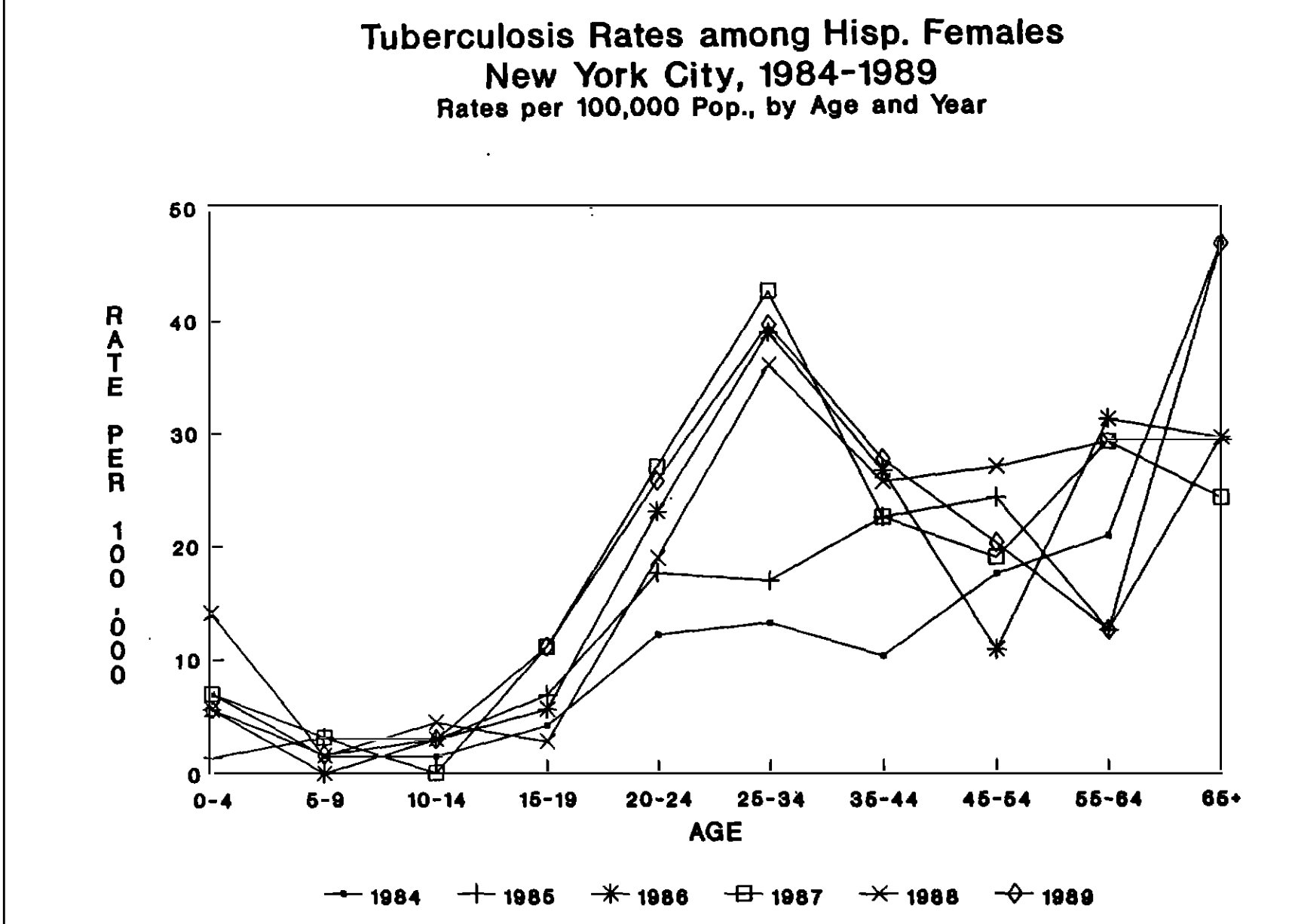

Tuberculosis Rates among Black Females
New York City, 1984-1989
Rates per 100,000 Pop., by Age and Year
RATE PER 100,000
100
80
60
40
20
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
1984
1985
1986
1987
1988
1989

Figure 10


Tuberculosis Rates among Hisp. Females
New York City, 1984-1989
Rates per 100,000 Pop., by Age and Year
RATE PER 100,000
50
40
30
20
10
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
1984
1985
1986
1987
1988
1989

MARIE DOESVILLA
RETURN TO