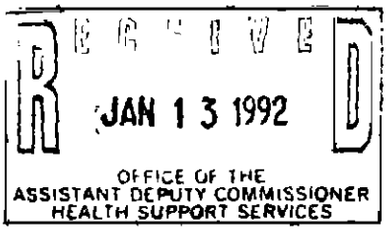
TUBERCULOSIS IN NEW YORK CITY 1990

Information Summary

Bureau of Tuberculosis Control

New York City Department of Health



Jose L. Castro, Planning

This report describes the demographic and geographic distribution of tuberculosis cases in New York City in 1990. Rate calculations of cases per 100,000 population are based upon 1980 census data.

Tuberculosis cases in New York City have continued their increasing trend in 1990. Case rates have been rising since 1979 and are now 49.8 per 100,000 population (Table 1, Figure 1), more than five times the national case rate, and New York City represents about 15% of the nation's tuberculosis cases. In 1990 there were 3,520 new cases of tuberculosis reported in the City. This incidence represents an unprecedented 38.3% annual increase over 1989's 2,545 cases and a 132% increase over 1980 when 1,514 cases were reported. The 1990 case rate is the highest in two decades (Table 1).

The unabated high incidence of disease in adults ages 25-44 (Tables 2-4, Figure 2) is of special concern because these are the individuals of child rearing age. In fact, in 1990, tuberculosis cases among children under 15 years old rose to 146, an increase of 97.3% above the 74 children reported in 1989.

Ethnic/Racial Distribution of Tuberculosis Cases

Non-Hispanic blacks (males and females) represented 58.5% of all cases (Table 2). Their case rate of 129.0 per 100,000 was the highest of any ethnic/racial group. Hispanics had a lower case rate than blacks (71.5 per 100,000) but they experienced a larger increase in incidence over the past year than did blacks (45.2% vs

36.2%). 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 9.9 per 100,000 population (Table 2) is close to the national average of 9.5. Although the Asian case rate of 62.1 is high, Asians represent a relatively small proportion of the overall city population. Preliminary 1990 census data for New York City indicates that the Asian population has more than doubled in the past 10 years, so that the incidence rates in this group are likely to be considerably lower than indicated. There were two American Indians reported in 1990, both in the age group 25-44 years.

Distribution of Tuberculosis Cases by Sex

The incidence of tuberculosis among males is about two and a half times that of females (2,490 vs 1,030 cases) - in 1990, the case rates were 55.6 and 19.1 per 100,000, respectively (Figure 6). The annual increase from 1989 to 1990 in males was 36.9%; whereas in females it was slightly higher at 42.9%.

Males

From 1989 to 1990 the incidence rate of tuberculosis for males of all ages increased 36.9%, from 55.6 cases to 76.1 cases per 100,000 population (Table 3). Among males, a large increase during the past year was among 25-44 year olds (Figure 5), a group in which the number of cases in males rose 33.5% from 1,107 to 1,478.

As in previous years, those aged 25 to 44 represented about 57% 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 188.1 per 100,000 population. The actual number of cases in this group increased 35.8% from 1,050 in 1989 to 1,426 in 1990. As in the previous six years, incidence rates among black males in 1990 peaked in the 35-44 year old age group with a case rate of 507.8 per 100,000, the highest in any age, sex, or race cohort, and almost 53 times the national average. Figure 7 shows rates among black males for the years 1984 to 1990. A steady annual increase is seen among those 25-44 years, with the peak age consistently at about 40 years.

Among the males with tuberculosis in 1990, 57.4% were in the 25-44 year age range; in 1889 and 1988, 60% were in that age group, and among black males, the proportion was 63% in 1989. Although the case rate among all males increased 36.9% over 1989, it increased in those aged 25-44 by 33.5% and in black men by 35.8%. Figure 5 depicts the trend of disease of males ages 25-44 years over the six year period, 1984 to 1990. 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 35.8% in 1990, Hispanic males experienced a 38.6% 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 1990 (317 cases vs 226 cases in 1989). Although the age-specific rates are high for Asian males, the 109 cases reported in 1989 are the smallest number for males in all ethnic/racial groups and 3 times less than that of the next lowest group. Males 65 years and older had a case rate of 150.2 per 100,000.

Females

There was a 41.9% increase among females (726 to 1030 cases) from 1989 to 1990 (Table 4). The overall incidence in black women is two and a half times that of Hispanic women, and white women have maintained the lowest rate in all ethnic/racial groups (4.1 per 100,000 population). The 61 cases among Asian women represents an increase of 45% since 1989, but the number of cases 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, 25-44 years is similar to that of males.

Figure 10 shows a large increase in incidence among Hispanic women in 1990, especially among the youngest age group and among those aged 25-34, an age peak which is slightly lower than that of Hispanic males. White females showed an increase in disease in 1990 of 19%.

Age Distribution

There was an unprecedented 97% increase in reported cases among individuals younger than 15 years - from 74 cases in 1989 to 146 cases in 1990. There was a 36.1% increase in incidence among 25-34 year olds, while those 35-44 showed a 33.9% increase. Cases among those aged 45 and older increased 43.2%, whereas in 1989 they did not increase at all. Figure 2 shows the case rates over an eight-year period by age group. As stated previously, the consistent rise in cases over time among those aged 25 - 44 is particularly striking.

Childhood Cases

The most dramatic increase in cases from 1989 to 1990 was among children under 15 years old, with an almost doubling of cases of all children in this age group in 1990. Black children represented 56 of the 107 cases (52.3%) among those aged 0 to 5 in 1989 (Table 5). There was a very large increase (355%) in cases in 1990 among Hispanic children, from 9 cases in 1989 to 41 cases in 1990, an increase of 355%.

Geographic Distribution

Age adjusted incidence rates by health district of residence were calculated for 1980, 1989 and 1990 (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.

Each of the thirty health districts experienced increases in reported cases of tuberculosis from 1989 to 1990. The five districts with the highest case rates (over 100 per 100,000) in 1990 were Central Harlem, East Harlem and the Lower East Side in Manhattan; Bedford in Brooklyn, and Morrisania in the Bronx.

Manhattan

With 1,302 cases, Manhattan had 37% of all the City's reported cases in 1990. The rate in Central Harlem remains the highest in the City at 233.4 per 100,000; the Lower East Side was second highest with a rate of 133.1; and East Harlem was third highest with a case rate of 124.2. The most notable increases were in East Harlem (71.2%) and the Lower West Side (66.7%). Overall, Manhattan experienced an increase of cases of 44.5% over 1989.

Bronx

Overall, the Bronx experienced a 40% increase in cases over 1989, whereas in 1989 they had a 0.4% decrease in cases over 1988, the only borough decrease that year. With a case rate of 112.8 per 100,000, Morrisania represents the fourth highest age-adjusted case rate in the city. Although Pelham Bay did not have a very high case rate (29.0) in comparison to the rest of the Bronx, it is notable that there was a 121% increase in cases in that health district.

Brooklyn

Brooklyn's increase of 22% over 1989 represented an additional 189 cases. Bedford had the fifth highest case rate in the City (112.7). The increase in Brooklyn cases was most prominent in Bushwick, where cases rose 67.6% since 1990. Bay Ridge, with a case rate of 10.3, had the second lowest case rate in the City.

Queens

Queens experienced a 54% increase in tuberculosis cases over last year. The highest case rate in the borough (52.0 per 100,000) was in Astoria-Long Island City, a health district which saw a 78.6% increase in the past year (from 70 cases to 125 cases).

Staten Island

Forty-one cases of tuberculosis were reported from Staten Island in 1990, yielding an age adjusted rate of 12.0 per 100,000, or the third lowest in the City. This is a 14 case increase since 1989 and represents a 51.8% increase in a borough that previously had the lowest rate in the City.

Distributions of Age-Specific Tuberculosis by Area of Birth

In 1990, 20.6% all newly reported cases of tuberculosis occurred among individuals born outside the continental United States (Table 7). During the six previous years, approximately one-quarter of all cases were in this category. The Caribbean area accounted for 366 of the 725 (50.4%) of those born outside the continental United States, the largest group represented. A total

of 70 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 indicated, 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 1990, 201 Class A and 2,068 Class B aliens were screened within two weeks of entering into the U.S. Among these there were two Class A and no Class B immigrants identified to have tuberculosis on the basis of a positive culture for M.tuberculosis.

Table 8 summarizes these data for the years 1977 to 1990. Except for 1987, the number of Class A aliens entering the country has increased slowly over the past 12 years. However, the numbers of Class B aliens has shown an increasing trend over the past four years, although there was a decrease of 17% from 1989 to 1990.

Location of Disease

In 1990 pulmonary tuberculosis accounted for 83.4% of all cases. Of persons with extrapulmonary disease, lymphatic tuberculosis was the most prevalent form of disease. Of all cases reported in 1990, 4.3% had both pulmonary and extrapulmonary disease, a decrease from the 8.3% reported in 1989. 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 118 reactivated cases in 1990, which represents a 34.0% increase over the 88 reactivated cases reported in 1989 (Table 10). Seventy-seven per cent of reactivators were males, and 63.6% of these reactivated cases occurred among those ages 25-44 years old. Reactivators accounted for 3.4% 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 1990 there were 250 deaths in New York City with tuberculosis listed as the underlying cause on the death certificate. The crude tuberculosis mortality rate of 3.5 is a slight increase from 1989. (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 1

Tuberculosis Incidence
New York City 1970 - 1990

Year	Number*	Rate Per 100,000**
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

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

** Population based on 1960, 1970 and 1980 census.

TABLE 2

Tuberculosis Incidence Rates (per 100,000)
By Race/Ethnicity and Age, Sexes Combined
New York City, 1990

Race	N (Rate) 0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
					Age Group						
White	5	2	-	4	9	69	98	51	50	110	398
	(3.2)	(1.3)	-	(1.8)	(3.1)	(11.2)	(25.3)	(12.2)	(10.1)	(14.8)	(9.9)
Black	56	13	7	37	97	605	636	304	161	142	2058
	(39.4)	(9.5)	(4.3)	(20.9)	(64.6)	(222.3)	(288.0)	(177.0)	(115.1)	(116.0)	(129.0)
Hispanic	41	7	8	14	57	282	261	114	65	53	902
	(28.3)	(5.3)	(5.8)	(9.7)	(42.0)	(113.5)	(145.3)	(85.6)	(77.2)	(80.7)	(71.5)
Asian	5	-	2	9	11	38	28	24	21	22	160
	(9.1)	-	(9.2)	(40.3)	(40.1)	(58.4)	(63.0)	(83.3)	(106.3)	(110.6)	(62.1)
Am. Indian	-	-	-	-	-	1	1	-	-	-	2
Total	107	22	17	64	173	996	1024	493	297	327	3520
	(22.7)	(4.9)	(3.4)	(11.3)	(28.7)	(82.9)	(123.0)	(65.5)	(40.3)	(34.4)	(49.8)

TABLE 3

Tuberculosis Incidence Rates(per 100,000) in Males,
by Race/Ethnicity and Age
New York City, 1990

Race	N (Rate) 0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
	Age Group										
White	3	1	-	3	6	56	85	48	37	78	317
	(3.7)	(1.2)	-	(2.7)	(4.2)	(18.2)	(44.6)	(24.2)	(16.7)	(27.5)	(18.5)
Black	26	4	5	14	54	406	477	239	120	79	1426
	(36.5)	(5.9)	(6.2)	(9.3)	(82.1)	(345.2)	(507.8)	(328.9)	(209.1)	(178.9)	(188.1)
Hispanic	16	5	3	9	37	185	221	86	51	33	646
	(21.7)	(7.5)	(4.3)	(12.7)	(60.3)	(165.3)	(271.0)	(146.7)	(142.2)	(133.2)	(98.5)
Asian	2	-	1	4	5	27	18	18	10	14	99
	(15.1)	-	(9.0)	(35.1)	(42.0)	85.3	(74.2)	(122.9)	(103.1)	(150.2)	(66.3)
Am. Indian	-	-	-	-	-	1	1	-	-	-	2
TOTAL	47	10	9	30	102	676	802	391	219	204	2490
	(19.7)	(4.4)	(3.5)	(10.8)	(36.3)	(118.7)	(206.2)	(113.7)	(67.4)	(56.3)	(76.1)

TABLE 4

Tuberculosis Incidence Rates (per 100,000) in Females,
By Race/Ethnicity and Age
New York City, 1990

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	2	1	-	1	3	13	13	3	13	32	81
	(2.6)	(1.3)	-	(.9)	(2.0)	(4.2)	(6.6)	(1.4)	(4.8)	(7.0)	(4.1)
Black	30	9	2	23	43	199	158	65	40	63	632
	(42.4)	(13.2)	(2.5)	(25.3)	(50.9)	(128.8)	(124.8)	(65.6)	(49.0)	(80.5)	(67.6)
Hispanic	25	2	5	5	20	97	40	28	14	20	256
	(35.2)	(3.1)	(7.3)	(6.8)	(26.9)	(71.0)	(40.8)	(37.6)	(29.0)	(48.9)	(34.1)
Asian	3	-	1	5	5	11	11	6	11	8	61
	(23.2)	-	(9.4)	(45.8)	(38.4)	(32.4)	(51.1)	(42.4)	(109.4)	(75.7)	(40.9)
TOTAL	60	12	8	34	71	320	222	102	78	123	1030
	(26.0)	(5.5)	(3.2)	(12.0)	(22.0)	(50.6)	(50.0)	(25.0)	(18.9)	(20.9)	(27.2)

TABLE 5

Tuberculosis Cases by Race, Ethnicity and Age In Children Under 5 Years 1990

	Age In Months					
	0-11	12-23	24-35	36-47	48-59	TOTAL
White	1	3	1	-	-	5
Black	14	21	12	6	3	56
Hispanic	4	15	8	6	8	41
Asian	2	1	1		1	5
TOTAL	21	40	22	12	12	107

TABLE 6

Age-adjusted* Tuberculosis Rates
New York City, 1980, 1986, and 1987

Borough	Health District	Cases	Rate per 100,000 Pop.		
		1990	1990	1989	1980
Manhattan	Central Harlem	275	233.4	175.6	78.6
	East Harlem	149	124.2	71.8	27.5
	Kips Bay-Yorkville	22	7.4	6.4	9.9
	Lower East Side	330	133.1	95.8	68.3
	Lower West Side	210	62.0	37.3	34.6
	Riverside	149	64.7	41.7	27.9
	Washington Heights	172	71.6	53.9	26.5
Bronx	Fordham-Riverdale	79	35.0	25.4	16.5
	Morrisania	131	112.8	91.1	31.4
	Mott Haven	91	83.8	73.7	28.8
	Pelham Bay	64	29.0	13.8	9.8
	Tremont	134	82.5	64.1	33.3
	Westchester	65	24.0	17.4	9.3
Brooklyn	Bay Ridge	27	10.3	7.4	8.8
	Bedford	224	112.7	91.9	46.7
	Brownsville	149	59.5	45.1	21.4
	Bushwick	124	85.0	52.1	37.0
	Flatbush	174	36.7	32.0	18.2
	Fort Greene	122	84.3	84.6	55.2
	Gravesend	52	19.2	16.6	13.2
	Red Hook-Gowanus	47	39.4	30.5	24.2
	Sunset Park	42	27.4	23.8	15.8
	W'burg-Gnspt.	83	65.0	57.5	27.0
Queens	Astoria-L.I.C.	125	52.0	29.1	17.7
	Corona	104	38.2	25.3	13.5
	Flushing	73	15.9	11.0	10.3
	Jamaica East	140	46.7	29.6	17.8
	Jamaica West	82	24.7	15.5	8.6
	Maspeth-Forest Hills	40	14.9	10.1	5.7
Staten Island	Richmond	41	12.0	8.0	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, 1990

	AGE GROUPS							
AREA OF BIRTH	0-9	10-19	20-24	25-34	35-44	45-54	55+	Total
AFRICA	-	-	1	16	5	2	3	27
EUROPE	4	-	1	6	12	7	26	56
CENTRAL/SOUTH AMERICA	6	4	21	36	25	12	16	120
CARIBBEAN*	3	12	12	104	112	62	61	366
SOUTHEAST ASIA	-	4	5	12	7	4	8	40
INDO/PAKISTAN	1	1	5	8	8	5	3	31
ASIA	1	3	4	21	7	15	25	76
OTHER	-	-	-	-	4	-	4	9
TOTAL NON CONTINENTIAL U.S.A.*	15	24	49	204	180	107	146	725
CONTINENTAL USA	114	57	124	792	844	386	478	2795
TOTAL	129	81	173	996	1024	493	624	3520

*Includes Puerto Rico

TABLE 8

Tuberculosis Screening and Cases Identified among Immigrants*
1977-1990

	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
1990	201	2	2,068	0	2,269

*Within two weeks of arrival in U.S.

TABLE 9

LOCATION OF DISEASE

	1990		1989	
Pulmonary	2,937	83.4%	2,120	83.3%
Lymphatic	150	4.3%	126	4.9%
Pleural	132	3.8%	94	4.5%
Bone/Joint	72	2.0%	48	2.0%
Meningeal	57	1.6%	33	1.0%
Miliary	28	.8%	18	.9%
Genitourinary	52	1.5%	23	1.7%
Peritoneal	18	.5%	39	.6%
Other	74	2.1%	44	1.9%
Pulmonary and Extrapulmonary	151	4.3%	183	8.3%

TABLE 10

Newly Reported Tuberculosis Cases With Disease Again (Reactivation) By Sex and Age New York City, 1990

	AGE GROUP							
SEX	0-4	15-19	20-24	25-44	45-54	55-64	65+	TOTAL
Male	-	-	2	57	15	11	6	91
Female	1	1	2	18	3	2	-	27
TOTAL	1	1	4	75	18	13	6	118

TABLE 11

Tuberculosis Deaths and Rates (per 100,000)
New York City, 1978 - 1990

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
1990	250	3.5

FIGURE 1

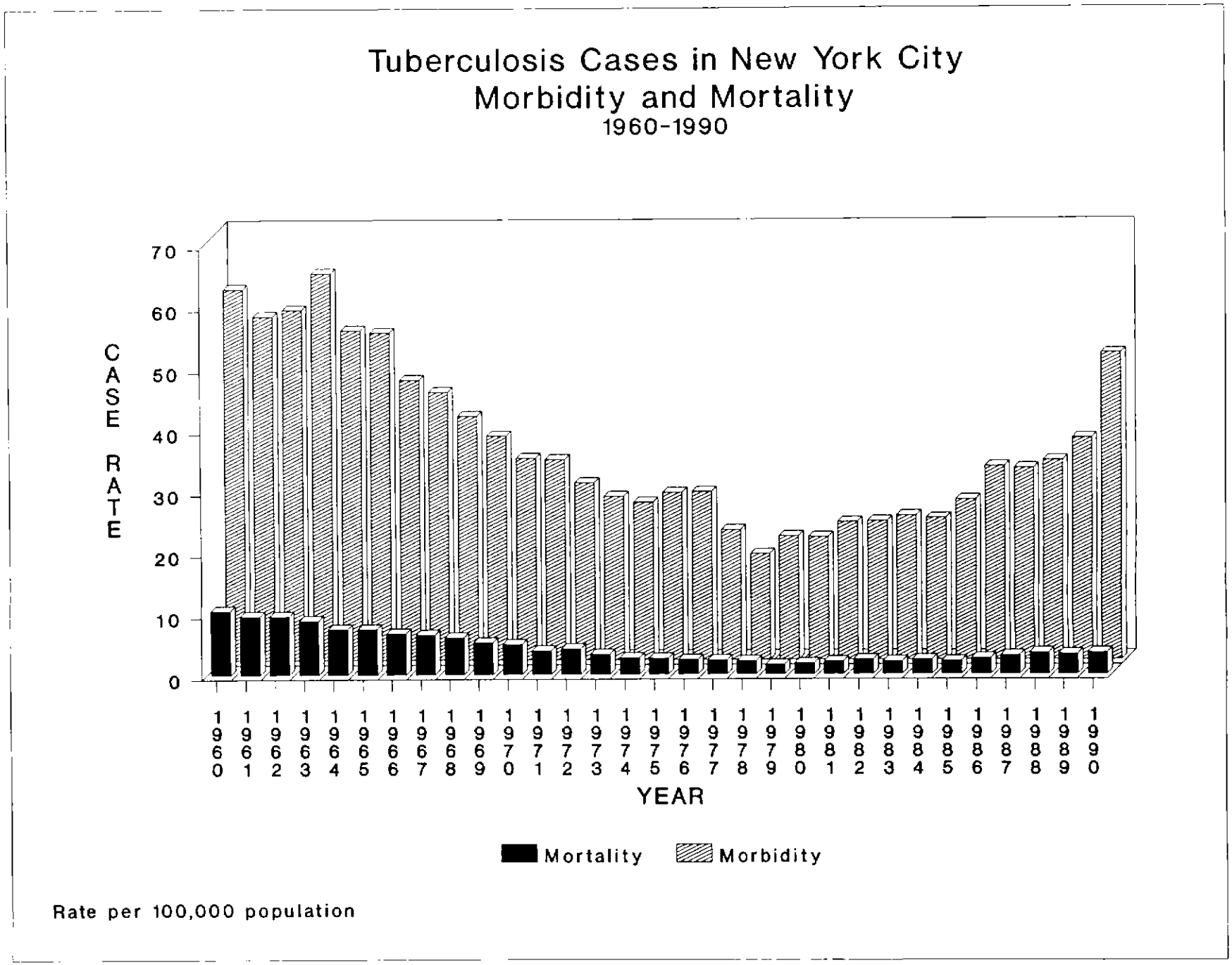

Tuberculosis Cases in New York City
Morbidity and Mortality
1960-1990
CASE RATE
70
60
50
40
30
20
10
0
1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990
YEAR
Mortality
Morbidity
Rate per 100,000 population

FIGURE 2

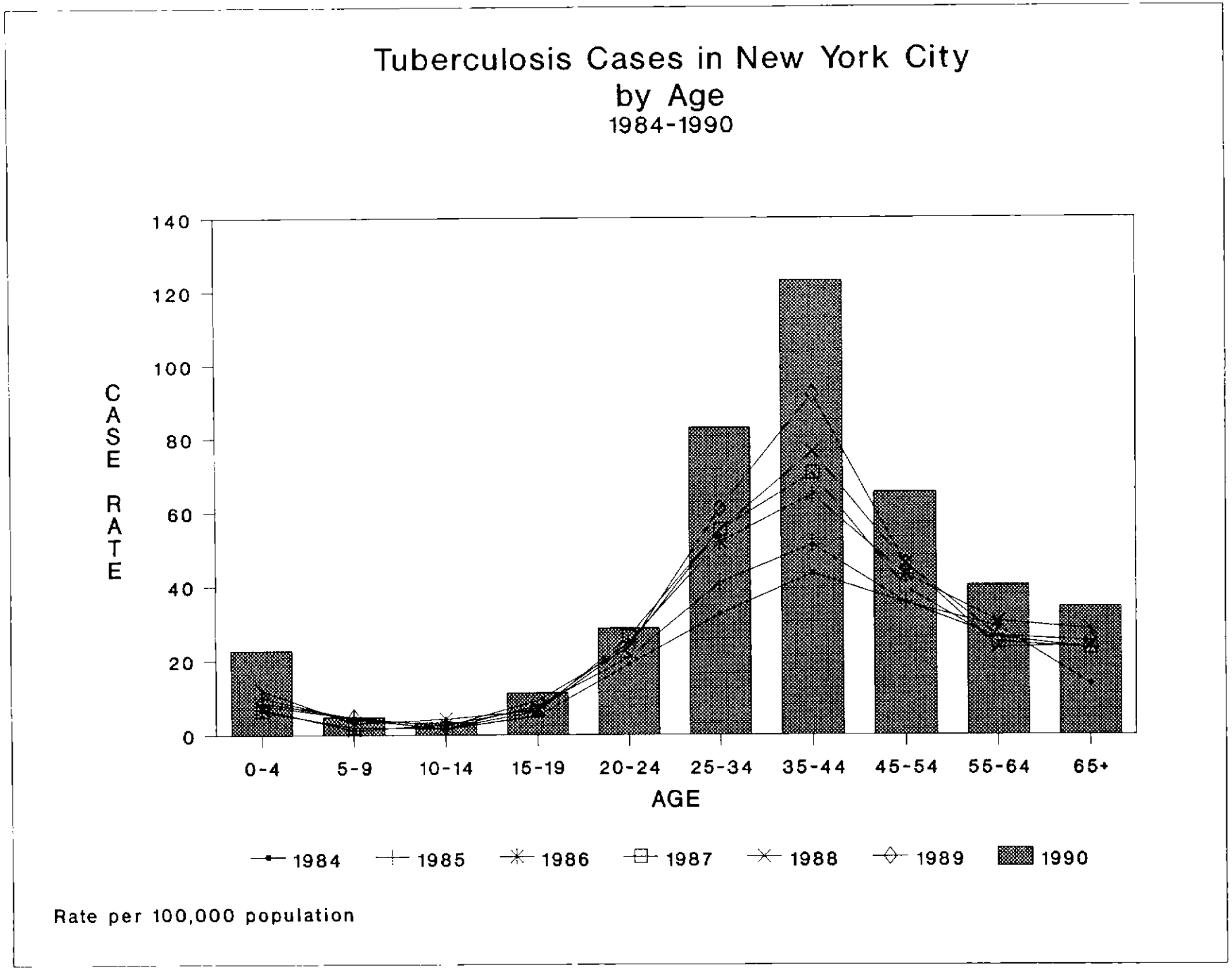

Tuberculosis Cases in New York City
by Age
1984-1990
CASE RATE
140
120
100
80
60
40
20
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
1984
1985
1986
1987
1988
1989
1990
Rate per 100,000 population

FIGURE 3

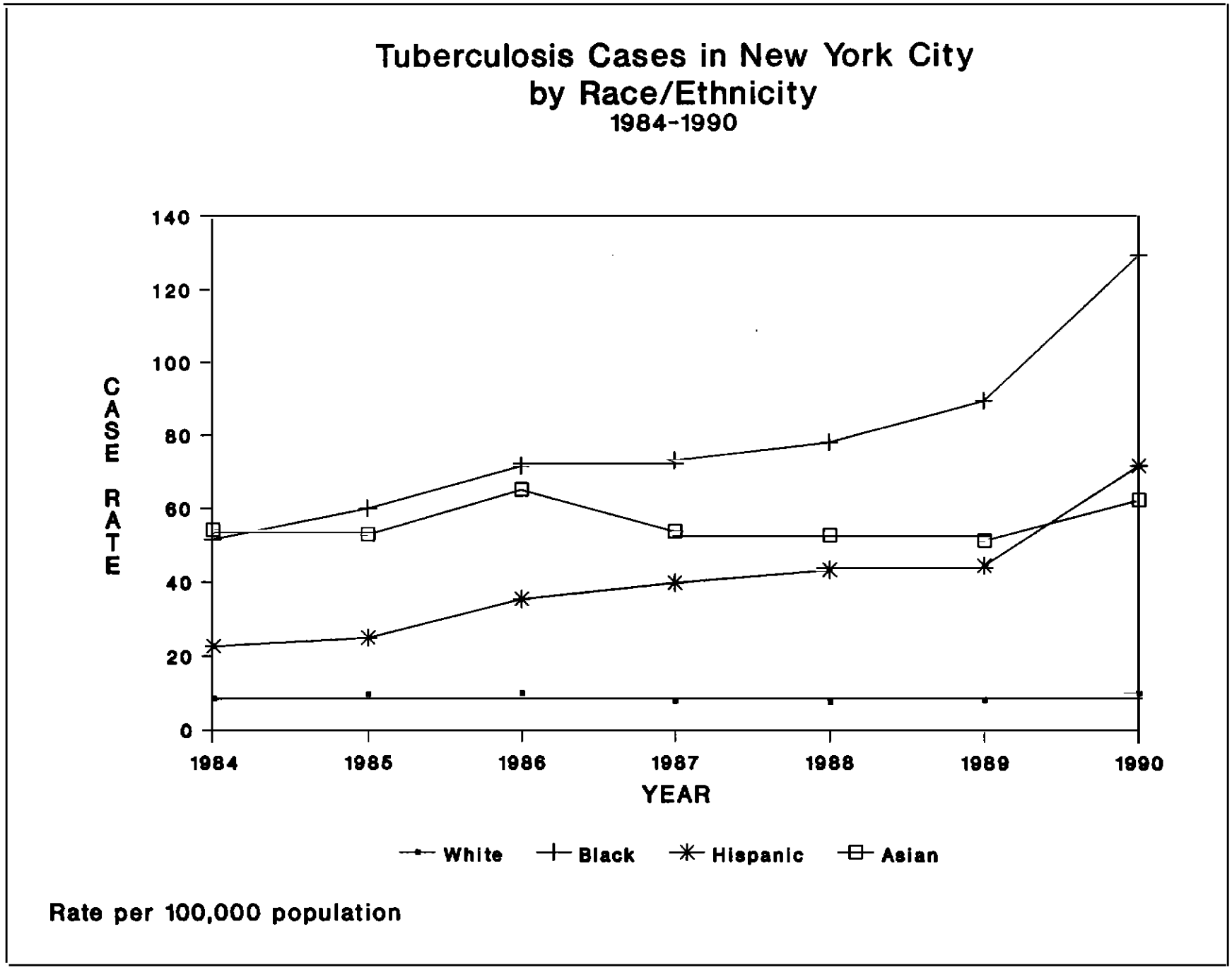

Tuberculosis Cases in New York City
by Race/Ethnicity
1984-1990
CASE RATE
140
120
100
80
60
40
20
0
1984
1985
1986
1987
1988
1989
1990
YEAR
White
Black
Hispanic
Asian
Rate per 100,000 population

FIGURE 4

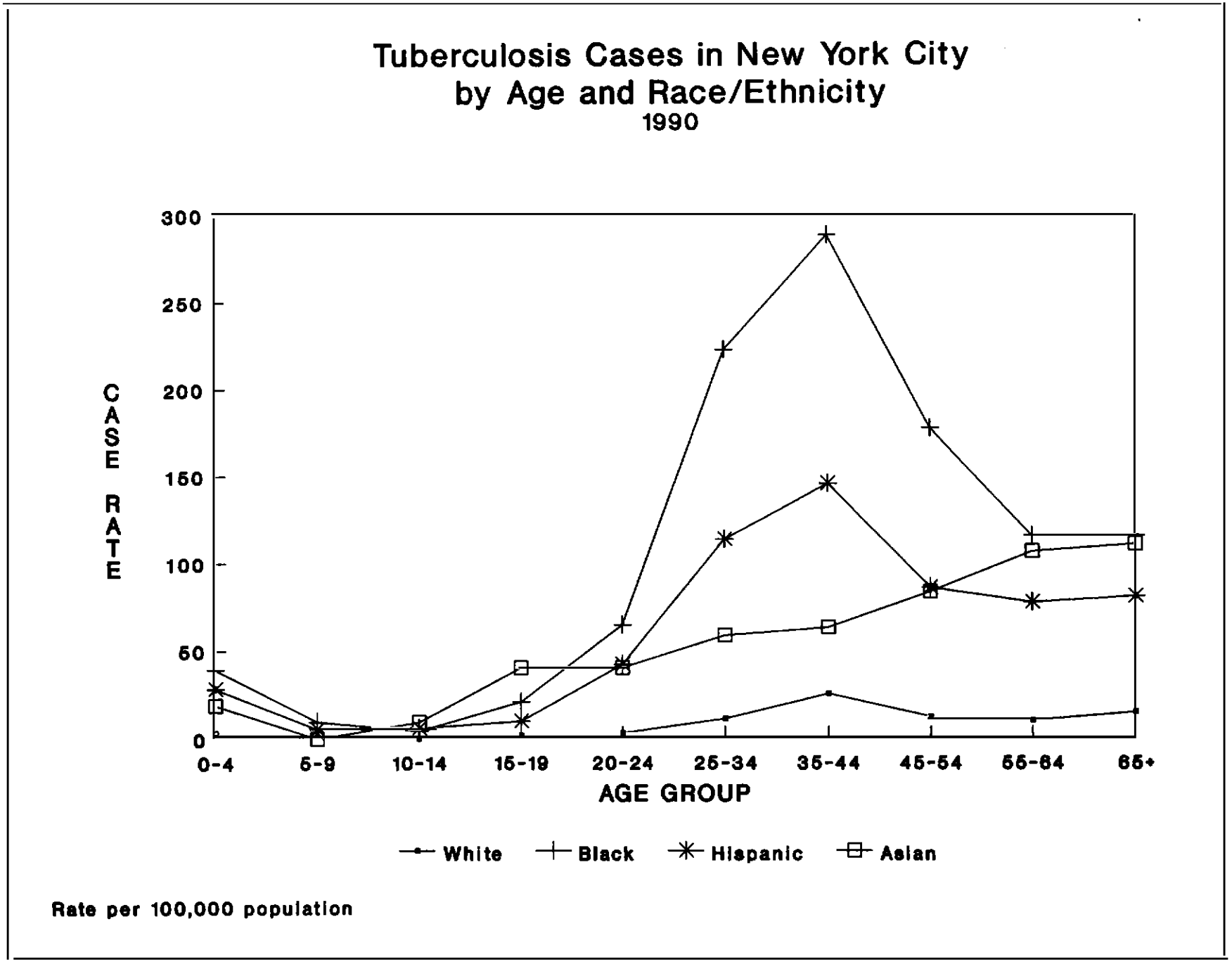

Tuberculosis Cases in New York City
by Age and Race/Ethnicity
1990
CASE RATE
300
250
200
150
100
50
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE GROUP
White
Black
Hispanic
Asian
Rate per 100,000 population

FIGURE 5

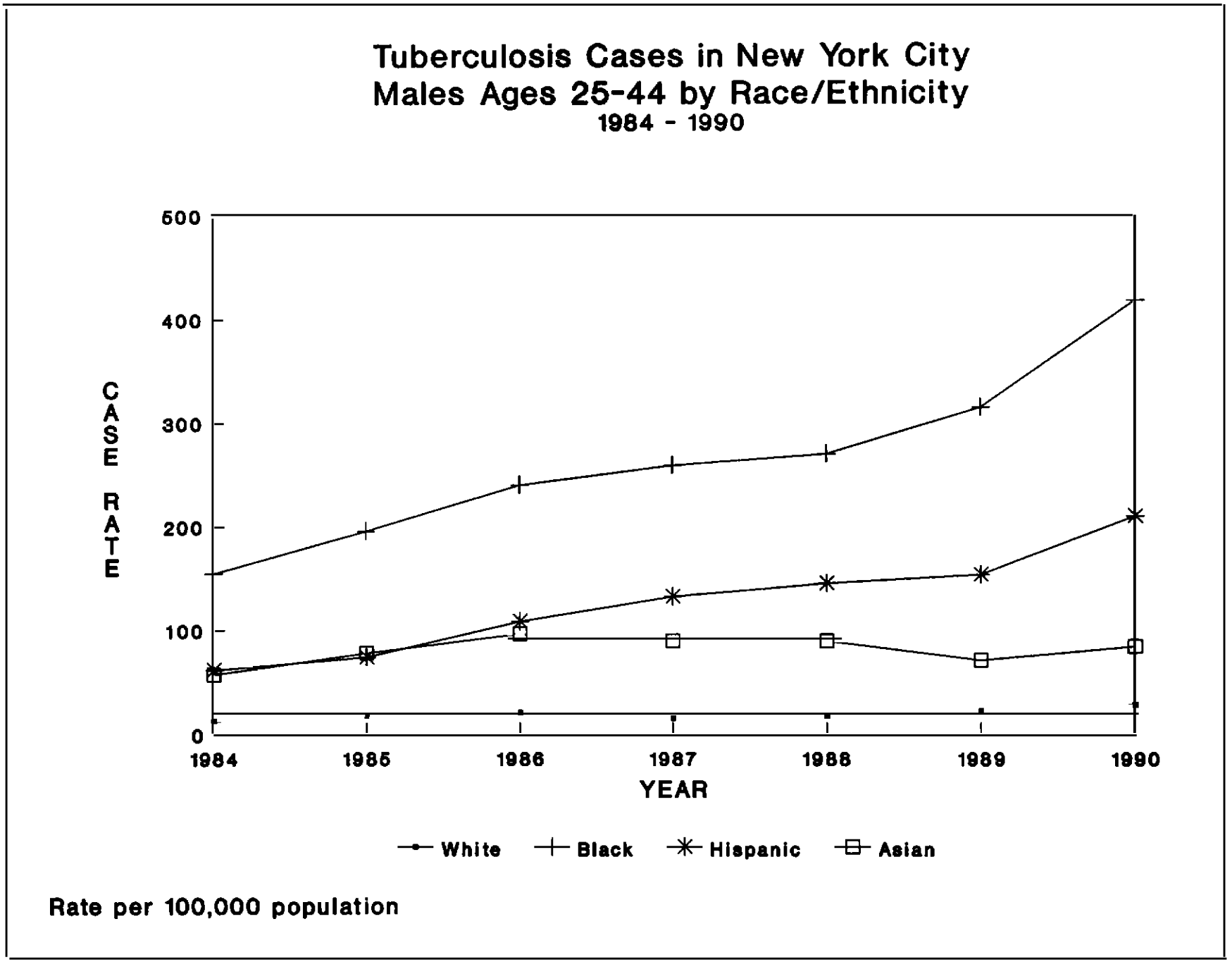

Tuberculosis Cases in New York City
Males Ages 25-44 by Race/Ethnicity
1984 - 1990
CASE RATE
500
400
300
200
100
0
1984
1985
1986
1987
1988
1989
1990
YEAR
White
Black
Hispanic
Asian
Rate per 100,000 population

FIGURE 6

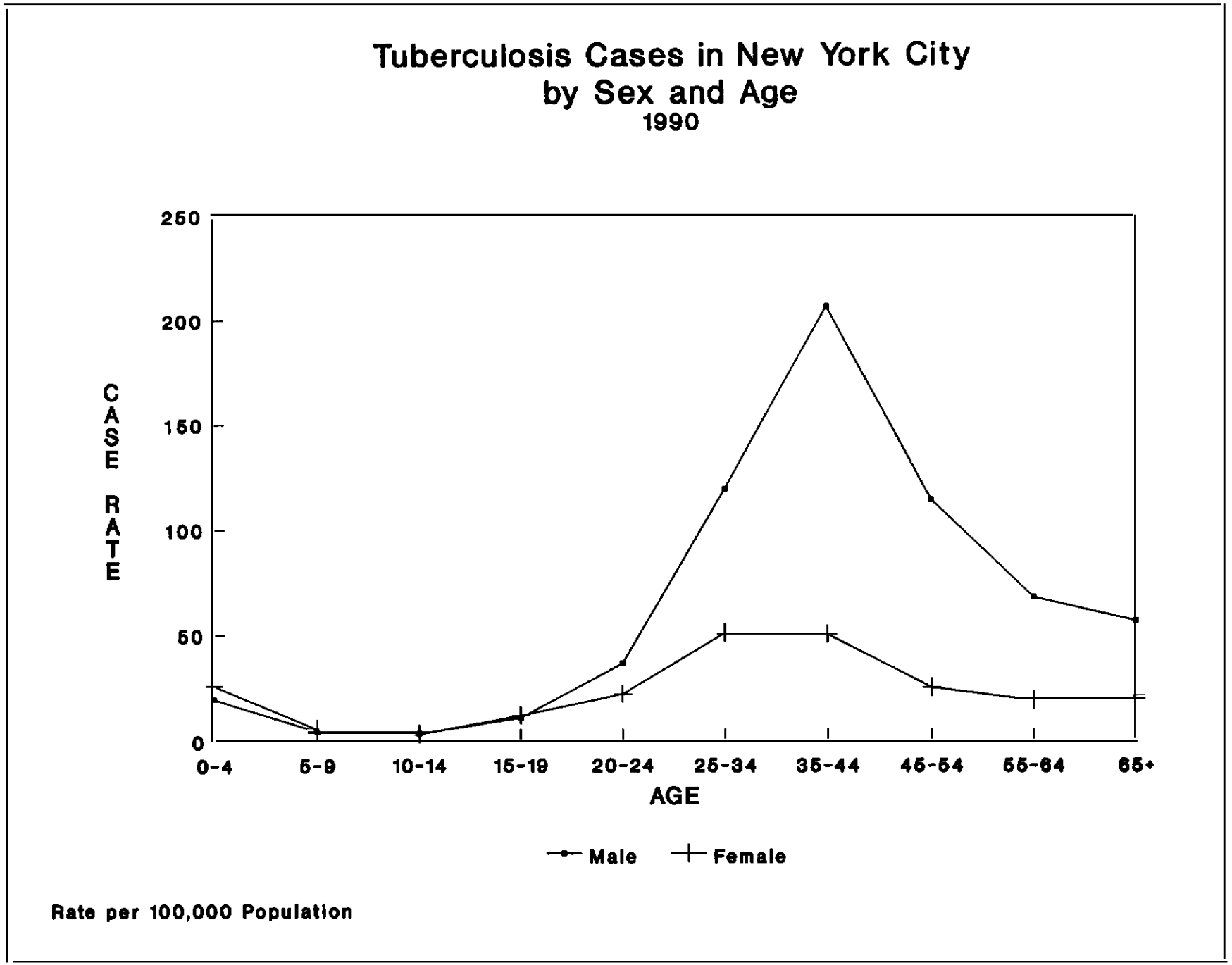

Tuberculosis Cases in New York City
by Sex and Age
1990
CASE RATE
250
200
150
100
50
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
Male
Female
Rate per 100,000 Population

FIGURE 7

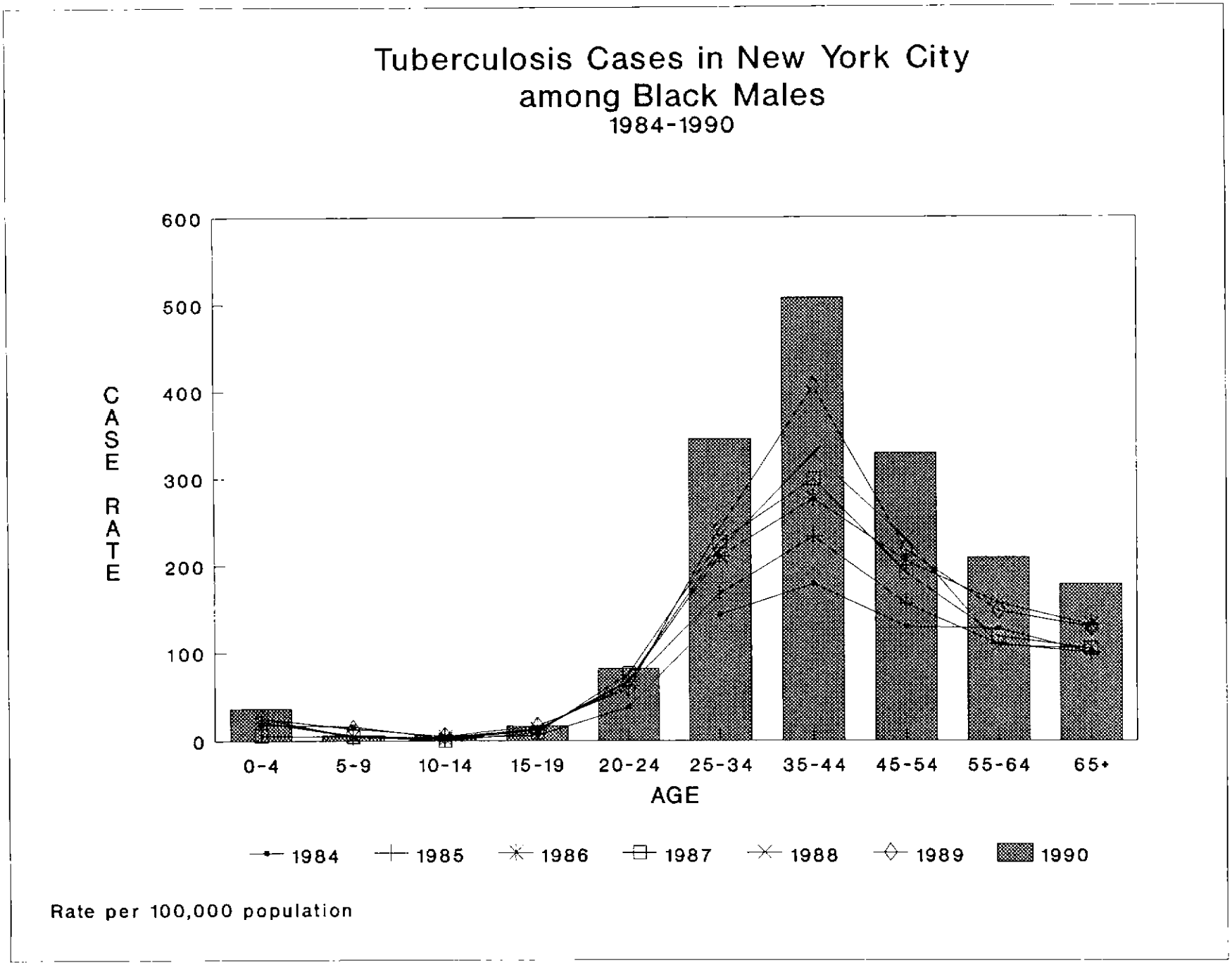
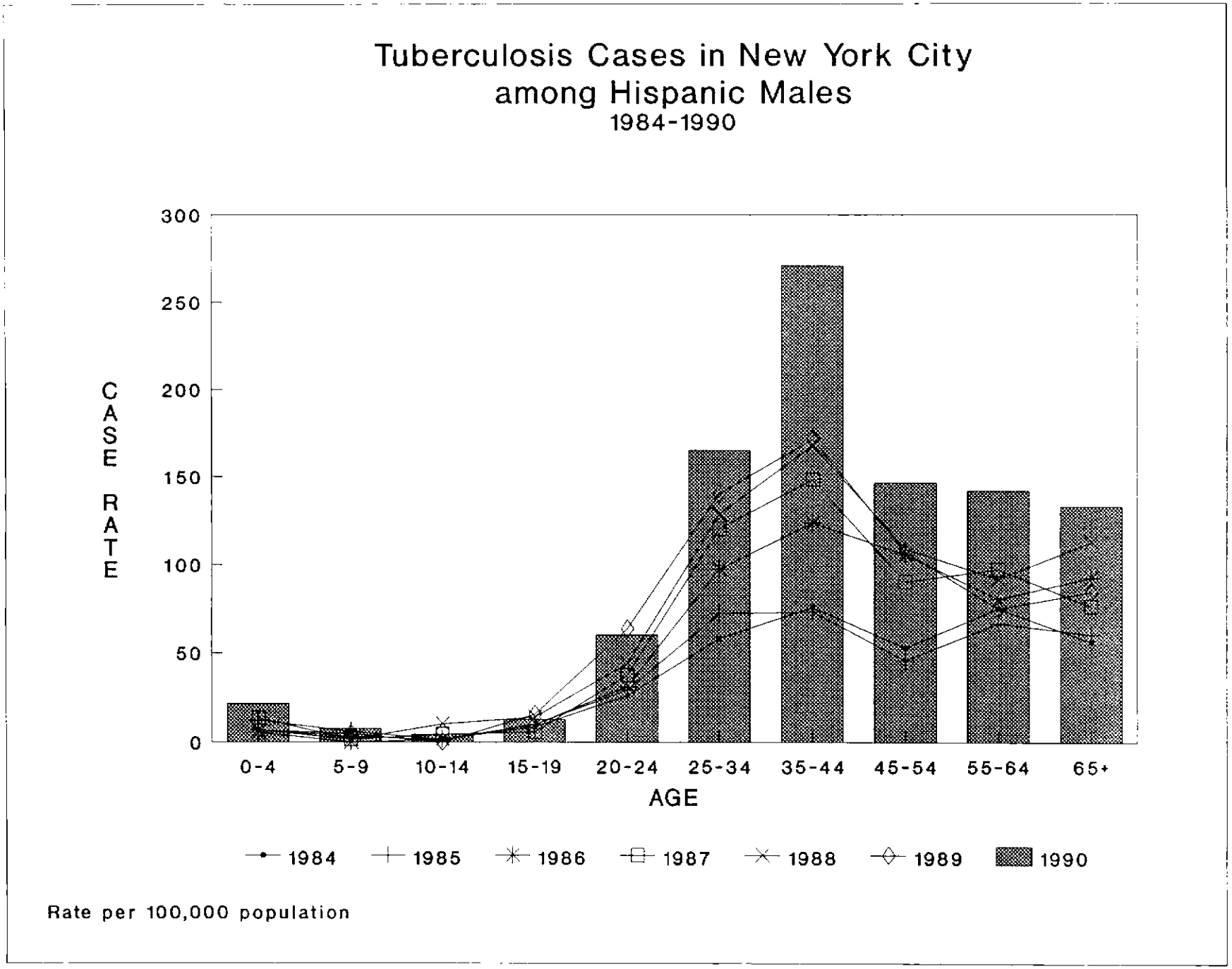

Tuberculosis Cases in New York City
among Black Males
1984-1990
CASE RATE
600
500
400
300
200
100
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
1984
1985
1986
1987
1988
1989
1990
Rate per 100,000 population

FIGURE 8


Tuberculosis Cases in New York City
among Hispanic Males
1984-1990
CASE RATE
300
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
1984
1985
1986
1987
1988
1989
1990
Rate per 100,000 population

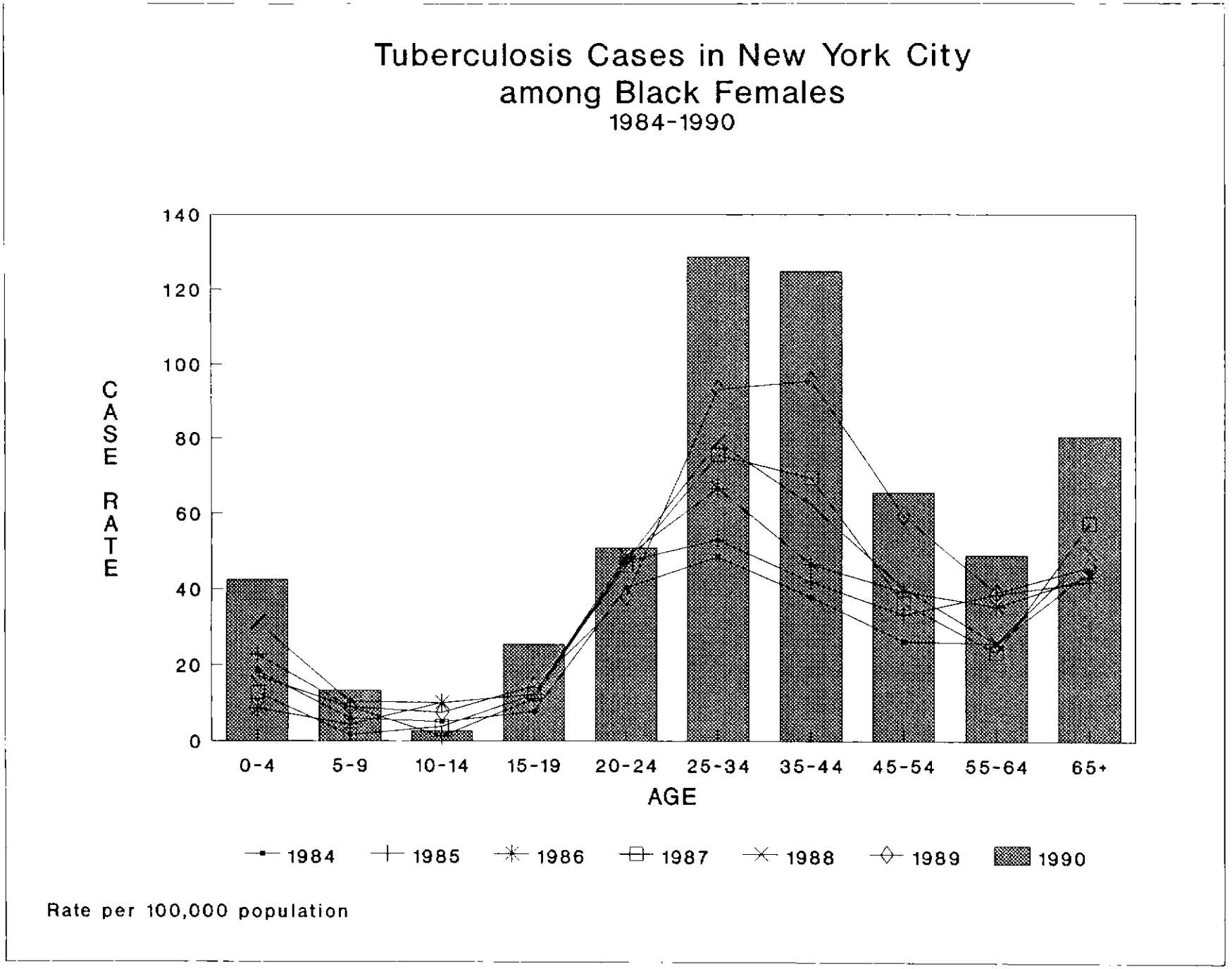
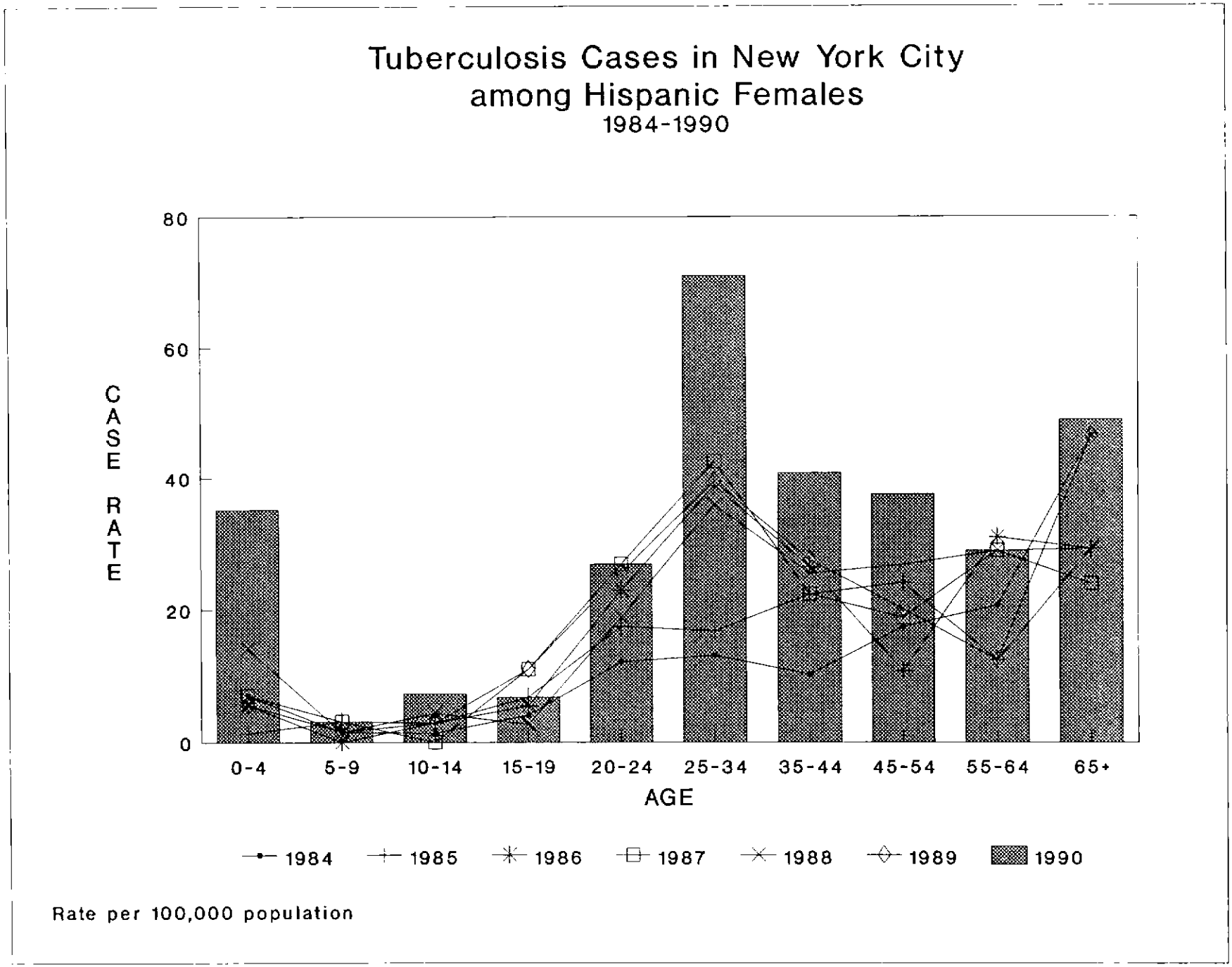

Tuberculosis Cases in New York City
among Black Females
1984-1990
CASE RATE
140
120
100
80
60
40
20
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE
1984
1985
1986
1987
1988
1989
1990
Rate per 100,000 population

FIGURE 10


Tuberculosis Cases in New York City
among Hispanic Females
1984-1990
CASE RATE
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
1990
Rate per 100,000 population

RETURN TO
MARIE BOISSONNEAU