TUBERCULOSIS IN NEW YORK CITY

1988

DATA SUMMARY

NEW YORK CITY / DEPARTMENT OF HEALTH

The City of New York

DEPARTMENT OF HEALTH

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B U R E A U O F T U B E R C U L O S I S

M E S S A G E F R O M T H E D I R E C T O R

This summary presents mortality, morbidity, and epidemiologic data on tuberculosis in New York City for 1988. Both TB cases and deaths increased during this year. The most dramatic rates continue to occur in the young, especially among Black and Hispanic people betwen the ages of 25 and 44.

I want to acknowledge the dedicated work of our Central Records and Computer Services staff in the compilation, preparation, and evaluation of this data.

Sincerely,

Jack J. Adler MD

Jack J. Adler, M.D., F.A.C.P.
Director
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JJA:pm

Tuberculosis in New York City continues to increase. Aside from a small dip in the rate of new disease in 1987, rates in New York City have been rising since 1979 and are now well above 30 per 100,000 population, more than triple the national rate of 9.2.

In 1988 there were 2,317 newly verified cases of tuberculosis reported. This incidence represents a 53% increase over 1980 when 1,514 cases were reported. The 1988 case rate of 32.8 per 100,000 is the highest in two decades (Table 1).

These data are of great concern when viewed in the context of a disease which is both preventable and curable. Tuberculosis, a scourge through the first half of the twentieth century, responded to both general improvement in the standard of living and specific medical treatment.

The highest rates of disease occur in those areas of the city with the poorest socio-economic conditions, areas which exhibit the characteristics of urban poverty: homelessness, overcrowding, and substandard housing; high rates of unemployment and crime; high maternal and infant mortality rates; poor nutrition; and drug and addiction problems. An additional factor is the high rate of AIDS and HIV infection in persons living in these districts.

The prominent epidemiologic and demographic features of tuberculosis that were present in 1981 remained pronounced in 1988 (Figure 1). Rates continued to climb among 25-to 44-year olds in

all racial/ethnic groups, but particularly in black and Hispanic males. The high incidence of disease in this age group is particularly troubling because these are individuals of child bearing age, a factor that could have serious impact upon childhood tuberculosis.

Childhood tuberculosis did increase considerably in 1988. In 1987 there were 48 cases among children under 15 years old; in 1988 the number of cases (91) almost doubled. Among children under 5 years old, cases jumped from 30 in 1987 to 56 in 1988.

This report describes the demographic and geographic distribution of tuberculosis in 1988. Rate calculations are based upon 1980 census data.

Ethnic/Racial Distribution of Tuberculosis Cases

Non-Hispanic blacks (males and females combined) had the highest rate of disease. They represented 56.9% of all cases and their case rate of 77.8 per 100,000 was an increase of 6.7% over 1987. Hispanics had a somewhat lower case rate than blacks (43.1) but experienced a larger increase in incidence (8.7%) from 1987. The increase in disease among Hispanics has been rising consistently since 1984 (Figure 2).

The case rate of non-Hispanic white New Yorkers remained the lowest of the ethnic/racial groups. The rate of 7.4 per 100,000 population is slightly lower than the national average (Table 2). Although the Asian case rate of 52.4 is higher than among

Hispanics, they represent a relatively small proportion of the overall city population and most of the cases in that group are among the eldest population.

Distribution of Tuberculosis Cases by Sex

The incidence of tuberculosis among males is about two and a half times that of females (Figure 3) - 50.8 and 17.2 per 100,000, respectively.

Males

From 1987 to 1988 the incidence rate of tuberculosis among males of all ages increased 7%, from 47.5 to 50.8 cases per 100,000 population (Table 3). The largest increase during the past year was among 35-to 44 year olds, where the number of cases rose 13.6%, from 701 to 796. As in previous years, those aged 25 to 44 represented almost 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 122.6 per 100,000 population. The actual number of cases in this group increased 7.3%, from 866 in 1987 to 929 in 1988. As in the previous five years, incidence rates among black males in 1988 peaked in the 35 to 44 old age group, with a case rate of 331 per 100,000, the highest in any age, sex, or race cohort, and almost 36 times the national average of 9.3. Figure 4 shows rates among black males for the years 1984 to 1988. A steady annual increase is seen among those aged 25 to 44, with the peak age consistently at 40 years.

Among the males with tuberculosis in 1988, 59% were in the 25 to 44 range; in 1987 and 1986, 59% and 54%, respectively, were in the same age group. Among black males, the proportion was 61% in 1988, it was 63% in 1987, and 58% in 1986. Although the case rate among all males increased 7.0% between 1987 and 1988, it increased in those aged 25 to 44 by 7.4% and in black men by 7.1%. Figure 5 depicts the trend of disease among males ages 25 to 44 over the five year period, 1984 to 1988. 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 7.1% in 1988, Hispanic males experienced a 12.9% increase in incidence. The incidence in this group had increased 44% from 1985 to 1986 and 14% from 1986 to 1987. The rise among Hispanic males was concentrated in 25-to 44-year-olds (a 10% increase in 1988 following an increase of 22% in 1987 and 68% between 1985 and 1986.) Figure 6 shows the steady increase of cases in this age group since 1984.

Asian and white males experienced an incidence of disease in 1988 which was similar to 1987. Although the age-specific rates are high for Asians, the 79 cases reported in 1988 are the smallest number for males in all ethnic/racial groups and 2.5 times less than that of the next lowest group. Although males aged 65 and older showed a large increase in cases in 1986, this seems to have been an anomaly, since the 1987 and 1988 rates did not sustain an increase in that age group.

Females (Figures 3, 7, 8 and Table 4)

There was a minimal increase (1.6%) among all females from 1987 to 1988. Among those aged 0 to 14, however, the increase was considerable -- 130%, rising from 23 cases in 1987 to 53 in 1988. (This was also the only age group in which there were more female than male cases.) In females, all racial and ethnic groups maintained a similar rate of disease as in the previous year.

The overall rate in black women is over two and a half times that of Hispanic women, and white women have maintained the lowest rate of all ethnic/racial groups (3.7 per 100,000 population). The number of cases among Asian women is too low to make meaningful comparisons (Table 4).

Figure 7 shows the consistent rise in cases over a four-year period among black women aged 25 to 44. 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 the age of 30, a decade earlier than black males. In addition, there is a slight increase in cases among black females aged 65 and older, whereas among black males this is not the case.

Figure 8 shows that a slight decline in incidence occurred among Hispanic women in 1988, although there has been an increasing trend of disease over the past four years, especially in those aged 20 to 40. The age peak for Hispanic females is also a decade

children under 15 years, there were 15 cases among Hispanic children in both 1987 and 1988 - one case was reported in an Asian child in 1988.

Geographic Distribution

Age-adjusted incidence rates by health district of residence were calculated for 1980, 1987, and 1988 (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 seven districts experienced decreases of at least 5 cases since 1987. The other 23 districts increased or remained within 5 cases of last year. In 1987, in contrast, 12 of the 30 health districts, or 40%, had increased rates, while the 18 others had decreased rates.

The six districts with the highest rates in 1988 were Central Harlem, East Harlem, and the Lower East Side in Manhattan; Mott Haven and Morrisania in the Bronx; and Bedford in Brooklyn. Five of these six also had the highest case rates in 1987, with the addition being East Harlem.

1) Manhattan

Except for Kips Bay/Yorkville and Washington Heights, all health districts in Manhattan experienced increases in tuberculosis case rates in 1988. The most notable changes are the increase of 51% in East Harlem and the drop of 20% in Washington Heights, the

latter being the result of a drop in reported cases by Columbia Presbyterian Medical Center between 1987 and 1988. The rate in Central Harlem remains the highest in the City at 158.9 per 100,000. Overall, Manhattan experienced an increase of cases of 12% over 1987.

2) Bronx

All Bronx health districts experienced an increase of more than 5 cases or remained the same as in the previous year. The 21% increase in Mott Haven is attributable to the increase in cases reported by Lincoln Hospital. Mott Haven represents the second highest age-adjusted case rate in the city. Of note is the 29% increase of cases in Fordham-Riverdale over 1987. Overall, the Bronx experienced an 11% increase in cases over 1987, almost twice the overall citywide increase.

3) Brooklyn

Four of the ten health districts in Brooklyn had a decrease of at least 5 cases in 1988: Brownsville (.5%,) Bedford (6%), Flatbush (19%,) and Red Hook-Gowanus (36%.) Overall, Brooklyn experienced an average incidence decrease of 5% over last year.

4) Queens

Except for Jamaica East, which had a 33% decrease over last year, incidence increased in all health districts in Queens. The largest increase (45%) occurred in Astoria-LIC. Overall, Queens saw a 6% increase in cases in 1988.

5) Staten Island

Twenty-four cases of tuberculosis were reported from Staten

Island in 1988, yielding an age-adjusted rate of 6.1 per 100,000. This is an increase of four cases since 1987 and represents the second lowest rate in the City, with only Maspeth-Forest Hills, Queens, being lower.

Distributions of Age-Specific Tuberculosis by Area of Birth

In 1988, as in the four 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 53% or 306 of the 575 cases reported from among this group. A total of 68 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 aged 15 and older (or 12 months and older for Indochinese refugees), a chest X-ray. Those under 15 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 1988, 171 Class A and 1,542 Class B aliens were screened within two weeks of entry into the U.S. Among these there were no Class A and one Class B immigrant discovered to have pulmonary tuberculosis on the basis of a positive culture for M. tuberculosis.

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

Location of Disease

In 1988 pulmonary tuberculosis accounted for 82.9% of all cases. Of cases with extrapulmonary disease, lymphatic tuberculosis was the most prevalent form of disease. Of all cases reported in 1988, 5.9% had both pulmonary and extrapulmonary disease, a decrease from the 8.3% reported in 1987. 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 12 months and are diagnosed again with disease. There were 65 reactivated cases in 1988, a 48% increase over the 44 reactors reported in 1987 (Tables 10 and 11).

Seventy-seven per cent of reactivators were males, and 58% of

these cases occurred among those ages 25 to 44. Reactivators accounted for 2.8% of all cases in 1988.

Drug Resistance

Drug resistance in New York City is likely to be secondary, that is, acquired as a result of failure of the patient to take the required amount of medication regularly, or from a failure on the part of the health care providers to prescribe the proper medication. Primary resistance is unlikely in patients being treated for the first time.

The actual prevalence of citywide drug resistance, primary or secondary, is difficult to assess. Because of the large number of laboratories that perform drug sensitivity studies, the difference in technologies used, and the patient selection process, there is no current method which can be used to reliably obtain the actual prevalence of primary or secondary resistance. In order to better evaluate drug resistance information, a letter and questionnaire were sent to 56 directors of laboratories in the City, requesting information on drug susceptibility testing in mycobacteriology laboratories.

Responses were received from 48 laboratories, and the preliminary data indicate a resistance rate that ranges from 0% to 70% of the specimens processed. Data is being further analyzed so that a more standardized approach to susceptibility testing can be established in the City.

Tuberculosis Mortality

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

In 1988 there were 247 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 13% increase over 1987 (Table 12, Figure 10). This is far in excess of the national mortality statistics, which report a provisional rate of 0.8.

Table 1

Tuberculosis Incidence
New York City, 1960-1988

Year	Number[1]	Rate[2] Per 100.000
1960	4,699	60.4
1961	4,360	56.0
1962	4,437	57.0
1963	4,891	62.9
1964	4,207	53.7
1965	4,242	53.3
1966	3,663	45.6
1967	3,542	43.6
1968	3,224	39.7
1969	2,951	36.4
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	27.3
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

1. 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.

2. 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, 1988

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	8	55	57	40	27	83	272
		-	(0.6)	-	(0.5)	(2.7)	(9.0)	(14.7)	(9.6)	(5.5)	(11.2)	(7.4)
Black		40	10	11	22	86	382	390	207	84	86	1318
		(28.2)	(7.3)	(6.8)	(12.5)	(57.3)	(140.0)	(176.9)	(120.5)	(60.4)	(70.2)	(77.8)
Hispanic		15	2	10	12	41	193	162	84	47	40	606
		(10.4)	(1.5)	(7.2)	(8.3)	(30.2)	(77.7)	(90.2)	(63.1)	(55.8)	(60.9)	(43.1)
Asian		1	1	-	2	9	34	26	14	15	19	121
		(5.2)	(5.6)	-	(12.0)	(49.0)	(65.1)	(72.8)	(60.3)	(94.5)	(122.6)	(52.4)
Total		56	14	21	57	144	664	635	345	173	228	2317
		(11.9)	(3.1)	(4.2)	(6.6)	(23.9)	(55.2)	(76.3)	(45.9)	(23.4)	(24.0)	(32.8)

Table 3

Tuberculosis Incidence Rates(per 100,000) in Males,
by Race/Ethnicity and Age
New York City, 1988

Race	Age Group										
	N (Rate) 0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
White	- -	- -	- -	- -	6 (4.2)	40 (13.0)	48 (25.5)	38 (19.2)	22 (9.7)	45 (15.8)	199 (11.6)
Black	18 (25.5)	3 (4.4)	3 (3.7)	11 (12.8)	46 (69.9)	260 (220.2)	311 (331.1)	167 (229.8)	63 (109.8)	47 (106.4)	929 (122.6)
Hispanic	5 (6.8)	1 (1.5)	7 (10.0)	10 (14.1)	27 (44.0)	144 (128.7)	157 (168.0)	64 (109.2)	33 (92.0)	28 (113.0)	456 (69.5)
Asian	1 (10.3)	- -	- -	- -	4 (45.9)	20 (79.7)	19 (103.3)	12 (101.2)	10 (125.9)	13 (170.4)	79 (68.3)
Total	24 (10.0)	4 (1.8)	10 (3.9)	21 (7.5)	83 (29.5)	464 (81.5)	515 (132.4)	281 (81.7)	128 (39.4)	133 (36.7)	1663 (50.8)

Table 4

Tuberculosis Incidence Rates (per 100,000) in Females, By Race/Ethnicity and Age New York City, 1988

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	2	15	9	2	5	38	73
		-	(1.3)	-	(0.9)	(1.5)	(4.9)	(4.6)	(0.9)	(1.8)	(8.3)	(3.7)
Black		22	7	8	11	40	122	79	40	21	39	389
		(31.1)	(10.3)	(9.9)	(12.1)	(47.4)	(79.0)	(62.4)	(40.4)	(25.7)	(49.8)	(41.6)
Hispanic		10	1	3	2	14	49	25	20	14	12	150
		(14.1)	(1.5)	(4.4)	(2.7)	(18.8)	(35.9)	(25.5)	(26.8)	(29.0)	(29.3)	(20.0)
Asian		-	1	-	2	5	14	7	2	5	6	42
		-	(4.5)	-	(24.5)	(51.8)	(51.5)	(40.4)	(17.6)	(63.1)	(76.3)	(36.4)
TOTAL		32	10	11	16	61	200	120	64	45	95	654
		(13.8)	(4.6)	(4.4)	(5.6)	(18.9)	(31.6)	(27.1)	(15.7)	(10.9)	(16.1)	(17.2)

Table 5

Incident Tuberculosis Cases by Race* and Age
Children Under 5 Years
New York City, 1988

Age in months

	0-11	12-23	24-35	36-47	48-59	Total
Black	12	10	6	9	3	40
Hispanic	4	6	2	3	-	15
Asian	1	-	-	-	-	1
TOTAL	17	16	8	12	3	56

*There were no Non Hispanic white children under 5 years reported in 1988.

Table 6

Age-adjusted Tuberculosis Rates
New York City, 1980, 1987, and 1988

Borough	Health District	Cases	Rate per 100,000 Pop.		
		1988	1988	1987	1980
Manhattan	Central Harlem	190	158.9	134.9	78.6
	East Harlem	90	75.4	49.8	27.5
	Kips Bay-Yorkville	18	5.9	8.3	9.9
	Lower East Side	210	84.6	79.1	68.3
	Lower West Side	141	44.4	29.2	34.6
	Riverside	78	34.4	29.7	27.9
	Washington Heights	133	55.5	66.5	26.5
Bronx	Fordham-Riverdale	69	31.5	22.3	16.5
	Morrisania	89	77.2	68.5	31.4
	Mott Haven	102	96.2	90.2	28.8
	Pelham Bay	28	13.2	12.0	9.8
	Tremont	77	49.6	53.0	33.3
	Westchester	43	15.9	16.2	9.3
Brooklyn	Bay Ridge	18	7.0	8.4	8.8
	Bedford	154	75.9	84.0	46.7
	Brownsville	90	37.4	43.4	21.4
	Bushwick	70	47.0	39.5	37.0
	Flatbush	115	24.2	30.1	18.2
	Fort Greene	95	65.8	65.6	55.2
	Gravesend	38	14.8	12.4	13.2
	Red Hook-Gowanus	14	11.3	18.5	24.2
	Sunset Park	30	19.2	22.6	15.8
	W'burg-Gnspt.	78	62.6	55.3	27.0
Queens	Astoria-L.I.C.	87	36.6	25.0	17.7
	Corona	63	23.3	21.2	13.5
	Flushing	39	8.4	7.8	10.3
	Jamaica East	64	21.6	33.3	17.8
	Jamaica West	51	15.4	12.0	8.6
	Maspeth-Forest Hills	19	6.5	4.3	5.7
Staten Island	Richmond	24	7.3	6.1	7.3

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

Table 7

FOREIGN BORN
Tuberculosis Cases
By Age and Area of Birth, New York City, 1988

AREA OF BIRTH	AGE GROUPS 0-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
AFRICA	1	-	-	4	13	4	2	-	-	24
EUROPE	2	-	-	2	9	4	4	6	16	43
CENTRAL/SOUTH AMERICA	1	1	4	15	32	18	15	9	6	101
CARIBBEAN*	4	7	8	22	89	89	44	21	22	306
SOUTHEAST ASIA	-	-	-	1	2	3	3	-	3	12
INDO/PAKISTAN	1	-	1	4	9	7	-	2	-	24
ASIA	-	-	-	3	16	11	7	8	13	58
OTHER	-	-	-	-	2	2	1	1	1	7
NON CONTINENTAL USA	9	8	13	51	172	138	76	47	61	575
CONTINENTAL USA	61	13	24	93	492	497	269	126	167	1742
TOTAL	70	21	37	144	664	635	345	173	228	2317

*Includes Puerto Rico

Table 8

TB Screening, and Cases Identified Among Immigrants
1977-1988

	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

Table 9

LOCATION OF DISEASE

	1988		1987	
Pulmonary	1920	82.9%	1,815	82.6%
Lymphatic	132	5.7	108	4.9
Pleural	100	4.3	98	4.5
Bone/Joint	34	1.5	43	2.0
Meningeal	29	1.3	21	1.0
Genitourinary	29	1.3	38	1.7
Peritoneal	22	.9	13	.6
Miliary	16	.7	19	.9
Other	35	1.5	42	1.9
Pulmonary and Extrapulmonary	136	5.9	183	8.3

Table 10

Newly Reported Tuberculosis Cases with Disease Again (Reactivation) By Sex and Age New York City, 1988

Sex	Age Group 20-24	25-34	35-44	45-54	55-64	65+	TOTAL
Male	2	14	12	13	7	2	50
Female	-	6	6	3	-	-	15
TOTAL	2	20	18	16	7	2	65

Table 11

Newly Reported Tuberculosis Cases With Disease Again (Reactivation) By Borough of Residence* and Age New York City, 1988

Borough	Age Group 20-24	25-34	35-44	45-54	55-64	65+	TOTAL
Manhattan	1	11	5	11	5	2	35
Bronx	-	1	9	4	1	-	15
Brooklyn	1	7	2	1	-	-	11
Queens	-	1	1	-	1	-	3
Richmond	-	-	1	-	-	-	1

Table 12

Tuberculosis Deaths and Rates (per 100,000)
New York City, 1978 - 1988

Year	Number of T.B. 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

Table 13

Summary of Close Contacts Identified and Examined (1983 - 1987)

	1983	1984	1985	1986	1987
Identified (contacts per case))	3310 (3.7)	3152 (3.5)	2805 (3.7)	4161 (4.6)	2827 (3.9)
Examined	2975 (90%)	2830 (90%)	2405 (86%)	3572 (86%)	2374 (84%)
Not Infected	2071 (70%)	1870 (71%)	1621 (67%)	2426 (68%)	1630 (69%)
On Treatment	306 (15%)	265 (14%)	228 (18%)	354 (15%)	265 (16%)
Infected without Disease	926 (28%)	818 (29%)	677 (28%)	977 (27%)	641 (27%)
On Treatment	524 (63%)	513 (63%)	513 (76%)	579 (59%)	456 (71%)
Infected with Disease	78 (2.6%)	142 (5.0%)	107 (4.4%)	75 (2.1%)	79 (3.3%)

Figure 1

Tuberculosis Incidence Rates in New York City, 1988

Per 100,000 Population, by Age and Race/Ethnicity

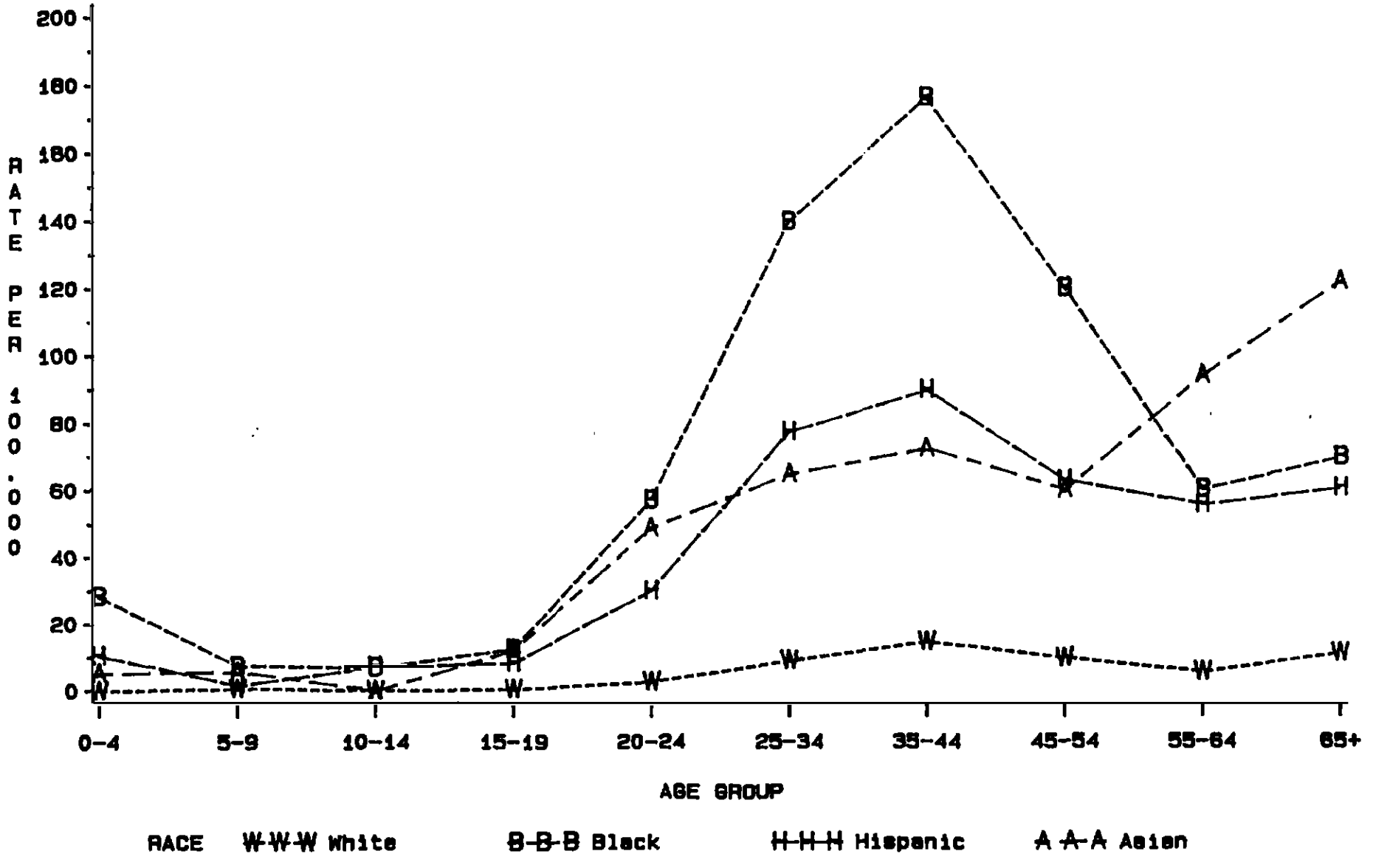


Figure 2

Tuberculosis Incidence per 100,000, New York City, 1984–1988

By Race

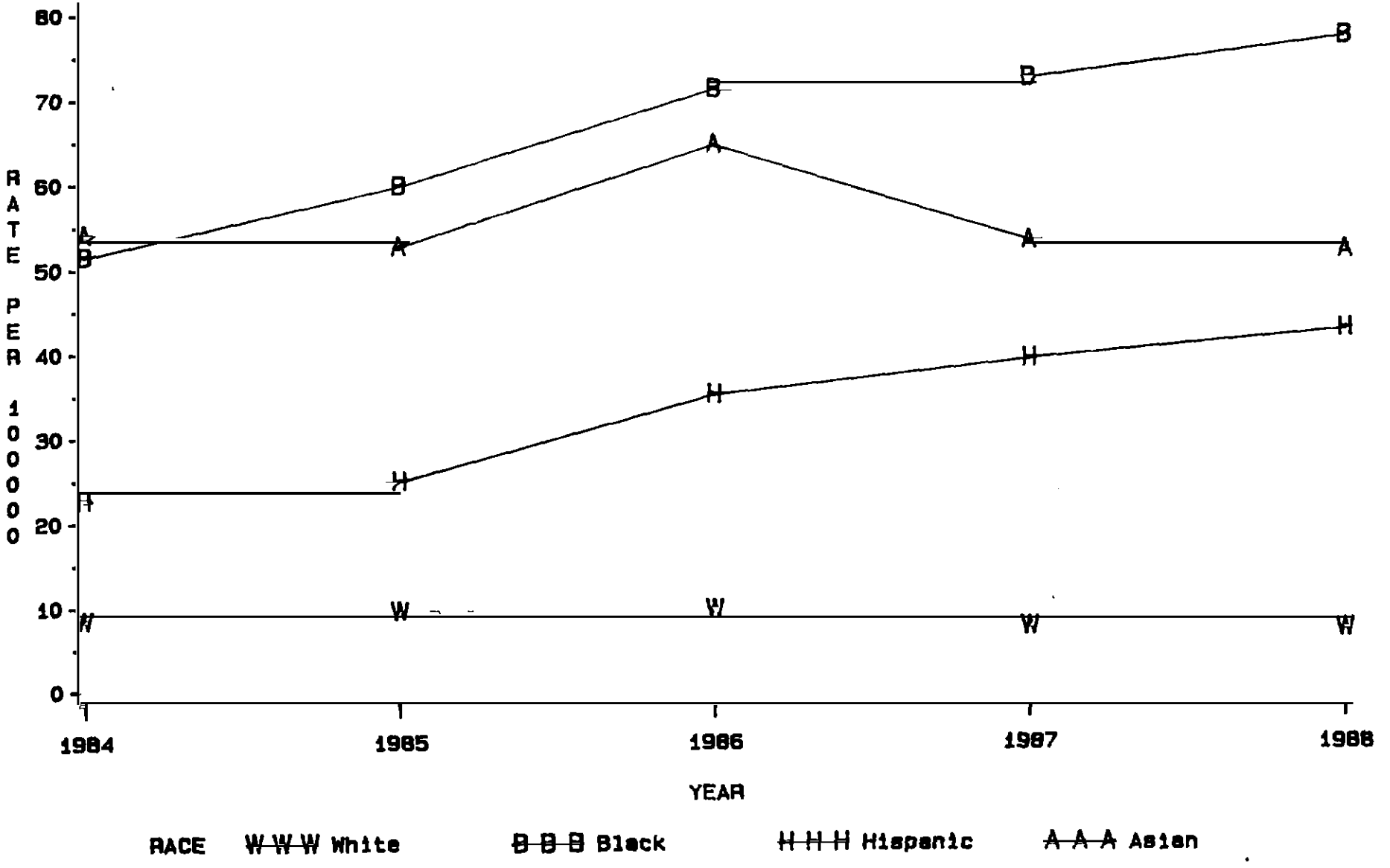


Figure 3

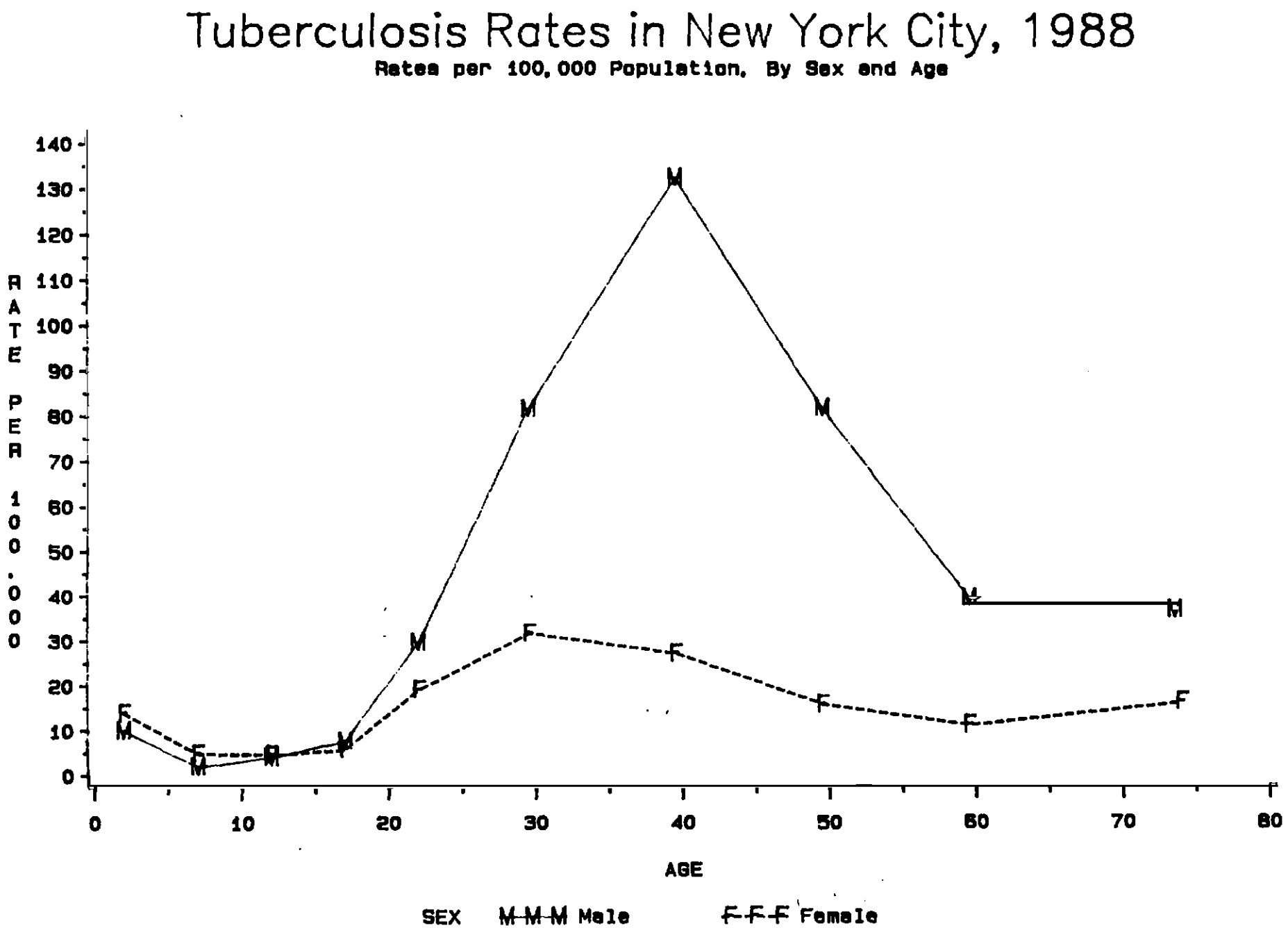

Tuberculosis Rates in New York City, 1988
Rates per 100,000 Population, By Sex and Age
RATE PER 100,000
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
AGE
SEX M-M-M Male F-F-F Female

Figure 4

UBERCULOSIS RATES AMONG BLACK MALES IN NEW YORK CITY, 1984–1988

Rates per 100,000 Population, by Age and Year

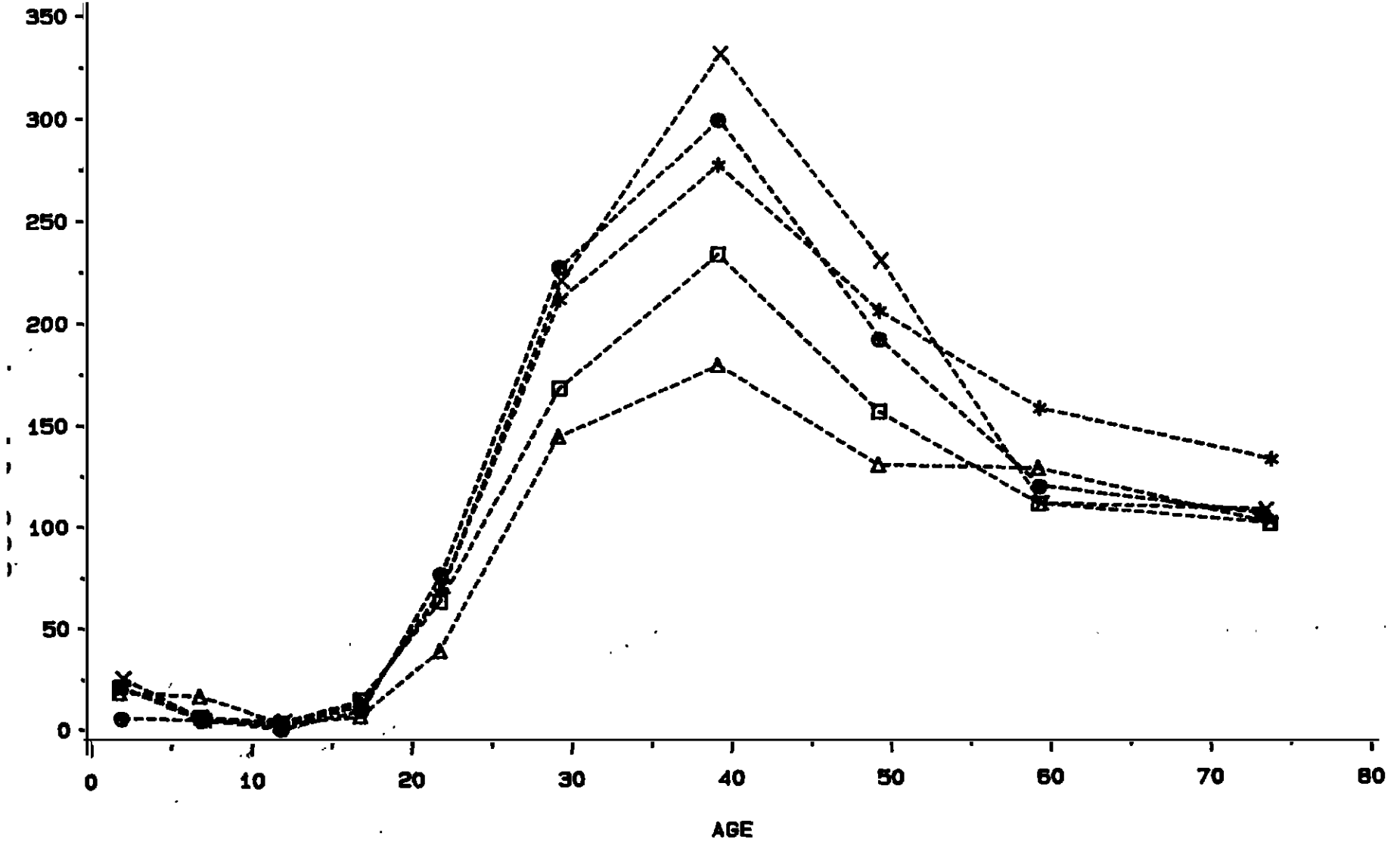


Figure 5

Tuberculosis Incidence per 100,000, New York City, 1984–1988

Males ages 25–44 only, by Race

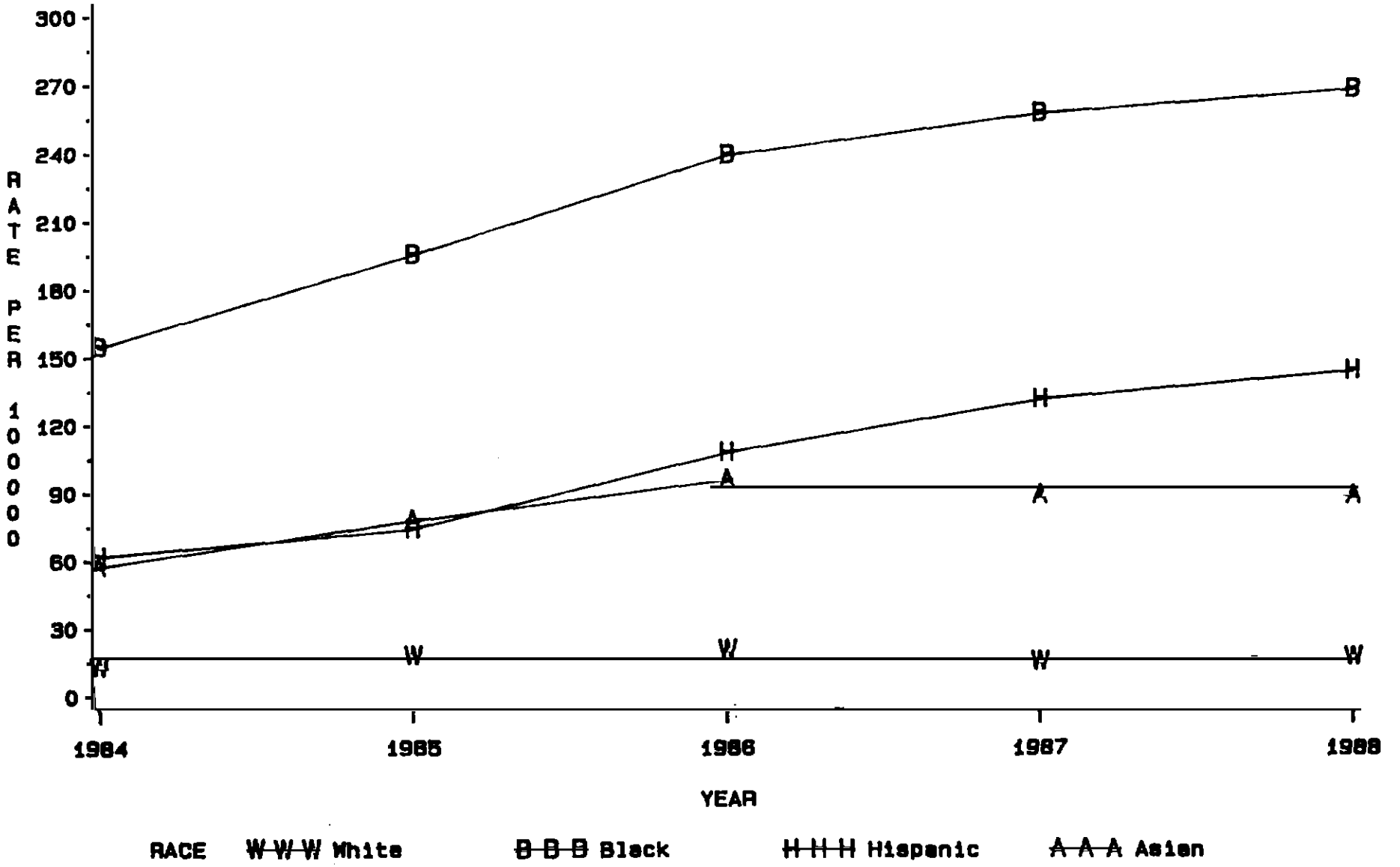


Figure 6

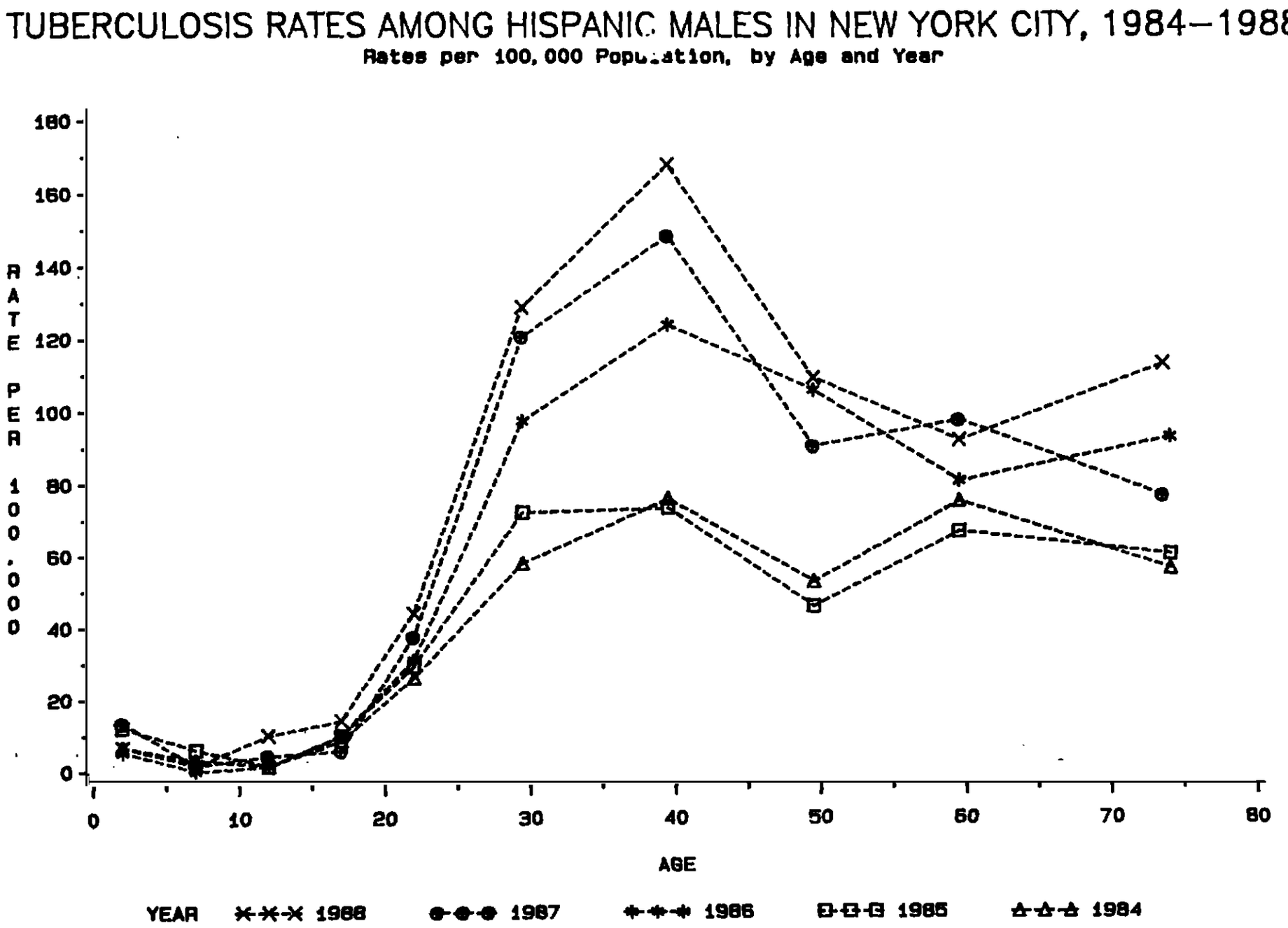

TUBERCULOSIS RATES AMONG HISPANIC MALES IN NEW YORK CITY, 1984–1988
Rates per 100,000 Population, by Age and Year
RATE PER 100,000
180
160
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
AGE
YEAR 1988 1987 1986 1985 1984

Figure 7

TUBERCULOSIS RATES AMONG BLACK FEMALES IN NEW YORK CITY, 1984–1988

Rates per 100,000 Population, by Age and Year

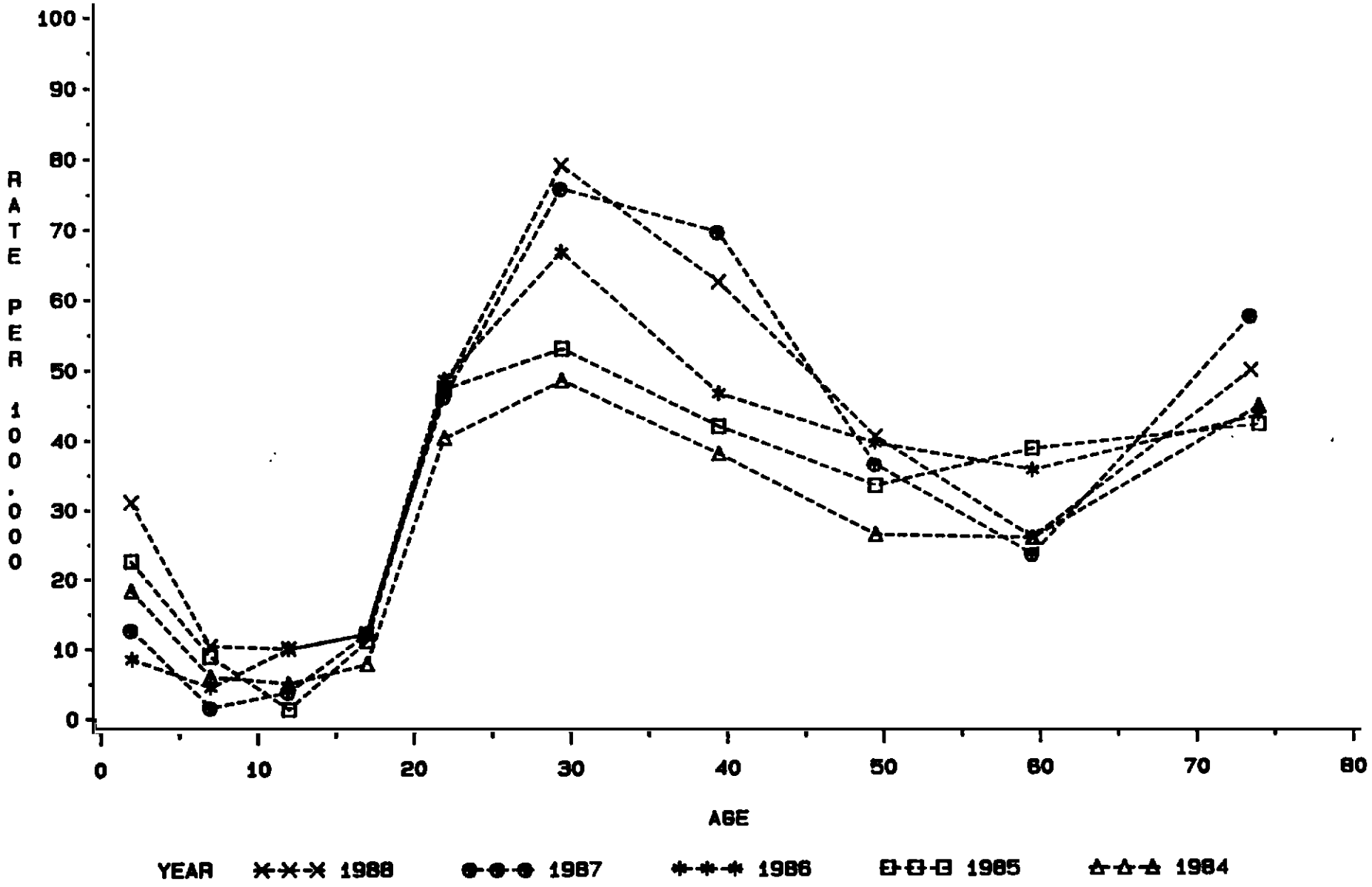


Figure 8

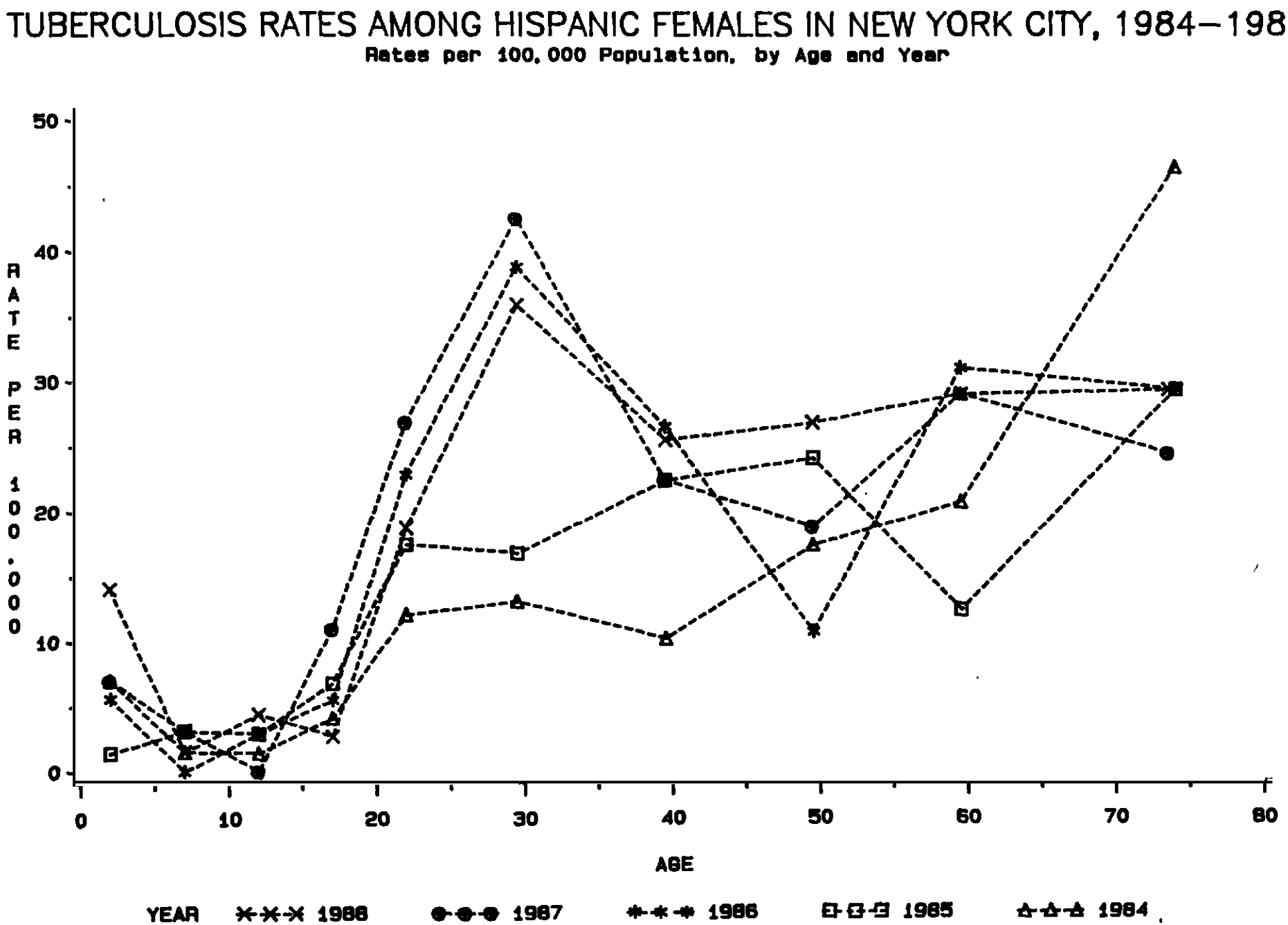
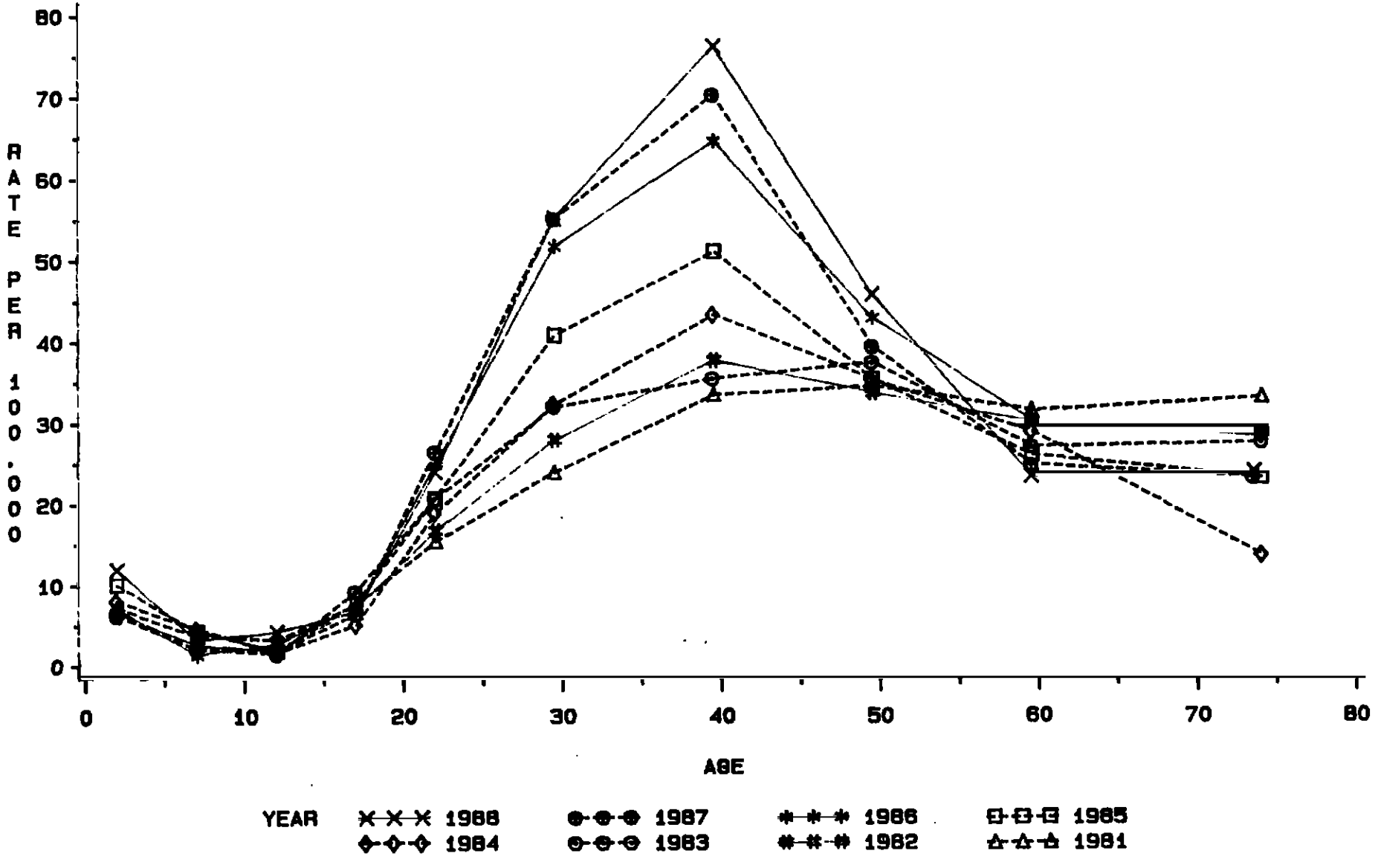

TUBERCULOSIS RATES AMONG HISPANIC FEMALES IN NEW YORK CITY, 1984–1988
Rates per 100,000 Population, by Age and Year
RATE PER 100,000
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
AGE
YEAR
1988
1987
1986
1985
1984

Figure 9

Tuberculosis Rates in New York City, 1981–1988

Rates per 100,000 Population, by Age and Year



RETURN TO

MARIE [illegible]VILLE