# Tuberculosis In New York City '83

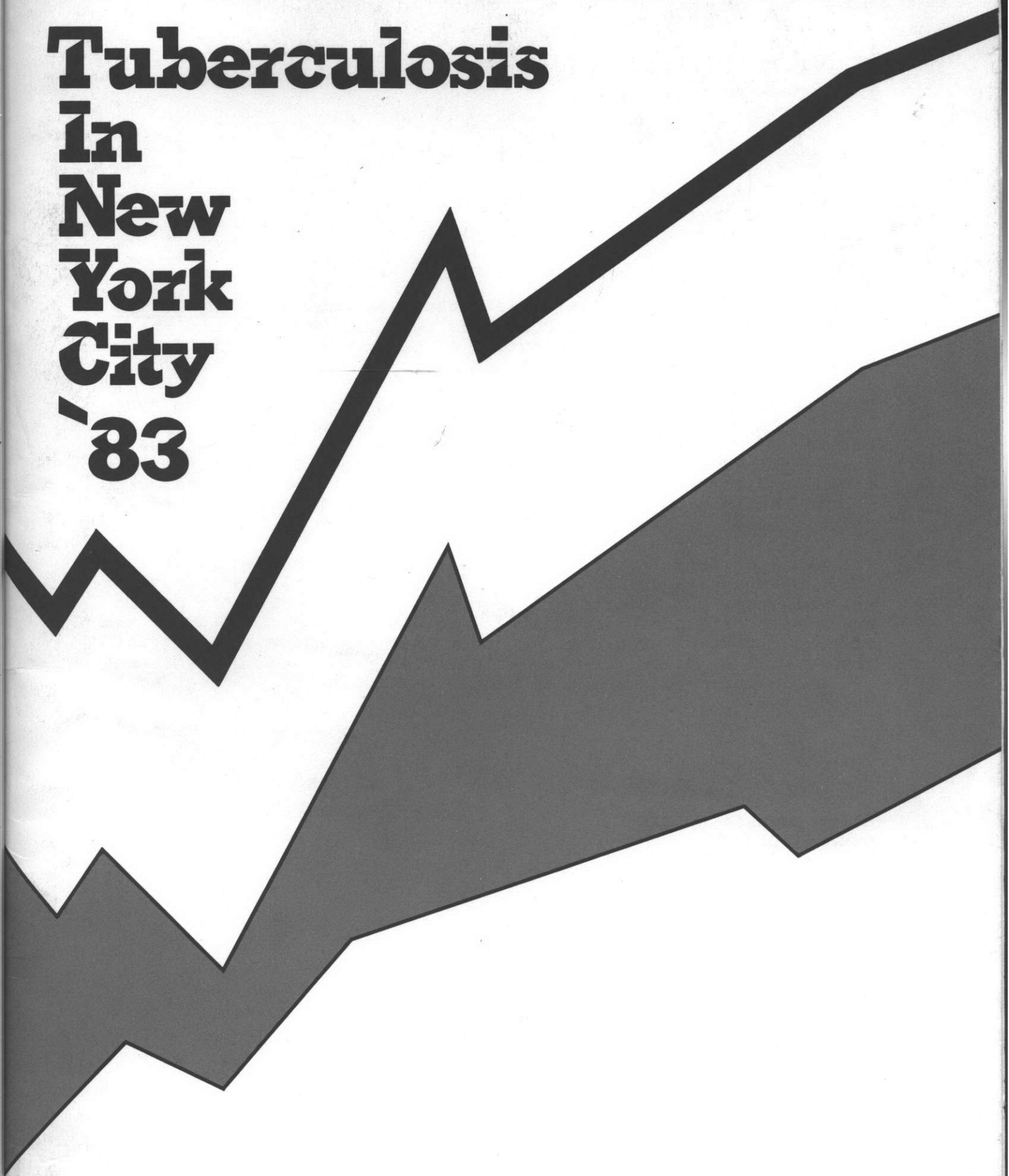
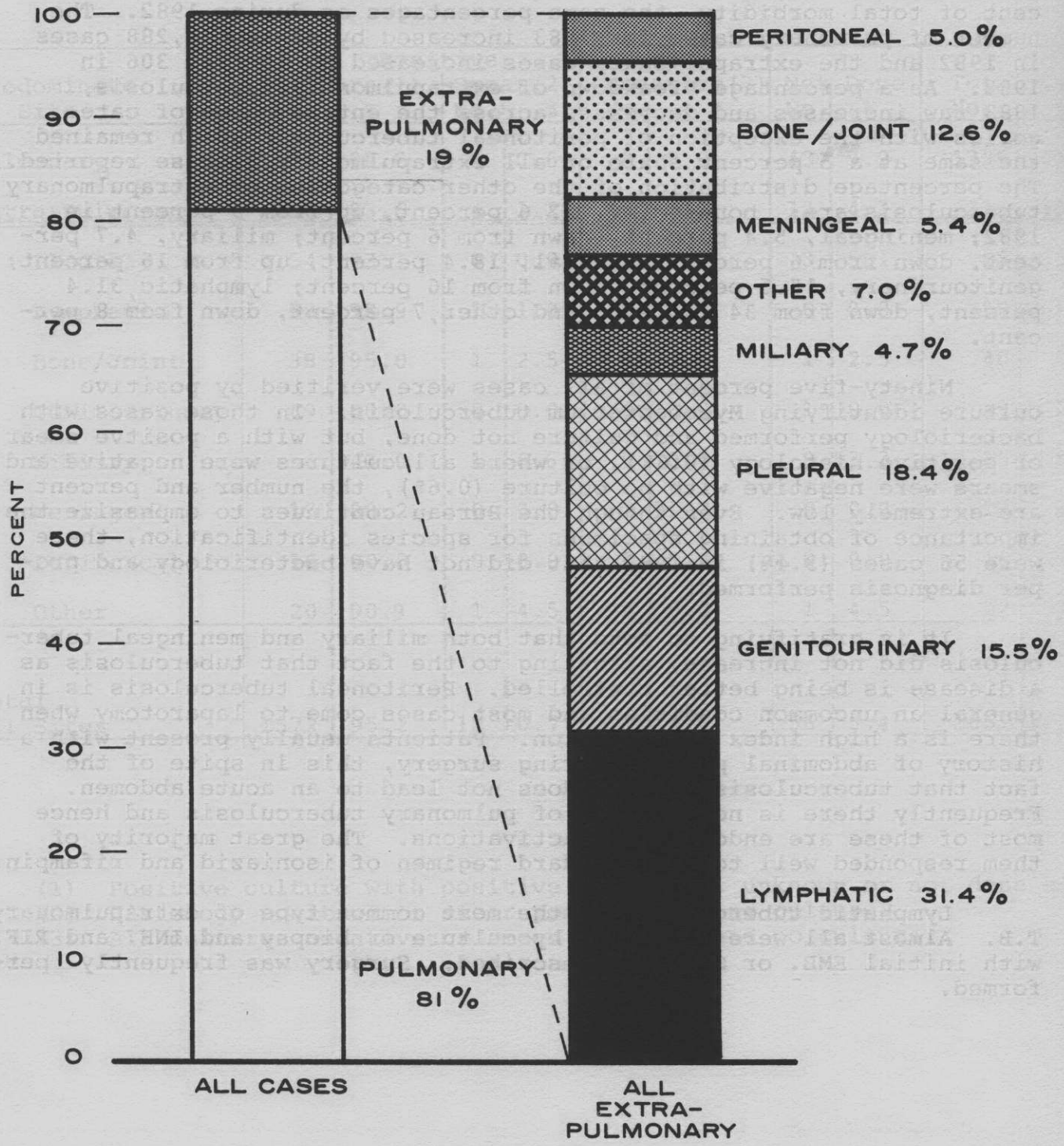


Figure 2

# NEWLY REPORTED TUBERCULOSIS CASES BY SITE of DISEASE NEW YORK CITY, 1983



NEW YORK LUNG ASSOCIATION
*The Christmas Seal People*
.2 East 40th Street • New York, New York 10016 • (212) 889-3370

The New York Lung Association is pleased to publish Tuberculosis in New York City 1983 as a community service. The data and the report were prepared by the Bureau of Tuberculosis of the New York City Department of Health.

Tuberculosis is an ancient disease and, as indicated by the data in this report, a persistent one. In our city and elsewhere, efforts to combat it have taken many forms. In the process, we have acquired the essential medical knowledge and necessary techniques for successful implementation of programs to deal with public health problems such as this one. Yet, TB remains, and in certain areas of New York City the incidence is extremely high.

The New York Lung Association, in concert with the family of lung associations nationwide, is committed to the total eradication of this disease. Our efforts will continue -- to educate the public and health care professionals, and to assure adequate funding and effective control programs. We trust that the information in this report will be useful to the medical community, and to government officials and others who play significant roles in eradicating this disease.

Edith Ewenstein

Edith Ewenstein, CAE
General Director

The City of New York
DEPARTMENT OF HEALTH
93 WORTH ST, NEW YORK N Y 10013
Telephone

TO THE MAYOR AND THE CITIZENS OF NEW YORK CITY, 1983

This annual report presents a detailed look at the problem of tuberculosis in New York City for 1983. The report should be studied in its entirety before any immediate conclusions are drawn. The information presented is drawn from the Central Registry of the Bureau of Tuberculosis, New York City Department of Health. The data is analyzed to further elucidate problems that exist with the control of the disease. The tables and figures with accompanying narratives and conclusions were derived by the Bureau which assumes sole responsibility.

The basic objectives of TB control are to prevent transmission and to make certain that patients are treated and get well. Important conclusions in this context are that transmission of tubercle bacilli continues to occur and that a number of patients do not complete their treatment. In addition, the use of preventive medicine in the control of TB falls short of accepted objectives. The socio-economic circumstances that surround this disease are analyzed in order to draw attention to the fact that TB has many causes.

The Bureau of Tuberculosis wants to thank the New York Lung Association for again undertaking the printing of this report.

Sincerely yours,

Alje Vennema, M.D.
Director
Bureau of Tuberculosis

Acknowledgements: The Bureau of Tuberculosis thanks Mr. Ken Bupp, Center for Disease Control, Public Health Advisor, for his valued assistance.

THE CITY OF NEW YORK
COMMISSIONER OF HEALTH
David J. Sencer, M.D., M.P.H.

125 WORTH STREET
NEW YORK, N.Y. 10013

June 21, 1985

Dear Colleague:

Tuberculosis in New York City - 1983 describes morbidity and mortality for that year. As a special supplement to this report, T.B. disease trends from 1979 to 1984 are presented. The content of the supplement suggests a new development which relates recent increases in Tuberculosis to the current epidemic of Acquired Immune Deficiency.

The fight against Tuberculosis demands constant vigilance, rapid definition of new changes in the disease patterns and development of new tactics for prevention.

Very truly yours,

David J. Sencer, M.D.
Commissioner

DJS:rt

## Section I: Tuberculosis Incidence

### A. 1983 Tuberculosis Morbidity

There were 1,651 cases (23.4 per 100,000 population) of tuberculosis reported in New York City in 1983, an increase of 57 cases since 1982 when 1,594 cases (22.5 per 100,000) were reported. Tuberculosis continues to be a public health problem in New York City which is evident from the increase in the number of cases over the last four years: 1,514 (1980), 1,582 (1981), 1,594 (1982), and 1,651 (1983). While the national tuberculosis morbidity rate has declined over the years, New York City's continues to increase (table 1, figure 1). Table 1 also indicates both the numbers of cases and case rates since 1960, with percentage changes from year to year marked by a decrease (-) or increase (+) from year to year. The percentage changes are remarkable since 1979, since which time an increase is noted with the exception of 1980. The historic trend of the disease is depicted in figure 1, the curve for the case rate shows an almost straight line since 1979, the curve for the death rate shows an increase from 1979 up till 1982 and a slight decrease for 1983. The point prevalence of infection for the N.Y.C. population is not shown, however, as discussed in the report of 1982 the annual risk of infection is estimated to be .3% and it is unlikely that this risk of infection has decreased. Since 1977 almost all reported cases are based on positive bacteriological evidence of M. tuberculosis (table 2). Where no bacteriological evidence is available, cases are counted based on histological examination or a combination of four factors, i.e. a positive tuberculin test, changes in radiological appearance, clinical signs and symptoms, and treatment with two or more antituberculosis drugs. The most effective tool to control tuberculosis is to detect smear positive cases of pulmonary tuberculosis (70% of all pulmonary cases were smear positive), render them noninfectious, and provide a year of preventive treatment to all infected contacts. Judging from the case rate, the annual risk of infection, and since currently only 63% of infected contacts are started on a course of preventive treatment, it is unlikely the incidence of tuberculosis will decrease in years to come (see the contact section of this report).

The implication is, that despite the efficacy of regimens, epidemiological follow-up, and patient surveillance, tuberculosis will not be eradicated in New York City in the near future. For a disease like T.B. to be under good control, an annual decrease of 5% should occur. Since 1978, however, with the exception of a 1% decrease for 1980 there has been no annual decrease, in actual fact an increase in both the total number of cases as well as in the case rates is noted. These differences are analyzed in subsequent tables where an attempt will be made to look for characteristics of New York City society that allow for clustering of tuberculosis, be they the problems associated with living in an urban area, noncompliance, high mobility, apathy, poverty, or other factors.

Table 2

Newly Reported Tuberculosis Cases
by Site of Disease and Bacteriologic Status
New York City 1983

| Predominate Site | Positive Culture(1) No. | % | Positive Smear(2) No. | % | Negative(3) No. | % | Not Done No. | % | Total Cases No. | % |
|---|---|---|---|---|---|---|---|---|---|---|
| Pulmonary | 1276 | 95.5 | 8 | 0.6 | 8 | 0.6 | 43 | 3.2 | 1335 | 81.0 |
| Extra-Pulmonary | 296 | 93.6 | 4 | 1.2 | 3 | 0.9 | 13 | 4.1 | 316 | 19.0 |
| Pleural | 54 | 93.1 | 0 | 0.0 | 1 | 1.7 | 3 | 5.1 | 58 | 3.5 |
| Lymphatic | 98 | 98.9 | 1 | 1.0 | 0 | 0.0 | 0 | 0.0 | 99 | 6.0 |
| Bone/Joint | 38 | 95.0 | 1 | 2.5 | 0 | 0.0 | 1 | 2.5 | 40 | 2.4 |
| Genitourinary | 49 | 100.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 49 | 2.9 |
| Miliary | 6 | 40.0 | 1 | 6.6 | 0 | 0.0 | 8 | 53.3 | 15 | 0.9 |
| Meningeal | 15 | 88.2 | 0 | 0.0 | 2 | 11.7 | 0 | 0.0 | 17 | 1.0 |
| Peritoneal | 16 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 16 | 1.0 |
| Other | 20 | 90.9 | 1 | 4.5 | 0 | 0.0 | 1 | 4.5 | 22 | 1.3 |
| Total All Sites | 1572 | 95.2 | 12 | 0.7 | 11 | 0.6 | 56 | 3.4 | 1651 | 100.0 |

(1) Positive culture with positive, negative, unknown or not done smear.
(2) Histology positive or smear positive and no culture.
(3) All cultures negative or smear negative and no culture.

B. Newly Reported Tuberculosis Cases by Site of Disease and by Bacteriologic Status (Table 2, Fig. 2)

There were 1,335 pulmonary cases and 316 extrapulmonary cases reported in New York City during 1983. Pulmonary tuberculosis accounted for 81 percent and extrapulmonary tuberculosis for 19 percent of total morbidity, the same percentages as during 1982. The number of pulmonary cases for 1983 increased by 47 from 1,288 cases in 1982 and the extrapulmonary cases increased by 10 from 306 in 1982. As a percentage breakdown of extrapulmonary tuberculosis, 1983 saw increases and decreases across the entire range of categories with the exception of peritoneal tuberculosis which remained the same at a 5 percent share of all extrapulmonary disease reported. The percentage distribution of the other categories of extrapulmonary tuberculosis are: bone/joint, 12.6 percent, up from 9 percent in 1982; meningeal, 5.4 percent, down from 6 percent; miliary, 4.7 percent, down from 6 percent; pleural, 18.4 percent, up from 16 percent; genitourinary, 15.5 percent, down from 16 percent; lymphatic,31.4 percent, down from 34 percent; and other,7 percent, down from 8 percent.

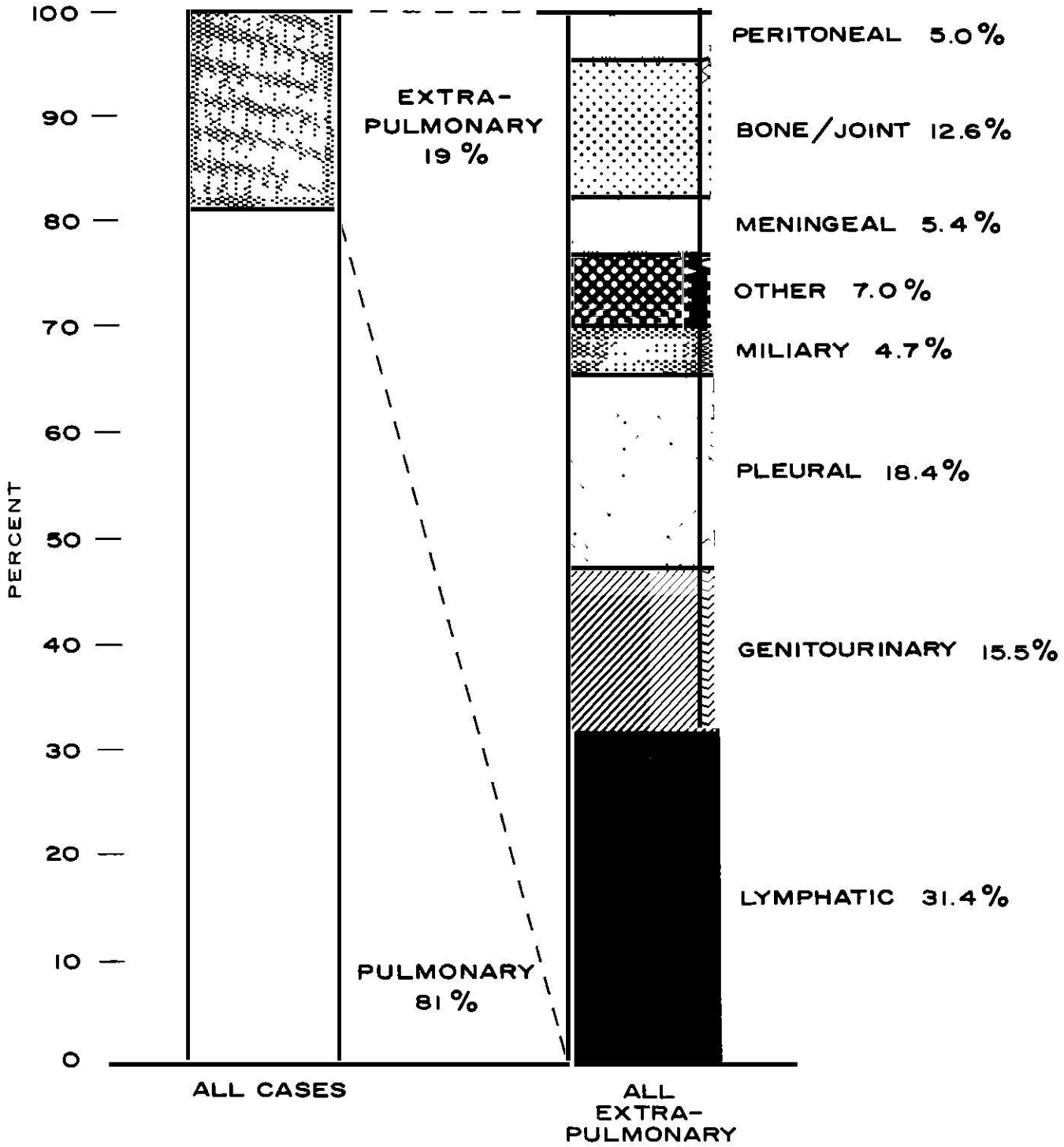
Ninety-five percent of all cases were verified by positive culture identifying Mycobacterium tuberculosis. In those cases with bacteriology performed and culture not done, but with a positve smear or positive histology (0.6%), or where all cultures were negative and smears were negative with no culture (0.6%), the number and percent are extremely low. Even though the Bureau continues to emphasize the importance of obtaining specimens for species identification, there were 56 cases (3.4%) in 1983 that did not have bacteriology and proper diagnosis performed.

It is gratifying to note that both miliary and meningeal tuberculosis did not increase, attesting to the fact that tuberculosis as a disease is being better controlled. Peritoneal tuberculosis is in general an uncommon condition and most cases come to laparotomy when there is a high index of suspicion. Patients usually present with a history of abdominal pain requiring surgery, this in spite of the fact that tuberculosis usually does not lead to an acute abdomen. Frequently there is no evidence of pulmonary tuberculosis and hence most of these are endogenous reactivations. The great majority of them responded well to the standard regimen of isoniazid and rifampin.

Lymphatic tuberculosis is the most common type of extrapulmonary T.B. Almost all were diagnosed by culture or biopsy and INH. and RIF. with initial EMB. or SM. was prescribed. Surgery was frequently performed.

Figure 2

# NEWLY REPORTED TUBERCULOSIS CASES BY SITE of DISEASE NEW YORK CITY, 1983



C. Newly Reported Tuberculosis Cases by Source of Report 1983 (Table 3 and 4)

During 1983 there were 1,335 cases of pulmonary tuberculosis reported in New York City with 45 cases (4%) reported by private physicians, 32 (2%) by the Department of Health, 589 (44%) by voluntary hospitals, 587 (44%) by municipal hospitals, and 82 (6%) by other reporting facilities such as prisons, mental hospitals, etc. This compares with 1,339 pulmonary cases in 1982 with voluntary hospitals reporting 589 (44%), municipal hospitals 449 (34%), private physicians 66 (5%), Department of Health 108 (8%), and other reporting facilities 127 (9%) of the cases. The importance of voluntary and municipal hospitals as sources of reports of pulmonary tuberculosis is apparent since these hospitals accounted for 78% of the reported cases in 1982 and 88% of the reported cases in 1983.

Reporting of extrapulmonary tuberculosis in 1983 amounted to 316 cases with 5 (2%) reported from private physicians, 4 (1%) from the Department of Health, 174 (55%) from voluntary hospitals, 119 (37%) from municipal hospitals, and 15 (5%) from other facilities or institutions. This compares with 255 extrapulmonary cases in 1982 with private physicians reporting 4 (2%), the Department of Health 6 (2%), voluntary hospitals 152 (59%), municipal hospitals 87 (34%), and other reporting facilities and institutions 8 (3%) of the cases. As with pulmonary tuberculosis,voluntary and municipal hospitals are reporting the vast majority of extrapulmonary tuberculosis with 93% of the reported cases in 1982 and 92% in 1983. The majority of cases reported by hospitals is probably due to the fact that these health facilities become aware of a case when a symptomatic patient presents to an emergency room or out-patient department.

The distribution of reported cases among the categories of sources by borough mirror the percentages for New York City total. Municipal and voluntary hospitals accounted for 84% of the reported pulmonary and extrapulmonary cases in New York County during 1982 and 91% in 1983; 80% in 1982 and 91% in 1983 for Kings County; 77% in 1982 and 83% in 1983 for Queens County; 73% in 1982 and 87% in 1983 for the Bronx; and 67% in 1982 and 79% in 1983 for Richmond County. Private physicians reported: New York County 5% in 1982, 3% in 1983; Kings County 3% in 1982, 2% in 1983; Queens County 5% in 1982, 2% in 1983; and Richmond County 0% in 1982 but 21% in 1983. The Department of Health reported: New York County 5% in 1982, 0.5% in 1983; Kings County 7% in 1982, 3% in 1983; Queens County 7% in 1982, 5% in 1983; Bronx County 12% in 1982, 1% in 1983; and Richmond County 7% in 1982, and 0% in 1983. The percentage of cases reported by the private sector decreased to 49% while the public sector increased to 51%. The cases reported by the various sectors do not reflect the treatment status. The point prevalence in December 1983 was a total of 181 (11.2%) cases for the Health Department chest clinics, even though the clinics only reported 36 new cases of T.B. Many cases after having been diagnosed by the private sector came for treatment to the city clinics where treatment as mandated by public law is free of charge.

Table 3

Reported Cases
by Source of Report

| Source | Pulmonary | | | | Extra-Pulmonary | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1983 | | 1982 | | 1983 | | 1982 | | 1983 | | 1982 | |
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Private Physician | 45 | 4 | 66 | 5 | 5 | 2 | 4 | 2 | 50 | 3 | 70 | 4 |
| Voluntary Hospital | 589 | 44 | 589 | 44 | 174 | 55 | 152 | 59 | 763 | 46 | 739 | 46 |
| Municipal Hospital | 587 | 44 | 449 | 34 | 118 | 37 | 87 | 34 | 705 | 43 | 536 | 34 |
| D.O.H. | 32 | 2 | 108 | 8 | 4 | 1 | 6 | 2 | 36 | 2 | 114 | 7 |
| Other | 82 | 6 | 127 | 9 | 15 | 5 | 8 | 3 | 97 | 6 | 135 | 9 |
| Total | 1335 | 100 | 1339 | 100 | 316 | 100 | 255 | 100 | 1651 | 100 | 1594 | 100 |

Table 4

NEWLY REPORTED TUBERCULOSIS CASES BY SOURCE OF REPORT BY COUNTY NEW YORK CITY 1983

| Source of Report | New York 1982 Cases No.(%) | New York 1983 Cases No.(%) | Kings 1982 Cases No.(%) | Kings 1983 Cases No.(%) | Queens 1982 Cases No.(%) | Queens 1983 Cases No.(%) | Bronx 1982 Cases No.(%) | Bronx 1983 Cases No.(%) | Richmond 1982 Cases No.(%) | Richmond 1983 Cases No.(%) | New York City Totals 1982 Cases No.(%) | New York City Totals 1983 Cases No.(%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Department of Health Chest Clinics | 26(4.9) | 3(0.5) | 34(6.9) | 16(3.0) | 23(7.4) | 13(4.6) | 29(12.3) | 4(1.5) | 2(6.6) | 0(0) | 114(7.0) | 36(2.1) |
| Municipal Hospitals | 167(31.4) | 243(42.5) | 185(37.0) | 227(43.2) | 85(27.5) | 101(36.3) | 97(41.2) | 133(51.5) | 2(6.6) | 1(5.2) | 536(33.6) | 705(42.7) |
| Voluntary Hospitals | 281(53.0) | 275(48.1) | 213(43.4) | 252(48.0) | 153(49.6) | 130(46.7) | 74(31.4) | 92(35.6) | 18(60) | 14(73.6) | 739(46.0) | 763(46.2) |
| Private Physicians | 26(4.9) | 15(2.6) | 17(3.4) | 13(2.4) | 17(5.5) | 13(4.6) | 10(4.2) | 5(1.9) | 0(0) | 4(21.0) | 70(4.4) | 50(3.0) |
| *Other | 31(5.8) | 35(6.1) | 41(8.3) | 17(3.2) | 30(9.7) | 21(7.5) | 25(10.6) | 24(9.3) | 8(26.6) | 0(0) | 135(8.4) | 97(5.8) |
| TOTALS | 531 | 571 | 490 | 525 | 308 | 278 | 235 | 258 | 30 | 19 | 1 594 | 1,651 |

*Federal Facilities, Mental Institutions, Prisons, Medical Examiner's Office.

(Table 5)

D. Drug Resistance, Initial and Acquired

Resistance to anti-tuberculosis medications presents a problem to the individual patient with disease as well as anyone exposed to him. For those with disease, it is a treatment problem because they may be given drugs which will not be effective. For those exposed, it is a problem because preventive medication may not provide any protection. Although this Bureau does not advocate sensitivity testing at the start of treatment, a careful review of each patient's history should be made to determine whether or not primary resistance has been acquired from the source case. If there is reason to believe that the latter has occurred, sensitivity studies are recommended from the beginning of treatment. In the United States, drug susceptibility testing of the initial M. tuberculosis isolate is indicated for 1) groups known to have a higher prevalence of drug resistance, such as Asians and Hispanics, 2) persons with a history of previous treatment with antituberculosis drugs, 3) persons who fail to become culture negative by the fourth month of therapy, and 4) persons who have been exposed to drug resistant tuberculosis.

The greatest concern for resistance to anti-tuberculosis drugs should be primary resistance to isoniazid. First, INH. is included in every initial treatment regimen, and second, INH. is the only drug proven to be effective for chemo-prophylaxis. In 1983, New York City's primary resistance to any of the anti-tuberculosis drugs is unknown since the Centers for Disease Control (CDC) Primary Drug Resistance Study was completed September 30, 1983 and the data for the nine months of 1983 is inconclusive.

In October 1983, a new study to include patients with prior treatment was begun. Preliminary data is available but very limited since a sufficient number of isolates have not been obtained to be able to draw conclusions. Thus far only six patients have been tested with a history of prior therapy. The results available are for acquired resistance to INH. based on two isolates which showed 33 percent resistance on culture. Further results will have to be determined before conclusions can be arrived at.

TABLE 5: NUMBER OF CULTURES AND PERCENTAGE OF PRIMARY RESISTANCE, 1980 - 1982

| Drug Resistant | Number | | | New York City % | | | U.S.A. % | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1982 | 1981 | 1980 | 1982 | 1981 | 1980 | 1982 | 1981 | 1980 |
| Isoniazid | 26 | 25 | 13 | 6.7 | 6.6 | 4.9 | 4.0 | 4.2 | 4.1 |
| Rifampin | 4 | 4 | 2 | 1.0 | 1.1 | 0.8 | 0.2 | 0.2 | 0.7 |
| Ethambutol | 3 | 3 | 0 | 0.8 | 0.8 | 0.8 | 0.3 | 0.3 | 0.3 |
| Streptomycin | 20 | 19 | 13 | 5.2 | 5.0 | 4.9 | 3.8 | 3.8 | 3.8 |
| PAS | 7 | 6 | 4 | 1.8 | 1.6 | 1.5 | 0.8 | 0.8 | 0.8 |
| Ethionamide | 8 | 8 | 4 | 2.1 | 2.1 | 1.5 | 1.0 | 1.1 | 0.8 |
| Kanamycin | 0 | 0 | 0 | 0.0 | 0.8 | 0.0 | 0.1 | 0.1 | 0.1 |
| Cycloserine | 1 | 1 | 1 | 0.3 | 0.3 | 0.4 | 0.1 | 0.1 | 0.1 |
| Capreomycin | 1 | 1 | 0 | 0.3 | 0.3 | 0.0 | 0.1 | 0.1 | 0.1 |

## E. Newly Reported Tuberculosis Cases by Age, Race, and Sex

### 1. Age

Table 6 and figure3 dealwith the age distribution of tuberculosis for 1982-83. It is again encouraging to note that tuberculosis in the following childhood age groups experienced a decline in 1983 as compared to 1982: 0-4 age group, 9.6 percent; 5-9 age group, 18 percent; and 10-14 age group, 22 percent decrease. These decreases indicate that transmission is being curbed. In the 15-19 age group there was an increase in morbidity of 30 percent reflecting the importance of teen-age tuberculosis. The 0-19 age group showed an overall decrease of 6.1 percent. Comparing the share of morbidity for the 0-19 age group for 1982 and 1983, an increase of 0.1 percent from 5.7 percent in 1982 to 5.8 percent in 1983 is noted. Among the 20-44 age group an increase in morbidity of 7.3 percent from 1982 was experienced with an associated increase in the share of total morbidity of 1.9 percent, i.e. 47.1 percent in 1982 compared to 49 percent in 1983. Tuberculosis among the 45 and older age group decreased by 0.5 percent during 1983 from 1982; also, the morbidity share of this age group decreased by 1.9 percent from 47.1 percent in 1982 to 45.2 percent in 1983.

Tuberculosis, frequently considered to be a disease of the older age groups, in New York City is dominant among individuals over 35 years of age with 63 percent of all 1983 morbidity. New tuberculosis cases are appearing more frequently in age groups one would not expect. Overall, 1983 morbidity increased by 3.5 percent from 1982 with the increase absorbed within the 20-44 age group. Morbidity among the 45 and older age group decreased by 0.5 percent, but their share of total morbidity had the largest increase of any age group. These differences will be elucidated below.

Table 7 shows the number of cases of tuberculosis for the separate younger age groups. A gradual decline in number is noted for all age groups except the 15-19 age group for 1983. As indicated above, these age groups still account for a 5.8% share of all tuberculosis morbidity.

### 2. Race

Tuberculosis occurs more frequently among blacks specifically, and non-whites generally than whites. This statement has been true since 1969 when the white morbidity was 1,354 cases and non-white morbidity was 1,597. Even though the morbidity figures prior to 1969 show whites with a larger number of cases, expressed as a rate per 100,000 population, non-whites have disproportionately dominated morbidity since at least 1950 (table 8).

Comparing white with black morbidity from 1982 to 1983, a change is noted for each although in opposite directions. Black morbidity increased by 14.3 percent (901 cases in 1983 versus 788 cases in 1982) while white morbidity decreased by 8.4 percent in 1983 (636 cases in 1983 versus 695 cases in 1982).

Table 6
Newly Reported Tuberculosis Cases
by Age, Race, and Sex
New York City 1982 - 1983

| Age Groups | White* | | | | Black** | | | | Asian | | | | Total All Races | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1982 | | 1983 | | 1982 | | 1983 | | 1982 | | 1983 | | 1982 | | 1983 | |
| | M | F | M | F | M | F | M | F | M | F | M | F | # | % | # | % |
| 0-4 | 6 | 8 | 1 | 5 | 8 | 9 | 11 | 11 | 0 | 0 | 1 | 0 | 31 | 1.9 | 29 | 1.7 |
| 5-9 | 3 | 2 | 3 | 1 | 4 | 1 | 0 | 4 | 1 | 0 | 1 | 0 | 11 | 0.7 | 9 | 0.5 |
| 10-14 | 1 | 1 | 2 | 1 | 1 | 6 | 2 | 0 | 0 | 0 | 0 | 2 | 9 | 0.5 | 7 | 0.4 |
| 15-19 | 10 | 4 | 10 | 9 | 11 | 10 | 13 | 17 | 3 | 2 | 1 | 2 | 40 | 2.5 | 52 | 3.1 |
| 20-24 | 25 | 13 | 25 | 15 | 28 | 25 | 43 | 31 | 6 | 4 | 7 | 4 | 101 | 6.3 | 125 | 7.5 |
| 25-34 | 75 | 42 | 74 | 30 | 118 | 66 | 164 | 78 | 22 | 13 | 24 | 16 | 336 | 21.0 | 386 | 23.7 |
| 35-44 | 82 | 33 | 53 | 35 | 142 | 48 | 147 | 48 | 4 | 6 | 10 | 3 | 315 | 20.0 | 296 | 18.0 |
| 45-54 | 83 | 21 | 77 | 37 | 97 | 40 | 121 | 41 | 10 | 3 | 4 | 3 | 254 | 16.0 | 283 | 17.0 |
| 55-64 | 74 | 34 | 67 | 25 | 75 | 28 | 64 | 32 | 8 | 4 | 9 | 4 | 223 | 14.0 | 201 | 12.0 |
| 65+ | 108 | 70 | 113 | 53 | 36 | 35 | 46 | 28 | 18 | 7 | 14 | 9 | 274 | 17.0 | 263 | 16.0 |
| Subtotals | 467 | 228 | 425 | 211 | 520 | 268 | 611 | 290 | 72 | 39 | 71 | 43 | 1594 | 100 | 1651 | 100 |
| Totals | 695 | | 636 | | 788 | | 901 | | 111 | | 114 | | | | | |

*Includes white Hispanics

**Includes black Hispanics

FIGURE 3

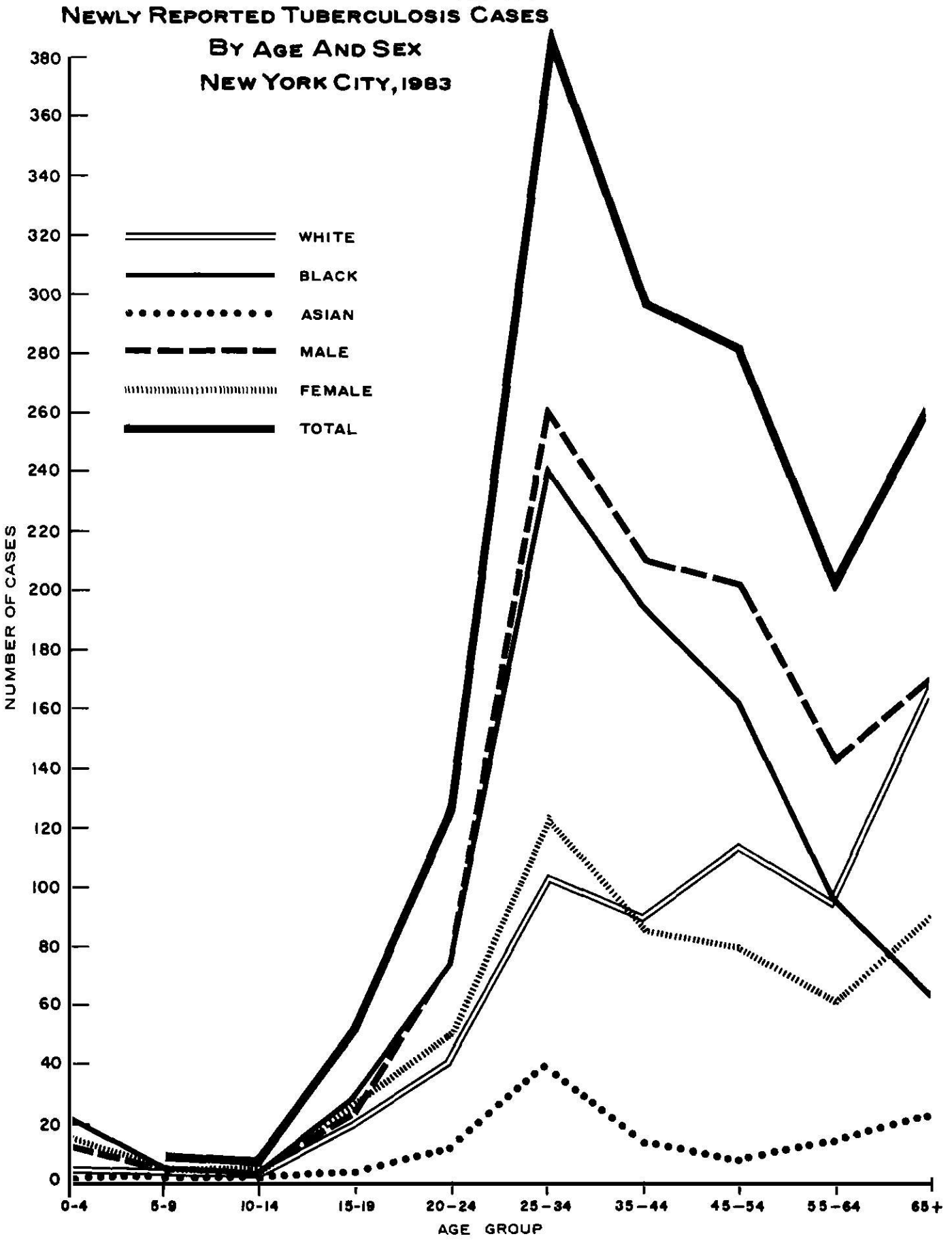

NEWLY REPORTED TUBERCULOSIS CASES
BY AGE AND SEX
NEW YORK CITY, 1983
WHITE
BLACK
ASIAN
MALE
FEMALE
TOTAL
NUMBER OF CASES
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
0-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65+
AGE GROUP

Table 7
T.B. By Age Groups

| Year | 0-4 | 5-9 | 10-14 | 15-19 | Total Cases Reported |
|---|---|---|---|---|---|
| 1960 | 234 | 133 | 77 | 172 | 4,699 |
| 1961 | 254 | 129 | 74 | 136 | 4,360 |
| 1962 | 233 | 110 | 78 | 180 | 4,437 |
| 1963 | 250 | 144 | 80 | 172 | 4,891 |
| 1964 | 218 | 133 | 88 | 169 | 4,207 |
| 1965 | 186 | 124 | 79 | 158 | 4,242 |
| 1966 | 169 | 103 | 83 | 135 | 3,663 |
| 1967 | 137 | 104 | 55 | 138 | 3,452 |
| 1968 | 121 | 71 | 33 | 110 | 3,224 |
| 1969 | 121 | 60 | 42 | 85 | 2,951 |
| 1970 | 87 | 59 | 31 | 78 | 2,590 |
| 1971 | 108 | 71 | 30 | 98 | 2,572 |
| 1972 | 65 | 58 | 24 | 91 | 2,275 |
| 1973 | 58 | 48 | 22 | 65 | 2,101 |
| 1974 | 77 | 48 | 26 | 68 | 2,022 |
| 1975 | 64 | 54 | 36 | 77 | 2,151 |
| 1976 | 28 | 14 | 18 | 72 | 2,156 |
| 1977 | 16 | 17 | 18 | 50 | 1,605 |
| 1978 | 26 | 9 | 12 | 39 | 1,307 |
| 1979 | 32 | 8 | 13 | 34 | 1,530 |
| 1980 | 37 | 14 | 18 | 42 | 1,514 |
| 1981 | 32 | 17 | 16 | 38 | 1,582 |
| 1982 | 31 | 11 | 9 | 40 | 1,594 |
| 1983 | 29 | 9 | 7 | 52 | 1,651 |

Table 8
Newly Reported Tuberculosis Cases with
Selected Case Rates (1), White and Non White
New York City 1950 - 1983

| Year | White | | Non White | | Total | |
|---|---|---|---|---|---|---|
| | Cases | Rates | Cases | Rates | Cases | Rates |
| 1950 | 4,646 | 65 | 3,071* | 257 | 7,717 | 98 |
| 1955 | 3,347 | 47 | 2,867* | 180 | 6,214 | 79 |
| 1960 | 2,896 | 29 | 1,803 | 115 | 4,699 | 60 |
| 1961 | 2,588 | | 1,722 | | 4,360 | |
| 1962 | 2,578 | | 1,859 | | 4,437 | |
| 1963 | 2,705 | | 2,186 | | 4,891 | |
| 1964 | 2,283 | | 1,924 | | 4,207 | |
| 1965 | 2,211 | 20 | 2,031 | 118 | 4,242 | 54 |
| 1966 | 1,853 | | 1,810 | | 3,663 | |
| 1967 | 1,802 | | 1,740 | | 3,452 | |
| 1968 | 1,614 | | 1,610 | | 3,224 | |
| 1969 | 1,354 | | 1,597 | | 2,951 | |
| 1970 | 1,130 | 11 | 1,460 | 60 | 2,590 | 33 |
| 1971 | 879 | | 1,693 | | 2,572 | |
| 1972 | 925 | | 1,350 | | 2,275 | |
| 1973 | 831 | | 1,270 | | 2,101 | |
| 1974 | 843 | | 1,179 | | 2,022 | |
| 1975 | 872 | 10 | 1,279 | 48 | 2,151 | 27 |
| 1976 | 840 | | 1,316 | | 2,156 | |
| 1977 | 771 | | 834 | | 1,605 | |
| 1978 | 641 | | 666 | | 1,307 | |
| 1979 | 702 | | 828 | | 1,530 | |
| 1980 | 668 | 15.5 | 846 | 30.4 | 1,514 | 20 |
| 1981 | 726 | 16.9 | 856 | 30.8 | 1,582 | 22 |
| 1982 | 695 | 16.2 | 899 | 32.4 | 1,594 | 23 |
| 1983 | 636 | 14.8 | 1,015 | 36.5 | 1,651 | 23 |

1. Rates are per 100,000 population in five year increments to 1980
*includes 431 in 1950 and 171 in 1955 whose race was not stated.

As a share of total morbidity, blacks accounted for 54.5 percent, whites for 38.5 percent, and Asians for 7 percent in 1983 compared with 49.4 percent for blacks, 43.6 percent for whites, and 7 percent for Asians in 1982.

Comparing white and non-white morbidity with their respective populations in New York City, it is noted that non-whites comprise 30.6 percent of the population while accounting for 61.5 percent of the total tuberculosis morbidity.

3. Sex (Table 6)

Tuberculosis occurs more frequently among males than females. In 1983 tuberculosis among males accounted for 67 percent of the total morbidity compared to 66 percent in 1982. Although the ratio of 2:1 continues to remain stable as it has over the past four years, the gap between males and females is slowly widening.

Summary

Tuberculosis continues to assert itself in the 20-44 year age group. The tuberculosis patient who falls in this age group will continue to dominate the New York City morbidity picture as long as other problems which affect these patients disproportionately are not adequately addressed, such as poverty, apathy, drug and alcohol abuse. Most cases as illustrated are concentrated in this age group whereas there is an appreciable decline in the older age groups. The problem of tuberculosis in New York City is complicated by not only shifts in population, but the racial and ethnic origins of the population. The black population again experienced an increase in tuberculosis especially among young to middle age males. Most of the cases occurred in second generation blacks so the disease was not imported, but acquired in New York City. To further illustrate these problems, morbidity rates from 1925-1983 are listed in table 9. This table presents the changing rates per 100,000 population for the city as a whole, the rates for blacks and whites, and the respective rates for three high incidence areas, notably Central Harlem, Bedford and Morrisania which are almost double the city's rate. The decline in tuberculosis rates for the city as a whole was 87% from 1925 till 1983. The decline in the rate for blacks from 1950 to 1983 was 83%. The decline in Central Harlem from 1930 till 1983 was 80%.

Mortality (table 10) has likewise decreased in the three respective areas and although it is still higher than acceptable shows moderate decreases. These declining rates are illustrated in figure 4. As indicated earlier the graph illustrates the increase in rates for the city as a whole, and blacks, whites, and the three selected areas between 1975 and 1983.

Table 9
TB Morbidity Rates*
(per 100,000)
1925-1983

| Year | NYC | Non-White** | White | Central Harlem | Bedford | Morrisania |
|---|---|---|---|---|---|---|
| 1925 | 179 | N.A. | N.A. | N.A. | N.A. | N.A. |
| 30 | 180 | N.A. | N.A. | 543 | 143 | 145 |
| 35 | 131 | N.A. | N.A. | 457 | 106 | 105 |
| 40 | 121 | N.A. | N.A. | 455 | 120 | 85 |
| 45 | 92 | N.A. | N.A. | 328 | 119 | 84 |
| 50 | 98 | 257[t] | 65 | 364 | 124 | 107 |
| 55 | 79 | 180[t] | 47 | 320 | 119 | 75 |
| 60 | 60 | 115 | 29 | 249 | 101 | 75 |
| 65 | 54 | 118 | 20 | 191 | 120 | 73 |
| 70 | 33 | 60 | 11 | 135 | 75 | 58 |
| 75 | 37 | 48 | 10 | 105 | 64 | 48 |
| 80 | 21 | 30 | 11 | 79 | 41 | 23 |
| 81 | 20 | 31 | 15 | 80 | 48 | 33 |
| 82 | 22 | 32(57[t]) | 17 | 104 | 41 | 40 |
| 83 | 23 | 36(41[t]) | 15 | 109 | 44 | 40 |

[t]Black only
**Non-White -person having origins in any of the original peoples of Africa, the Far East, Southeast Asia, Indian Subcontinent, or the Pacific Islands.
*Data for 1900-1924 are not available

Note: New York City as a whole shows a decrease of 87% from 1925 till 1983, blacks a decrease of 83% from 1950 till 1983, and Central Harlem a decrease of 80% from 1930 to 1983.

Table 10

Mortality and Morbidity Rates per 100,000
for Three Selected Health Districts
1930 - 1983

| Year | Central Harlem | | Bedford | | Morrisania | |
|---|---|---|---|---|---|---|
| | Mortality | Morbidity | Mortality | Morbidity | Mortality | Morbidity |
| 1930 | 251 | 543 | 55 | 143 | 50 | 145 |
| 1935 | 274 | 457 | 55 | 106 | 38 | 105 |
| 1940 | 204 | 455 | 57 | 120 | 29 | 85 |
| 1945 | 175 | 328 | 61 | 119 | 42 | 84 |
| 1950 | 136 | 364 | 41 | 124 | 29 | 107 |
| 1955 | 56 | 320 | 21 | 119 | 13 | 75 |
| 1960 | 41 | 249 | 17 | 101 | 10 | 75 |
| 1965 | 24 | 191 | 13 | 120 | 9 | 73 |
| 1970 | 22 | 135 | 11 | 75 | 8 | 58 |
| 1975 | 11 | 105 | 5 | 64 | 3 | 48 |
| 1980 | 8 | 79 | 3 | 41 | 3 | 23 |
| 1981 | 7.4 | 80 | 6.2 | 48 | 1.5 | 33 |
| 1982 | 18 | 104 | 5.7 | 41 | 2.9 | 40 |
| 1983 | 16 | 109 | 3 | 44 | 2 | 40 |

FIGURE 4

## TB MORBIDITY RATES* per 100,000 POPULATION NEW YORK CITY, 1900-1983

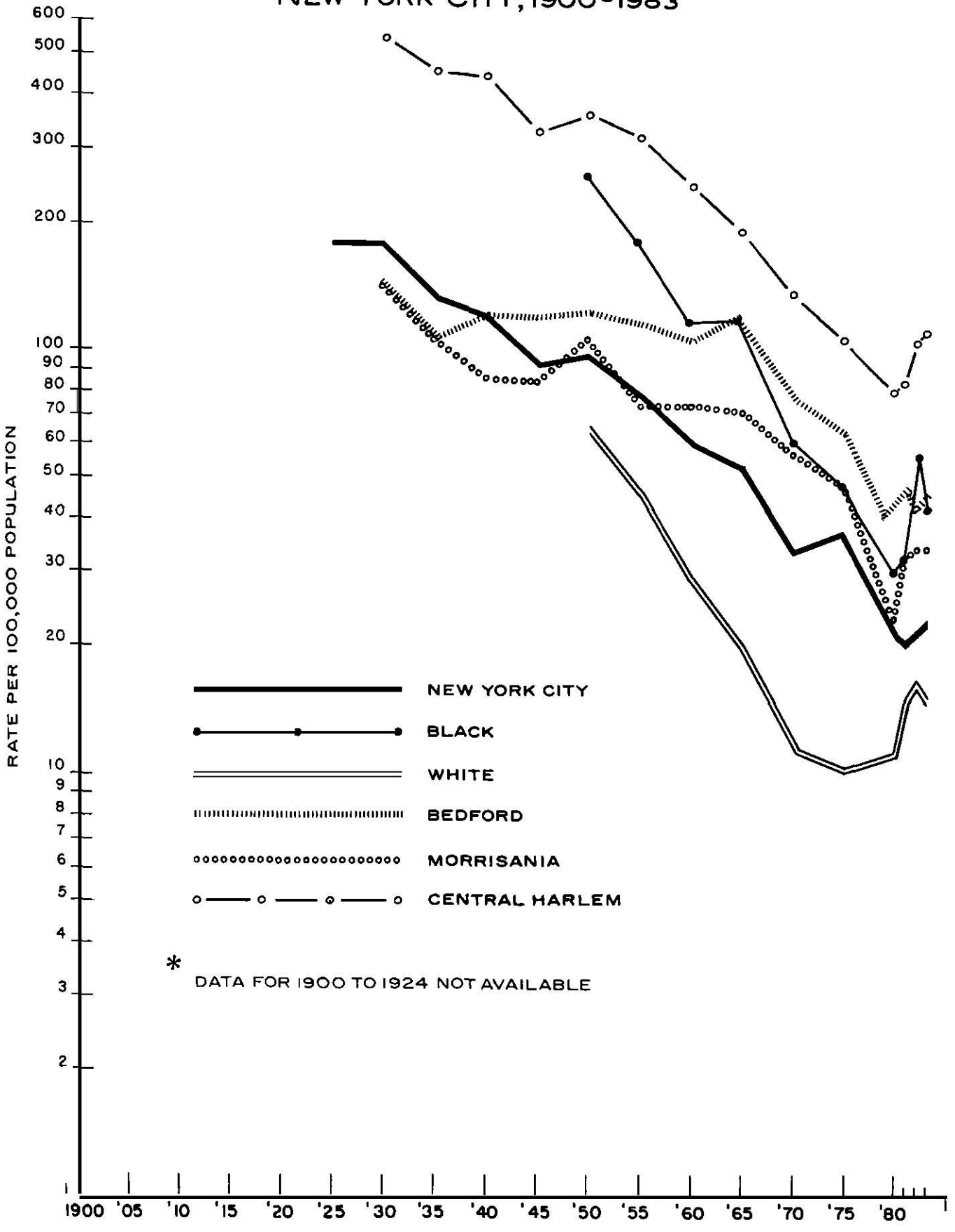


Table 11
Newly Reported Tuberculosis Cases
by Age, Race, Sex, and County of Residence
New York City, 1983

New York (Manhattan)

| Age Groups | White | | | | Black | | | | Asian | | | | Total All Races | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1983 | | 1982 | | 1983 | | 1982 | | 1983 | | 1982 | | | |
| | M | F | M | F | M | F | M | F | M | F | M | F | 1983 | 1982 |
| 0-4 | 0 | 2 | 3 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 6 |
| 5-9 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 2 |
| 10-14 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 4 |
| 15-19 | 0 | 2 | 0 | 1 | 1 | 2 | 2 | 5 | 0 | 0 | 0 | 1 | 5 | 9 |
| 20-24 | 9 | 2 | 10 | 9 | 7 | 8 | 6 | 3 | 1 | 0 | 2 | 0 | 27 | 30 |
| 25-34 | 27 | 9 | 27 | 12 | 52 | 21 | 40 | 23 | 7 | 7 | 3 | 2 | 123 | 107 |
| 35-44 | 22 | 11 | 32 | 9 | 67 | 18 | 64 | 11 | 2 | 0 | 0 | 0 | 120 | 116 |
| 45-54 | 42 | 12 | 42 | 2 | 50 | 12 | 38 | 8 | 1 | 1 | 3 | 2 | 118 | 95 |
| 55-64 | 27 | 4 | 34 | 9 | 27 | 11 | 26 | 12 | 6 | 1 | 4 | 2 | 76 | 87 |
| 65+ | 35 | 13 | 33 | 7 | 28 | 9 | 12 | 12 | 11 | 3 | 8 | 2 | 99 | 74 |
| Total | 164 | 55 | 182 | 51 | 232 | 83 | 191 | 78 | 28 | 12 | 20 | 9 | 574 | 530 |

Bronx

| Age Groups | White | | | | Black | | | | Asian | | | | Total All Races | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1983 | | 1982 | | 1983 | | 1982 | | 1983 | | 1982 | | | |
| | M | F | M | F | M | F | M | F | M | F | M | F | 1983 | 1982 |
| 0-4 | 1 | 2 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| 5-9 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| 10-14 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 15-19 | 3 | 2 | 4 | 2 | 4 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 13 | 7 |
| 20-24 | 8 | 3 | 2 | 1 | 8 | 4 | 3 | 2 | 1 | 0 | 0 | 2 | 24 | 10 |
| 25-34 | 16 | 11 | 16 | 9 | 18 | 6 | 11 | 12 | 4 | 1 | 5 | 2 | 56 | 55 |
| 35-44 | 13 | 11 | 19 | 6 | 21 | 6 | 21 | 7 | 0 | 0 | 0 | 1 | 51 | 54 |
| 45-54 | 10 | 6 | 14 | 9 | 16 | 9 | 9 | 7 | 0 | 0 | 1 | 0 | 41 | 40 |
| 55-64 | 11 | 5 | 9 | 6 | 11 | 4 | 8 | 3 | 1 | 1 | 0 | 2 | 33 | 28 |
| 65+ | 17 | 8 | 14 | 10 | 4 | 3 | 3 | 8 | 0 | 1 | 0 | 0 | 33 | 35 |
| Total | 79 | 50 | 81 | 45 | 83 | 36 | 57 | 39 | 6 | 3 | 6 | 7 | 257 | 235 |

Kings

| Age Groups | White | | | | Black | | | | Asian | | | | Total All Races | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1983 | | 1982 | | 1983 | | 1982 | | 1983 | | 1982 | | | |
| | M | F | M | F | M | F | M | F | M | F | M | F | 1983 | 1982 |
| 0-4 | 0 | 1 | 2 | 2 | 8 | 9 | 5 | 5 | 0 | 0 | 0 | 0 | 18 | 14 |
| 5-9 | 2 | 0 | 2 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 5 | 4 |
| 10-14 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 4 | 5 |
| 15-19 | 1 | 2 | 2 | 0 | 6 | 9 | 4 | 3 | 0 | 1 | 1 | 0 | 19 | 10 |
| 20-24 | 5 | 6 | 9 | 2 | 20 | 14 | 15 | 16 | 1 | 2 | 1 | 0 | 48 | 43 |
| 25-34 | 18 | 7 | 19 | 6 | 74 | 38 | 49 | 23 | 2 | 2 | 5 | 3 | 141 | 105 |
| 35-44 | 13 | 10 | 16 | 10 | 48 | 19 | 47 | 20 | 2 | 0 | 0 | 2 | 92 | 95 |
| 45-54 | 12 | 6 | 18 | 2 | 44 | 16 | 40 | 15 | 2 | 1 | 5 | 0 | 81 | 80 |
| 55-64 | 12 | 6 | 11 | 6 | 19 | 14 | 24 | 8 | 1 | 1 | 2 | 0 | 53 | 51 |
| 65+ | 28 | 9 | 26 | 26 | 13 | 10 | 14 | 11 | 1 | 1 | 3 | 3 | 62 | 83 |
| Total | 92 | 47 | 105 | 55 | 234 | 131 | 200 | 105 | 10 | 9 | 17 | 8 | 523 | 490 |

Queens

| Age Groups | White 1983 M | White 1983 F | White 1982 M | White 1982 F | Black 1983 M | Black 1983 F | Black 1982 M | Black 1982 F | Asian 1983 M | Asian 1983 F | Asian 1982 M | Asian 1982 F | Total All Races 1983 | Total All Races 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0- 4 | 0 | 0 | 1 | 3 | 2 | 1 | 2 | 3 | 1 | 0 | 0 | 0 | 4 | 9 |
| 5- 9 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| 10-14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 15-19 | 6 | 3 | 4 | 1 | 2 | 2 | 4 | 2 | 1 | 1 | 2 | 1 | 15 | 14 |
| 20-24 | 3 | 4 | 4 | 1 | 8 | 4 | 4 | 4 | 4 | 2 | 3 | 2 | 25 | 18 |
| 25-34 | 13 | 4 | 13 | 13 | 18 | 13 | 14 | 6 | 11 | 5 | 9 | 6 | 64 | 61 |
| 35-44 | 5 | 3 | 13 | 8 | 11 | 5 | 6 | 9 | 6 | 3 | 4 | 3 | 33 | 43 |
| 45-54 | 13 | 13 | 9 | 8 | 10 | 4 | 9 | 8 | 1 | 1 | 1 | 1 | 42 | 36 |
| 55-64 | 14 | 9 | 20 | 10 | 7 | 3 | 16 | 4 | 1 | 1 | 2 | 0 | 35 | 52 |
| 65+ | 27 | 19 | 32 | 23 | 2 | 5 | 8 | 4 | 2 | 3 | 4 | 2 | 58 | 73 |
| Total | 81 | 55 | 96 | 68 | 60 | 38 | 63 | 40 | 27 | 17 | 26 | 15 | 278 | 308 |

Staten Island

| Age Groups | White 1983 M | White 1983 F | White 1982 M | White 1982 F | Black 1983 M | Black 1983 F | Black 1982 M | Black 1982 F | Asian 1983 M | Asian 1983 F | Asian 1982 M | Asian 1982 F | Total All Races 1983 | Total All Races 1982 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0- 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5- 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10-14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 25-34 | 0 | 0 | 0 | 1 | 2 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 3 | 4 |
| 35-44 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 6 |
| 45-54 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 3 |
| 55-64 | 3 | 1 | 1 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 4 | 6 |
| 65+ | 5 | 4 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 10 | 11 |
| Total | 8 | 5 | 6 | 8 | 3 | 1 | 8 | 5 | 0 | 2 | 3 | 0 | 19 | 30 |

F. Geographic Distribution of Newly Reported Tuberculosis Cases and Deaths New York City, 1983 (Table 12, Fig. 5)

Table 12 illustrates the geographic distribution of the morbidity for 1983 among the boroughs and health districts with their associated case rates from 1980 to 1983. Manhattan, with seven health districts noted increases in all but two, i.e. Kips Bay/ Yorkville and Washington Heights. The borough had a case rate of 39.8 per 100,000. Four health districts had higher rates. In fact, Central Harlem with a rate of 109 was almost three times higher than the rate for the borough. The Lower East Side with a rate of 59.2 also was well above the borough average.

Bronx County, with six health districts,also noted increases in all but two. Since Morrisania decreased slightly, Tremont is the only health district with a significant decrease in rate: going from 32.1 in 1982 to 26.5 in 1983. With a borough average rate of 22.0 the Bronx was evenly divided with three districts each above and below the average. Unfortunately Pelham Bay, which was the health district reporting the lowest rate for 1982 in the borough, reported a considerable increase from 1982 (8.2 to 12.3). Since 1980, the Bronx has experienced a steady and significant increase in case rates: from 14.1 in 1980 to 22.0 in 1983.

Kings County, with ten health districts, noted increases in all but four, i.e. Bay Ridge, Gravesend, Fort Greene, and Sunset Park. With a borough average of 23.4,the borough is evenly divided with five health districts each above or below the average. The highest rates were reported from Bedford, Bushwick, and Fort Greene. These districts have traditionally been high rate areas and continue to present control difficulties.

Queens County, consisting of six health districts,also is evenly divided with three districts having decreasing or increasing rates in 1983, and with three each above and below the borough average of 14.8 cases per 100,000. Queens is the sole populous borough with a case rate less than New York City's, and without a single health district above the New York City case rate. Although the 1983 rates for Queens are encouraging compared to the 1982 rates, increases are noted in Corona and Maspeth/Forest Hills.

Richmond County is by far the borough with least tuberculosis in the city. With a rate of 5.3 it is almost one-third that of Queens County which is second lowest of the five boroughs. Richmond has had a steadily decreasing rate since 1980 (7.0 to 5.3) and a rate almost four times less than the New York City rate. Richmond is leading the boroughs and health districts as the single lowest morbidity area.

Table 12
Newly Reported Tuberculosis Cases by
County and Health District of Residence New York City
1983 and Newly Reported Case Rates 1980-1983

| County | Health District | 1983 Cases | 1983(1) Rates | 1982(1) Rates | 1981(1) Rates | 1980(2) Rates |
|---|---|---|---|---|---|---|
| New York | | 569 | 39.8 | 37.2 | 39.8 | 38.1 |
| | Central Harlem | 133 | 109.0 | 104.1 | 79.9 | 61.0 |
| | East Harlem | 49 | 39.2 | 22.0 | 38.5 | 25.6 |
| | Kips Bay/Yorkville | 17 | 7.3 | 9.5 | 13.8 | 11.9 |
| | Lower East Side | 136 | 59.2 | 55.8 | 68.9 | 69.7 |
| | Lower West Side | 103 | 37.9 | 32.8 | 29.5 | 42.5 |
| | Riverside | 72 | 34.8 | 28.1 | 29.5 | 29.1 |
| | Washington Heights | 59 | 24.3 | 33.1 | 38.9 | 26.6 |
| Bronx | | 258 | 22.0 | 20.1 | 17.5 | 14.1 |
| | Fordham/Riverdale | 38 | 15.6 | 11.1 | 15.8 | 17.8 |
| | Morrisania | 54 | 40.1 | 40.2 | 32.7 | 15.2 |
| | Mott Haven | 53 | 44.2 | 41.1 | 29.8 | 17.0 |
| | Pelham Bay | 27 | 12.3 | 8.2 | 11.4 | 9.7 |
| | Tremont | 47 | 26.5 | 32.1 | 19.1 | 17.5 |
| | Westchester | 39 | 13.7 | 11.0 | 10.2 | 9.3 |
| Kings | | 524 | 23.4 | 22.0 | 22.0 | 20.2 |
| | Bay Ridge | 16 | 6.4 | 7.6 | 6.4 | 8.7 |
| | Bedford | 93 | 44.5 | 41.2 | 47.9 | 33.5 |
| | Brownsville | 73 | 26.9 | 22,8 | 24.0 | 16.9 |
| | Bushwick | 64 | 38.4 | 32.4 | 31.2 | 25.2 |
| | Flatbush | 96 | 20.0 | 18.9 | 13.6 | 17.4 |
| | Fort Greene | 66 | 44.9 | 45.6 | 47.4 | 40.9 |
| | Gravesend | 30 | 10.4 | 12.5 | 12.8 | 13.4 |
| | Red Hook/Gowanus | 34 | 29.7 | 18.3 | 31.5 | 21.1 |
| | Sunset Park | 23 | 13.9 | 17.6 | 12.2. | 14.7 |
| | Williamsburg/Greenpoint | 29 | 20.3 | 17.5 | 20.4 | 20.7 |
| Queens | | 281 | 14.8 | 16.3 | 15.8 | 12.3 |
| | Astoria/LIC | 50 | 20.9 | 20.5 | 20.1 | 17.8 |
| | Corona | 59 | 22.4 | 20.5 | 26.2 | 18.4 |
| | Flushing | 34 | 7.6 | 14.0 | 10.4 | 10.4 |
| | Jamaica East | 63 | 19.5 | 20.1 | 17.7 | 15.7 |
| | Jamaica West | 50 | 14.3 | 16.9 | 12.6 | 8.4 |
| | Maspeth/Forest Hills | 25 | 9.0 | 6.9 | 12.7 | 6.3 |
| Richmond | | 19 | 5.3 | 8.5 | 5.7 | 7.0 |
| | Richmond | 19 | 5.3 | 8.5 | 5.7 | 7.0 |
| Total | New York City | 1,651 | 23.4 | 22.5 | 22.4 | 21.0 |

1) Rate is per 100,000 population based on 1980 census.
2) Rate is per 100,000 population based on July 1976 estimate.

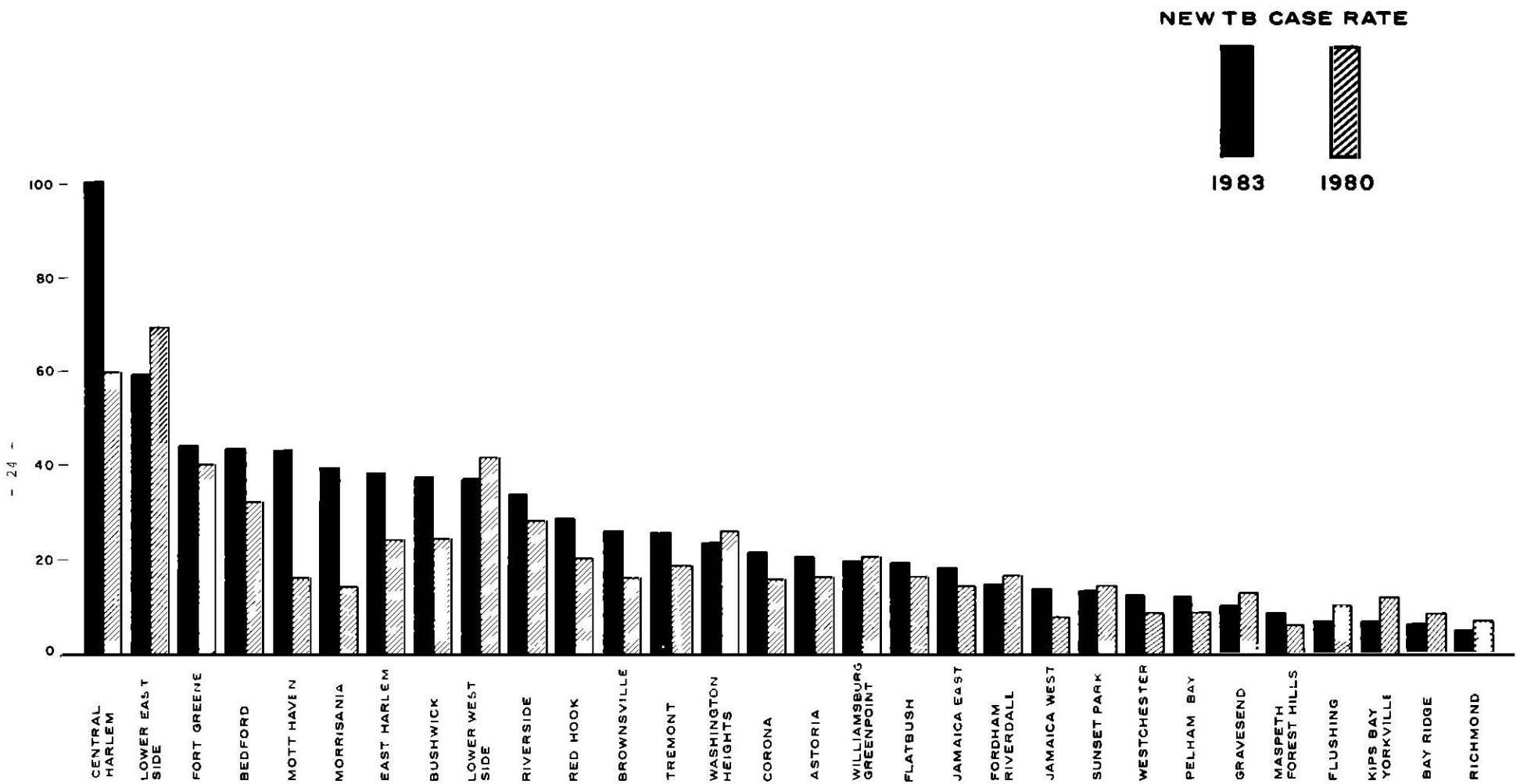
FIGURE 5

# NEWLY REPORTED TUBERCULOSIS CASE RATES

( Per 100,000 POPULATION )

# BY HEALTH DISTRICTS IN NEW YORK CITY

# 1980 and 1983



## G. Newly Reported Tuberculosis Cases With Disease Again (Reactivation) Tables 13 and 14

Patients who were previously treated for tuberculosis are counted as new cases after they have not been under medical supervision for 12 or more months and are diagnosed again with tuberculosis. The new diagnosis is confirmed by bacteriological findings and recent chest x-rays compatible with active tuberculosis. In 1983 there were 36 cases with reactivated TB, a decrease of 50% from 1982 (30 cases). All reactivations were over the age of 25, 44% under the age of 45 compared to 41% in 1982, the age group 25-34 was responsible for the greatest number of reactivations in 1983 (10). Black females showed again the greatest decline though reactivations among this group increased slightly in the younger ages. The number of patients with "tuberculosis again" remained the same in New York county and decreased in the other counties.

Treatment regimens available today should cure all patients. Patients should not reactivate hence it is gratifying to note that only 36 patients reactivated in 1983. These reactivations perhaps are due to interruption of treatment or premature termination of treatment. The fact that the number of reactivations has decreased substantially indicates that with the employment of short course chemotherapy, patients are more apt to complete a full course of treatment.

Table 13

Newly Reported Tuberculosis Cases with Disease Again
by County of Residence, New York City 1980-1983

| County of Residence | Number of Reactivated Cases | | | | Percent of Total Reactivated Cases | | | |
|---|---|---|---|---|---|---|---|---|
| | 1980 | 1981 | 1982 | 1983 | 1980 | 1981 | 1982 | 1983 |
| New York | 53 | 47 | 17 | 18 | 39 | 39 | 26 | 50 |
| Kings | 46 | 36 | 30 | 10 | 34 | 30 | 45 | 28 |
| Queens | 17 | 16 | 7 | 3 | 13 | 13 | 11 | 8 |
| Bronx | 17 | 19 | 10 | 5 | 13 | 16 | 15 | 14 |
| Richmond | 2 | 3 | 2 | 0 | 1 | 2 | 3 | 0 |
| Total N.Y.C. | 135 | 121 | 66 | 36 | 100 | 100 | 100 | 100 |

Table 14

Newly Reported Tuberculosis Cases With Disease Again (Reactivations) by Age, Race, and Sex, New York City, 1981-1983

| Age Groups | Total Cases | | | White | | | | | | Black | | | | | | Asian | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1981 | 1982 | 1983 | 1981 | | 1982 | | 1983 | | 1981 | | 1982 | | 1983 | | 1981 | | 1982 | | 1983 | |
| | | | | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 7 | 1 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 20 | 10 | 10 | 1 | 3 | 2 | 1 | 1 | 3 | 9 | 7 | 3 | 4 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-44 | 20 | 14 | 6 | 3 | 1 | 2 | 0 | 1 | 1 | 11 | 3 | 8 | 4 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| 45-54 | 32 | 15 | 7 | 13 | 3 | 2 | 0 | 3 | 0 | 15 | 1 | 10 | 2 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 55-64 | 26 | 16 | 7 | 14 | 3 | 7 | 2 | 2 | 0 | 8 | 0 | 3 | 2 | 4 | 1 | 1 | 0 | 2 | 0 | 0 | 0 |
| 65+ | 21 | 10 | 6 | 8 | 7 | 2 | 4 | 2 | 1 | 3 | 1 | 2 | 1 | 3 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| Totals | 126 | 66 | 36 | 42 | 18 | 15 | 7 | 9 | 5 | 48 | 12 | 27 | 13 | 15 | 7 | 6 | 0 | 4 | 0 | 0 | 0 |

## H. Newly Reported Cases with Place of Birth Outside the United States

Of the 1,651 cases reported in New York City in 1983, for whom the birthplace was known, 448 were born outside the United States (table 15). Of these, 123 resided in New York County, 79 in the Bronx, 154 in Kings County, 88 in Queens and 4 in Richmond. Forty-eight arrived in the United States within the last 2 years. For the purpose of analysis those who were born in Puerto Rico were considered foreign born. There were 100 patients with birth place in Puerto Rico in 1983 as opposed to 126 in 1982. Puerto Rico had again the greatest number of cases with birth place outside the continental United States. Haiti accounted for 79 cases in 1983, the Peoples Republic of China for 30 and the Dominican Republic for 26. It is important to realize that these patients did not recently arrive but spent many years here before acquiring or breaking down with T.B. When analyzing for country of origin and years of residence before breaking down with secondary T.B., the results show that of the total cases for 1983 only 1.4% were new arrivals in 1983, only 3% of the total case load were born abroad and were here less than 3 years. Considering a length of residence of 5 years and less, no more than 7% of the total cases were born abroad and subsequently developed T.B. within 5 years.

The countries of origin are listed in table 16 indicating the number of cases from 1980-1983. Of the foreign born cases in 1983, 9.6% were born in Europe, 22.3% in Puerto Rico,18.5% in other Spanish speaking countries, 15.4% in South East Asia and other parts of Asia, and 2.2% in Africa. Puerto Rico combined with other Spanish speaking countries accounts for 40.8% of newly reported cases with birth place outside of the continental U.S.A. with various length of residence for 1983.

Thirty-four percent of all foreign-born to be newly diagnosed with T.B. lived in Kings County,followed by New York County (27%), Queens (20%), Bronx County (18%), and Richmond (1%). These percentages do not appreciably differ from previous years, the conclusion being that county of domicile of those born abroad has no bearing on T.B. The possibility of disease being imported and foreigners or immigrants spreading the disease is of little consequence. The Department of Immigration and Naturalization requires all potential immigrants to be examined and screened prior to departure from their native country or at holding centers in the United States before being allowed to move on.

Table 15
County of Residence of Foreign Born 1980-1983

| County of Residence | # of Foreign Born Cases | | | | Percent | | | |
|---|---|---|---|---|---|---|---|---|
| | 1980 | 1981 | 1982 | 1983 | 1980 | 1981 | 1982 | 1983 |
| New York | 120 | 145 | 122 | 123 | 30 | 32 | 25 | 27 |
| Kings | 132 | 149 | 150 | 154 | 33 | 32 | 31 | 34 |
| Queens | 89 | 98 | 121 | 88 | 23 | 21 | 25 | 20 |
| Bronx | 50 | 61 | 88 | 79 | 13 | 13 | 18 | 18 |
| Richmond | 4 | 7 | 5 | 4 | 1 | 2 | 1 | 1 |
| Total | 395 | 460 | 486 | 448 | 100 | 100 | 100 | 100 |

Table 16
Tuberculosis Cases by Country of Birth 1980-1983

| Country | 1980 | 1981 | 1982 | 1983 | Country | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|---|---|---|---|---|
| Albania | 0 | 0 | 0 | 1 | Poland | 9 | 9 | 5 | 5 |
| Afghanistan | 0 | 1 | 2 | 1 | Portugal | 1 | 0 | 0 | 3 |
| Algeria | 0 | 1 | 1 | 0 | Puerto Rico | 81 | 117 | 125 | 100 |
| Argentina | 0 | 1 | 5 | 1 | Romania | 1 | 3 | 2 | 1 |
| Australia | 0 | 1 | 0 | 0 | Saudi Arabia | 1 | 2 | 1 | 0 |
| Austria | 4 | 4 | 5 | 0 | St. Lucia | 0 | 0 | 2 | 7 |
| Bermuda | 1 | 1 | 0 | 0 | Soviet Union | 14 | 10 | 9 | 4 |
| Bolivia | 1 | 2 | 0 | 1 | Ethiopia | 0 | 0 | 0 | 1 |
| Brazil | 2 | 0 | 1 | 2 | Spain | 2 | 1 | 1 | 1 |
| Burma | 2 | 0 | 1 | 1 | Suriname | 0 | 1 | 0 | 0 |
| Canada | 3 | 1 | 0 | 0 | Somalia | 0 | 1 | 0 | 0 |
| China (PE) | 39 | 40 | 28 | 30 | So. Africa | 0 | 1 | 0 | 0 |
| China (Taiwan) | 1 | 2 | 5 | 3 | Chile | 0 | 0 | 1 | 0 |
| Columbia | 7 | 8 | 13 | 7 | Sweden | 1 | 1 | 1 | 0 |
| Cuba | 8 | 9 | 9 | 6 | Syria | 2 | 0 | 1 | 0 |
| Czechoslovakia | 1 | 3 | 3 | 2 | Trinidad | 5 | 4 | 5 | 4 |
| Dominican Rep. | 12 | 34 | 28 | 26 | Turkey | 1 | 2 | 3 | 0 |
| Ecuador | 11 | 13 | 18 | 11 | United Kingdom | 3 | 2 | 2 | 1 |
| El Salvador | 2 | 0 | 4 | 2 | Venezuela | 1 | 0 | 0 | 0 |
| Finland | 1 | 0 | 0 | 1 | Viet Nam | 16 | 4 | 12 | 4 |
| France | 2 | 1 | 1 | 0 | Yemen, South | 2 | 1 | 2 | 1 |
| Germany, Fed. | 4 | 4 | 5 | 4 | Yugoslavia | 4 | 6 | 3 | 4 |
| Ghana | 1 | 1 | 2 | 2 | Bahamas | 0 | 0 | 1 | 0 |
| Greece | 7 | 6 | 3 | 2 | Unknown | 0 | 3 | 8 | 2 |
| Guyana | 6 | 5 | 6 | 8 | Iran | 0 | 0 | 0 | 1 |
| Haiti | 35 | 37 | 63 | 79 | Bangladesh | 0 | 2 | 1 | 0 |
| Honduras | 5 | 7 | 11 | 4 | Kampuchea | 0 | 6 | 0 | 4 |
| Hong Kong | 2 | 5 | 3 | 3 | Costa Rica | 0 | 3 | 0 | 0 |
| Hungary | 5 | 2 | 0 | 2 | Gibralter | 0 | 0 | 1 | 0 |
| India | 13 | 12 | 11 | 5 | Egypt | 0 | 1 | 0 | 1 |
| Indonesia | 3 | 1 | 1 | 0 | Nicaragua | 0 | 0 | 3 | 0 |
| Ireland | 7 | 6 | 7 | 9 | Guatamala | 0 | 2 | 2 | 4 |
| Italy | 16 | 12 | 5 | 14 | North Korea | 0 | 6 | 3 | 0 |
| Jamaica | 9 | 8 | 7 | 6 | Barbados | 0 | 0 | 2 | 3 |
| Japan | 1 | 2 | 1 | 2 | Laos | 0 | 1 | 0 | 0 |
| Kenya | 1 | 0 | 0 | 0 | Guam | 0 | 0 | 1 | 0 |
| So. Korea | 10 | 8 | 8 | 11 | Morocco | 0 | 1 | 1 | 2 |
| Lebanon | 1 | 0 | 0 | 0 | Mauritania | 0 | 0 | 1 | 0 |
| Liberia | 1 | 0 | 0 | 2 | Nigeria | 0 | 2 | 0 | 2 |
| Mexico | 2 | 1 | 3 | 8 | Malaysia | 0 | 0 | 0 | 1 |
| Neth. Antilles | 1 | 0 | 0 | 0 | Norway | 0 | 1 | 1 | 2 |
| Pakistan | 1 | 1 | 4 | 5 | Dominica | 0 | 0 | 0 | 5 |
| Paraguay | 1 | 0 | 1 | 0 | Panama | 0 | 6 | 1 | 3 |
| Peru | 9 | 10 | 8 | 9 | Thailand | 0 | 3 | 0 | 1 |
| Philippines | 13 | 14 | 12 | 9 | | | | | |

## I. Tuberculosis in Refugees and Aliens

When immigrants come to the United States they are screened by means of an x-ray for tuberculosis prior to their arrival by the Public Health Service's Foreign Quarantine Service. Refugees are screened abroad or are screened while in holding camps. The TB screening procedures consist of a medical interview, a general physical exam, and for persons 15 years of age and older a chest x-ray. Those under 15 years of age receive a chest x-ray if clinically indicated, or if they were members of a family where one or more family members had an abnormal chest x-ray. Refugees and/or aliens are then classified for tuberculosis control purposes as having or as suspected to have tuberculosis (Class A), and those considered noninfectious for travel purposes with no evidence of disease (Class B). Other categories such as nurses, students, or visitors are not screened overseas. Internal migration from other endemic areas of the United States of course also exists.

If the medical examination shows that the individual has or is suspected to have tuberculosis, a visa will only be issued if the sponsor in the United States arranges medical examination, treatment, and follow-up for the individual. The sponsor must obtain a guarantee from a physician who promises to give care to the patient. As of 1979 the Bureau of Tuberculosis provides this care. All immigrants and refugees are handled in a clinic specifically created to screen newcomers. When a case of tuberculosis is discovered overseas, treatment is started and when the patient has 2 negative cultures the patient is cleared for entry into the United States. These patients, both Class A and B, upon arrival are then examined and continued on treatment as deemed necessary.

In 1983 in New York City, 52 Class A aliens were screened. Of these, five were discovered to have active pulmonary tuberculosis, i.e. they had positive cultures in New York City. Only two had positive cultures prior to arrival. Others were presumably classified as Class A based on x-ray findings. Of the 52 Class A persons screened in 1983 in New York City, 33 came from Indochina, Vietnam (33), Laos (0), and Cambodia (0). There were none from Haiti amongst the Class A patients. Three refugees from Indochina had TB prior to entry, none of the other Class A patients had developed TB by the end of 1983. The Class A patients accounted for 11% of the total of all refugees (A and B) and immigrants. A total of 774 Class B entrants were examined in 1983. Of these, 6 were further investigated. No positive cultures were obtained in New York City. Only 6 were put on preventive medicine. Of the Class B, 52 came from Indochina and 64 from Haiti, none had active TB. It is interesting to note that 14 out of 826, only 1.7%, did not show up for their screening examinations at the Health Department.

The Indochinese did not contribute to the total New York City cases for 1983. The incidence of TB for Indochinese cannot be calculated for New York City since it is not known how many refugees arrived here in the first place. It is important to note that bacteriologic confirmation is used as the only criterion to diagnose TB. Studies previously carried out in Indochina showed a prevalence of infection of 5% for the 0-4 age group, 12% for the 5-9 age group, ages 10-14 (20%), 14-19 (40%) and above age 20, 50%.

Table 17
Aliens, Immigrants, and Refugees
1972-1983

| | | CLASS A | | ** | | CLASS B | | ** | |
|---|---|---|---|---|---|---|---|---|---|
| Year | Number | Started on * Therapy | Percent on Therapy | Number Confirmed | Number | Started on * Prevention | Percent on Prevention | Number Confirmed | Class A & B Total |
| 1972 | 18 | 3 | 16.6 | 0 | 160 | 42 | 26.2 | 0 | 178 |
| 1973 | 119 | 38 | 32.0 | 0 | 968 | 192 | 19.8 | 0 | 1087 |
| 1974 | 127 | 25 | 19.6 | 0 | 1677 | 167 | 10.0 | 0 | 1804 |
| 1975 | 170 | 23 | 13.5 | 0 | 1210 | 273 | 22.5 | 0 | 1380 |
| 1976 | 145 | 33 | 22.7 | 0 | 968 | 53 | 5.4 | 0 | 1113 |
| 1977 | 129 | 7 | 5.4 | 3 | 1129 | 46 | 4.0 | 0 | 1258 |
| 1978 | 184 | 4 | 2.1 | 2 | 998 | 58 | 5.8 | 0 | 1182 |
| 1979 | 129 | 10 | 7.7 | 4 | 786 | 34 | 4.3 | 0 | 915 |
| 1980 | 86 | 37 | 21.0 | 6 | 788 | 128 | 16.2 | 0 | 874 |
| 1981 | 124 | 10 | 8.0 | 2 | 700 | 51 | 7.2 | 1 | 824 |
| 1982 | 113 | 35 | 31.0 | 4 | 883 | 20 | 2.2 | 0 | 996 |
| 1983 | 52 | 11 | 12.0 | 5 | 774 | 6 | 0.7 | 0 | 826 |
| Totals | 1,396 | 236 | 16.0 | 22 | 11,041 | 1,070 | 9.6 | 1 | 12,437 |

*Only patients that warranted treatment are included, the others were found not to require treatment for tuberculosis.

**These were diagnosed to really have T.B. according to C.D.C. criteria.

## Section II: Tuberculosis Mortality

### J. TB Mortality by Age, Race and Sex (Tables 18 and 19, Figure 6)

In 1983 there were 151 deaths in New York City with tuberculosis as the primary or as one of the contributing causes of death, a decrease of 3.8% since 1982. The increase in numbers of deaths over the last few years seems to have leveled off. The death rate for 1983 was 2.1 per 100,000 population, a slight decrease over 1982 (2.2 per 100,000). As illustrated in table 18 and 19, the numbers of deaths and rates have gradually decreased since 1900 at which time the rate was 280 per 100,000 population as compared to 2.1 for 1983. Table 18 assumes that the patients died from tuberculosis as a primary cause of death. Over the last number of years deaths from some other primary cause, but where tuberculosis was secondary and led ultimately to death, have been included (see below). The fact that there was potentially a delay in the diagnosis, and whether this could have been avoided or not, cannot be ascertained adequately. Tuberculosis then is only a minor cause of mortality in New York City as a whole. The age adjusted mortality rate for tuberculosis dropped from 241.0 per 100,000 population (1901-1903) to 0.9 (1979-1981). Tuberculosis from 1979 to 1981 as a cause of death ranks 13th in New York City amongst the common causes of death, greatly exceeded by homicides (23.0), suicides(10.0), auto accidents (7.8), cancer (154.0), circulatory disease (294.0), and pneumonia (20.7) per 100,000 population. The percent change in both total numbers and rates for 1983 show a decrease after three consecutive years of increase, which is encouraging. The numbers are small and hence the percent changes give somewhat of a false impression.

Table 18 shows selected areas with high mortality rates, i.e. Central Harlem, Bedford, and Morrisania. All areas reflect a declining mortality rate. It is noted that there is a distinct difference between Central Harlem, Bedford and Morrisania. In Central Harlem the mortality rate decreased up till 1980, thereafter an increase is noted for 1981 and 1982. By 1983 the rate has fortunately again decreased to the lowest rate yet attained. All three areas show a mortality rate from TB that is still too high for modern standards. The rate for Central Harlem and Bedford not only exceed the New York City rate by 3 to 4 fold, but also the national rate. These city rates are illustrated in table 19. Figure 6 shows the steadily decreasing trend in TB mortality for New York City, blacks, whites, Central Harlem, Bedford, and Morrisania health districts. Through this graphic presentation, relatively high rates of mortality can be seen to persist among blacks and especially within Central Harlem.

Table 18
TB Mortality and Mortality Rates
(Rates are per 100,000 Population)
1900-1983

| | New York City | | Black | | White | | Central Harlem | | Bedford | | Morrisania | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Rate | Number | Rate | Number | Rate | Number | Rate | Number | Rate | Number | Rate |
| 1900 | 9,630 | 280 | N.A. | N.A. | 9,268 | 274 | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| 1905 | 9,662 | 240 | 450 | 606 | 9,173 | 233 | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| 1910 | 10,074 | 211 | 522 | 561 | 9,507 | 203 | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| 1915 | 10,249 | 196 | 653 | 525 | 9,555 | 188 | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| 1920 | 7,135 | 126 | 596 | 370 | 6,486 | 118 | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| 1925 | 5,475 | 87 | 743 | 301 | 4,679 | 77 | N.A. | N.A. | N.A. | N.A. | N.A. | N.A. |
| 1930 | 5,089 | 73 | 971 | 293 | 4,072 | 62 | 517 | 251 | 158 | 55 | 146 | 50 |
| 1935 | 4,371 | 61 | 1,034 | 261 | 3,267 | 48 | 570 | 274 | 162 | 55 | 114 | 38 |
| 1940 | 3,627 | 49 | 929 | 199 | 2,640 | 38 | 429 | 204 | 173 | 57 | 89 | 29 |
| 1945 | 3,513 | 46 | 939 | 154 | 2,508 | 36 | 375 | 175 | 165 | 61 | 127 | 42 |
| 1950 | 2,321 | 29 | 683 | 90 | 1,604 | 23 | 237 | 136 | 137 | 41 | 87 | 29 |
| 1955 | 1,084 | 14 | 287 | 38 | 714 | 10 | 122 | 56 | 66 | 21 | 38 | 13 |
| 1960 | 810 | 10 | 287* | 22* | 523 | 7 | 97 | 41 | 48 | 17 | 26 | 10 |
| 1965 | 592 | 8 | 246* | 22* | 346 | 5 | 56 | 24 | 38 | 13 | 23 | 9 |
| 1970 | 386 | 5 | 181* | 10* | 205 | 3 | 41 | 22 | 32 | 11 | 22 | 8 |
| 1975 | 208 | 3 | 107* | 6* | 101 | 2 | 20 | 11 | 15 | 5 | 9 | 3 |
| 1980 | 135 | 2 | 71* | 3* | 64 | 1 | 13 | 8 | 8 | 3 | 7 | 3 |
| 1981 | 150 | 2 | 90* | 4* | 60 | 1 | 9 | 7 | 13 | 6 | 2 | 1 |
| 1982 | 157 | 2 | 97* | 5* | 60 | 1 | 22 | 18 | 12 | 6 | 4 | 3 |
| 1983 | 151 | 2 | 94* | 4* | 57 | 1 | 19 | 16 | 6 | 3 | 3 | 2 |

*Includes all non whites

Figure 6

# TUBERCULOSIS MORTALITY RATES per 100,000 POPULATION NEW YORK CITY, 1900-1983

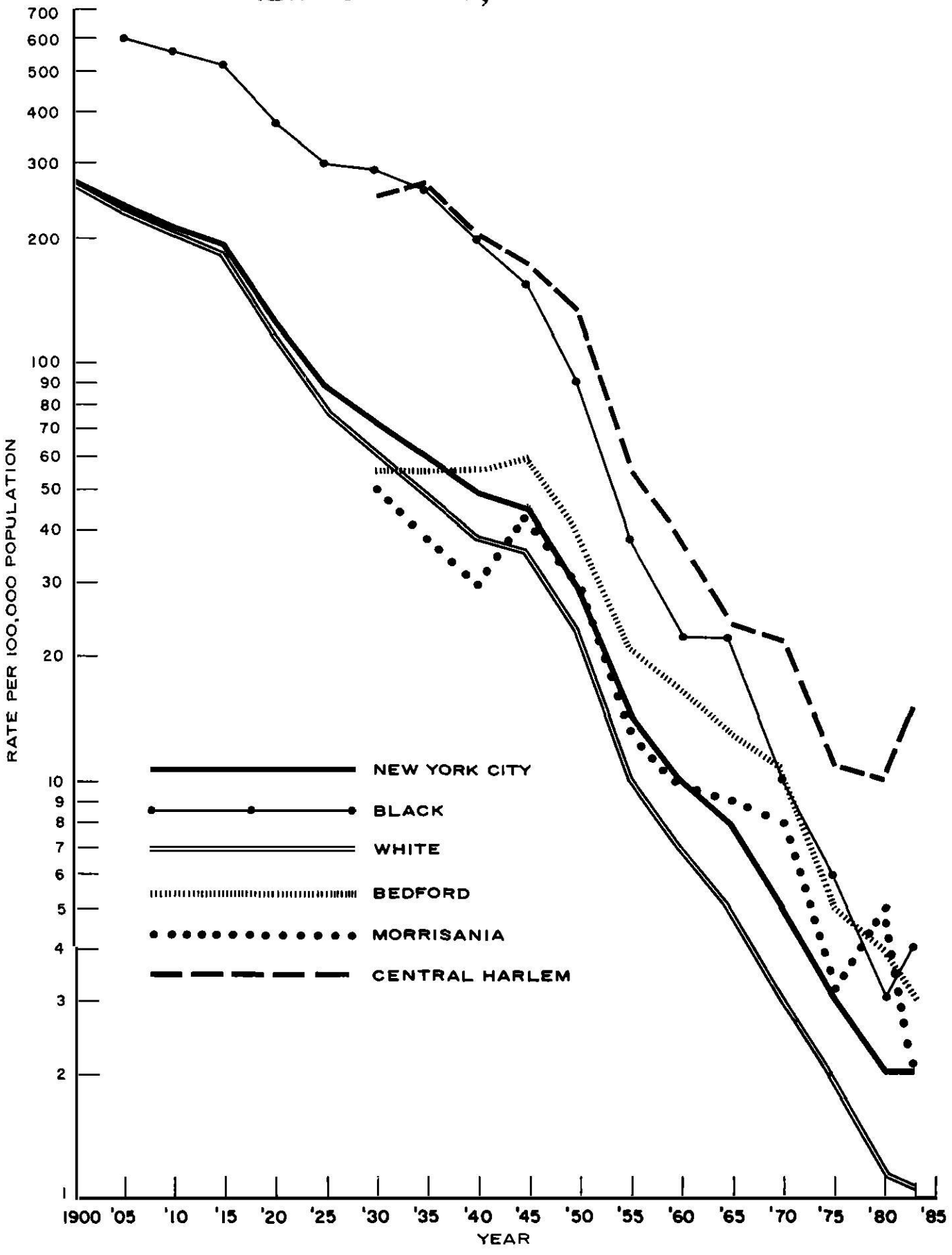


Table 19
Annual Tuberculosis Mortality and Rates per 100,000
1960-1983
New York City

| Year | Number | Percent Change | Rate | Percent Change |
|---|---|---|---|---|
| 1960 | 810 | - | 10.4 | - |
| 1961 | 738 | -8.9 | 9.5 | -8.7 |
| 1962 | 740 | +0.3 | 9.5 | 0 |
| 1963 | 683 | -7.7 | 8.8 | -7.4 |
| 1964 | 581 | -15.0 | 7.4 | -15.9 |
| 1965 | 592 | +1.9 | 7.4 | 0 |
| 1966 | 537 | -9.3 | 6.7 | -9.5 |
| 1967 | 525 | -2.2 | 6.5 | -3.0 |
| 1968 | 485 | -7.6 | 6.0 | -7.7 |
| 1969 | 418 | -13.8 | 5.2 | -13.3 |
| 1970 | 386 | -7.7 | 4.9 | -5.8 |
| 1971 | 310 | -19.7 | 3.9 | -20.4 |
| 1972 | 331 | +6.8 | 4.2 | +7.7 |
| 1973 | 262 | -20.8 | 3.3 | -21.4 |
| 1974 | 215 | -17.9 | 2.7 | -15.1 |
| 1975 | 208 | -3.3 | 2.6 | -3.8 |
| 1976 | 187 | -10.1 | 2.4 | -7.7 |
| 1977 | 175 | -6.4 | 2.3 | -4.2 |
| 1978 | 168 | -4.0 | 2.2 | -4.3 |
| 1979 | 119 | -29.2 | 1.6 | -27.3 |
| 1980 | 135 | +13.4 | 1.8 | +12.3 |
| 1981 | 150 | +11.0 | 2.1 | +16.6 |
| 1982 | 157 | +4.5 | 2.2 | +4.7 |
| 1983 | 151 | -3.8 | 2.1 | -4.5 |

Table 20
Tuberculosis Mortality*
Race, Sex, Reported at Death [1]
by Age Group
1983

| Age Group | White | | Black | | Puerto Rican | | Asian | | Other | | Totals | | | Reported at Death |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | M | F | M | F | M | F | M | F | M | F | M&F | |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 25-34 | 2 | 1 | 12 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 17 | 8 | 25 | 8 |
| 34-44 | 3 | 0 | 17 | 4 | 2 | 1 | 2 | 0 | 0 | 0 | 24 | 5 | 29 | 14 |
| 45-54 | 5 | 1 | 16 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 25 | 6 | 31 | 9 |
| 55-64 | 6 | 1 | 13 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 22 | 3 | 25 | 9 |
| 65+ | 17 | 5 | 7 | 8 | 0 | 0 | 3 | 0 | 0 | 0 | 27 | 13 | 40 | 9 |
| Sub-Total | 33 | 8 | 65 | 27 | 11 | 1 | 5 | 0 | 1 | 0 | 115 | 36 | 151 | 49 |
| Total | 41 | | 92 | | 12 | | 5 | | 1 | | | | | |

Table 20 illustrates the age, race, and sex distribution of deaths from T.B. No tuberculosis deaths were reported in the 0-19 age group. The ratio of male to female deaths is 3:1.

*Includes both primary and secondary TB deaths as well as reported before or at death.

1 The figures in this category are included within the totals.

K. Tuberculosis Mortality: Primary and Secondary Reported Before or at Death by Site of Disease

Table 21 illustrates the number of patients that died from tuberculosis as a primary cause as well as those in whom tuberculosis played a secondary role. The table also illustrates when the case was reported, i.e. at death or before death. The site of disease involvement is also illustrated. There were 49 cases of tuberculosis diagnosed at the time of death as compared to 71 for 1982. In 72 cases tuberculosis was the secondary cause of death (died with TB but not from TB) while in 79 cases tuberculosis was the primary cause of death (died from TB). Of the 79 deaths from TB, 51 had pulmonary TB, 25 miliary, 2 meningeal, and 1 had bone and joint TB. Of the deaths attributed to tuberculosis, 34 were previously unknown and were subsequently reported at the time of death. Twenty of the latter had pulmonary TB. There were no deaths due to atypical mycobacteriosis in 1983. Where tuberculosis was the secondary cause of death, cancer (6), narcotics (20), alcohol (13), A.I.D.S. (29), and miscellaneous other causes (4), were responsible. There were no maternal deaths from tuberculosis in 1983.

Although New York City had fewer individuals expiring with tuberculosis in 1983 than in recent years, the fact that 34 cases of pulmonary disease were within the community and unknown to the Bureau is cause for much concern.

Of the deaths where tuberculosis was a secondary contributing factor, 15 were previously unreported and 11 of the latter had pulmonary TB. Therefore a total of 49 tuberculosis cases were newly reported at the time of death, of which 31 were pulmonary. Since laboratory surveillance ensures reporting of positive specimens, an explanation for the 31 pulmonary cases being unreported is that either the patients did not seek medical attention, or they did not receive an adequate diagnostic workup.

When tuberculosis is first registered at the time of death, it represents a serious problem to the community. It is therefore important that this be properly defined. In all cases, death certificates and charts were scrutinized to make certain that tuberculosis was the cause at the time of death. In 1983, 29% of the registered active cases were not reported until the time of death. In the 49 cases, i.e. 32% of the total deaths, there was good clinical and pathological evidence for the diagnosis to substantiate that these deaths were indeed due to tuberculosis. This is also true for those listed as primary deaths from tuberculosis. Those where tuberculosis was listed as a secondary cause of death were equally scrutinized. In these instances it was properly established that tuberculosis only played a secondary role.

It is conceivable that an obscure presentation of an illness causes the diagnostician to overlook tuberculosis as a cause of disease. There may in addition be other difficulties that prevent a correct diagnosis, e.g. a negative tuberculosis test, an indication of an immuno suppressed state, or not enough or no sputum samples may have been collected. Biopsy, a very good tool especially of the bone marrow, may not have been undertaken. Liver biopsy is another good diagnostic procedure frequently overlooked, as is the examination of the C.S.F.

Table 21
Tuberculosis Mortality
Primary and Secondary
Reported Before or at Death
by Site of Disease
1983

| Site of Disease | Primary | | Secondary | | Totals | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Reported before Death | Reported at Death | Reported before Death | Reported at Death | Primary | Secondary | P & S | Reported before Death | Reported at Death |
| Pulmonary | 31 | 20 | 49 | 11 | 51 | 60 | 111 | 80 | 31 |
| Extra Pulm. | 14 | 14 | 8 | 4 | 28 | 12 | 40 | 22 | 18 |
| Pleural | 0 | 0 | 2 | 1 | 0 | 3 | 3 | 2 | 1 |
| Lymphatic | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| Bone/Joint | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| Genitourinary | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Miliary | 13 | 12 | 3 | 3 | 25 | 6 | 31 | 16 | 15 |
| Menigeal | 1 | 1 | 0 | 0 | 2 | 0 | 2 | 1 | 1 |
| Peritoneal | 0 | 0 | 2 | 0 | 0 | 2 | 2 | 2 | 0 |
| Total | 45 | 34 | 57 | 15 | 79 | 72 | 151 | 102 | 49 |

Table 21 focuses upon the high mortality of miliary among the extrapulmonary cases (77.5%) and the problem of obtaining reports prior to death (48.3% not reported before death).

Table 22
Tuberculosis Mortality Reported Before Death,
by Race, Sex, Primary, Secondary
and by Age Group
1983

| Age Group | White | | | | Black | | | | Puer. Rican | | | | Asian | | | | Other | | | | Totals | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | | F | | M | | F | | M | | F | | M | | F | | M | | F | | | | | | |
| | P | S | P | S | P | S | P | S | P | S | P | S | P | S | P | S | P | S | P | S | P | S | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 25-34 | 2 | 0 | 1 | 0 | 1 | 6 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 9 | 10 | 7 | 17 |
| 35-44 | 2 | 0 | 0 | 0 | 3 | 6 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 7 | 13 | 2 | 15 |
| 45-54 | 2 | 3 | 0 | 0 | 6 | 4 | 3 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 10 | 19 | 3 | 22 |
| 55-64 | 2 | 3 | 1 | 0 | 3 | 3 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 9 | 13 | 3 | 16 |
| 65+ | 3 | 8 | 1 | 4 | 4 | 3 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 21 | 21 | 10 | 31 |
| Total | 11 | 14 | 3 | 4 | 17 | 22 | 10 | 7 | 3 | 5 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 46 | 56 | 76 | 26 | 102 |
| Total P&S | 25 | | 7 | | 39 | | 17 | | 8 | | 1 | | 4 | | 0 | | 0 | | 1 | | | | | | |
| Total M &F | 32 | | | | 56 | | | | 9 | | | | 4 | | | | 1 | | | | | | | | |

Table 22 illustrates tuberculosis as the primary and secondary cause of death by age group, race, and sex that was reported before the time of death. Within the 0-24 year age groups there was only one individual, a black female reported. The greatest number were reported among the 65 and older age group (31 cases) with the 45-54 age group next (22) followed by the 25-34 age group (17), the 55-64 age group (16), and the 35-44 age group (15). When considering race and sex, the black males dominate with 39 cases followed by white males with 25. Black females are also contributing to the mortality in large measure which is reflected by blacks having almost twice the total number of TB deaths reported before death than whites. This mortality picture mirrors the morbidity situation discussed in an earlier section of this report.

Table 23
Tuberculosis Mortality Reported at Death,
by Race, Sex, Primary, or Secondary
and Age Group
1983

| Age Group | White M P | White M S | White F P | White F S | Black M P | Black M S | Black F P | Black F S | P. Rican M P | P. Rican M S | P. Rican F P | P. Rican F S | Asian M P | Asian M S | Asian F P | Asian F S | Other M P | Other M S | Other F P | Other F S | TOTALS P | TOTALS S | TOTALS M | TOTALS F | TOTALS M&F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 0 | 0 | 2 | 3 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 3 | 7 | 1 | 8 |
| 35-44 | 1 | 0 | 0 | 0 | 6 | 2 | 1 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 4 | 11 | 3 | 14 |
| 45-54 | 0 | 0 | 1 | 0 | 4 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 2 | 6 | 3 | 9 |
| 55-64 | 1 | 0 | 0 | 0 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 8 | 1 | 9 |
| 65+ | 4 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 3 | 6 | 3 | 9 |
| Total | 6 | 2 | 1 | 0 | 16 | 10 | 7 | 3 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 15 | 38 | 11 | 49 |
| Total P& S | 8 | | 1 | | 26 | | 10 | | 3 | | 0 | | 1 | | 0 | | 0 | | 0 | | | | | | |
| Total M&F | 9 | | | | 36 | | | | 3 | | | | 1 | | | | 0 | | | | | | | | |

Table 23 illustrates tuberculosis as the primary and secondary cause of death by age group, race, and sex that was reported at the time of death. Within the 0-24 age groups there were no individuals reported having died either from or with tuberculosis. However, instead of the over 65 age group dominating as in the previous table, the 35-44 year age group dominates with 14 cases reported at death followed by the 45-54, 55-64, and 65 and older age groups with 9 each and then the 25-34 age group with 8. As in the previous table when we consider race and sex, black males far out-number any other category, and blacks, again due to the large number of females reported, have a four fold increase over whites. It is also significant that a total of 49 cases were unknown by this Department until death, and of these deaths 34 were from tuberculosis (primary cause) while only 15 died with tuberculosis (secondary cause).

Table 24
Primary Tuberculosis Mortality Reported at Death,
by Race, Sex, County of Residence*
and Age Group
1983

NEW YORK

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 2 |
| 35-44 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 45-54 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 3 |
| 55-64 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 3 |
| 65+ | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Total | 1 | 0 | 6 | 2 | 2 | 0 | 0 | 0 | 9 | 2 | 11 |

BRONX

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-44 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 2 |
| 45-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-64 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 65+ | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 3 | 1 | 4 |

KINGS

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 35-44 | 1 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 4 | 1 | 5 |
| 45-54 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| 55-64 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 65+ | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Total | 2 | 1 | 6 | 4 | 0 | 0 | 0 | 0 | 8 | 5 | 13 |

QUEENS

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 35-44 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 45-54 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 55-64 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 65+ | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Total | 3 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 6 |

*Richmond had zero primary mortality.

Table 24 illustrates primary tuberculosis mortality that was reported at death by age group, race, sex, and county of residence. New York and Kings counties dominate this mortality with Queens and the Bronx in another grouping with less than half the mortality of the preceeding two counties. Within New York and Kings counties black males can easily be recognized as the group contributing most to this mortality with 8 and 10 cases respectively. Within age groups, New York County is represented fairly evenly through the 25-64 year age groupings, while in Kings County the 35-44 year age group dominates with 5 cases out of a total of 13.

Table 25
*Primary Tuberculosis Mortality Reported Before and At Death*
by Race, Sex, County of Residence*
and Age Group
1983

NEW YORK

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 25-34 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| 35-44 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| 45-54 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 4 |
| 55-64 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 5 |
| 65+ | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 3 | 2 | 5 |
| Total | 4 | 2 | 9 | 4 | 2 | 0 | 0 | 0 | 15 | 6 | 21 |

BRONX

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 35-44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45-54 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| 55-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 2 | 2 | 4 |

KINGS

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 4 |
| 35-44 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 3 |
| 45-54 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| 55-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65+ | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| Total | 6 | 0 | 5 | 3 | 0 | 1 | 0 | 0 | 11 | 4 | 15 |

QUEENS

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-44 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 |
| 45-54 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 55-64 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 65+ | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 4 | 2 | 6 |

*Richmond had zero primary mortality.

Table 25 presents primary tuberculosis mortality reported both before and at the time of death by age group, race, sex, and county of residence. As in the previous table which focused upon cases reported at death and not previously known to this Department, the vast majority of cases were identified within the counties of New York and Kings with a total of 36 cases, which is almost four times the combined number for Queens and the Bronx. Considering race and sex, black males and females dominate the mortality scene within all four counties, but particularly within New York and Kings counties, followed by whites. Within age groups, persons over 25 predominate within the counties of New York and Kings while the few cases reported in Queens and the Bronx are found in the over 35 year age groups.

Table 26
Secondary Tuberculosis Mortality Reported at Death
by Race, Sex, County of Residence *
and Age Group
1983

NEW YORK

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 35-44 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| 45-54 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 55-64 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 65+ | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Total | 1 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 7 | 2 | 9 |

BRONX

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 35-44 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 45-54 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 55-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 3 |

KINGS

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-44 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 45-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-64 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 65+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |

QUEENS

| Age | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Group | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65+ | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Total | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |

*Richmond had zero secondary mortality.

Table 26 presents tuberculosis mortality as a secondary (contributing) cause of death that was reported at the time of death by age, race, sex, and county of residence. New York County had the greatest number of cases reported at death with tuberculosis as the secondary cause of death, with black males representing the dominant racial and sexual group. Since there were only 15 cases of tuberculosis reported at death, where TB was a contributing cause, the numbers per county are small particularly when distributed among age groups. In New York County those individuals reported who are over the age of 25 are fairly evenly distributed among age groups. There were no cases reported in the 0-24 age groups in any county.

Table 27
Secondary Tuberculosis Mortality Reported Before and At Death
by Race, Sex, County of Residence*

NEW YORK

| Age Group | White | | Black | | P.Rican | | Asian | | Other | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 35-44 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| 45-54 | 3 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 6 |
| 55-64 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 65+ | 2 | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 6 | 1 | 7 |
| Total | 6 | 0 | 10 | 2 | 2 | 0 | 2 | 0 | 1 | 0 | 19 | 1 | 20 |

BRONX

| Age Group | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45-54 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 55-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65+ | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Total | 2 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 3 |

KINGS

| Age Group | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 3 |
| 35-44 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 3 |
| 45-54 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 55-64 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 3 |
| 65+ | 1 | 1 | 1 | 2 | 0 | 0 | 1 | 0 | 3 | 3 | 6 |
| Total | 3 | 1 | 7 | 3 | 2 | 0 | 1 | 0 | 13 | 4 | 17 |

QUEENS

| Age Group | White | | Black | | P.Rican | | Asian | | Totals | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | M | F | M | F | M | F | M | F | M&F |
| 0-19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65+ | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Total | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |

*Richmond had zero secondary mortality.

Table 27 illustrates tuberculosis mortality as the secondary (contributing) cause of death reported both before and at the time of death by age group, race, sex, and county of residence. New York and Kings Counties clearly dominate this mortality picture with 90% of the total. In New York County, black males account for 50% of the secondary mortality while in Kings County, black males account for 41%. The dominant age groups are 35-44 and 45-54 in New York County with 50% of the mortality, while the 65 and older group in Kings County account for 35%.

Summary: The mortality among individuals where tuberculosis is either the direct cause of death or a contributing cause of death and either reported at the time of death or prior to death is most observed to occur within the New York and Kings Counties among black males, and to a lesser degree females who are in the over 34 year age group. This should not be surprising since it parallels morbidity. The problem is threefold: firstly, the experience among the black population which may be associated with a host of social-economic conditions; secondly, that 151 individuals died with tuberculosis of which 49 (32%) were previously unreported to the Department; and thirdly, the number of cases unreported prior to death where tuberculosis was the primary cause of death (34). Patients must rely upon the health care sector for diagnosis and proper therapy when they present with symptoms, and the fact that 49 cases were unknown prior to death and that 37 (75%) were deaths where tuberculosis was the primary cause can not be tolerated. It is unacceptable that these tuberculosis deaths occurred in a city with a universally recognized high level of medical care.

Table 28
TB Case Fatality Rate
1960-1983

| | Mortality Number | Morbidity Number | Case Fatality Rate Per 100 Cases |
|---|---|---|---|
| 1960 | 810 | 4699 | 17.2 |
| 1961 | 738 | 4360 | 16.9 |
| 1962 | 740 | 4437 | 16.6 |
| 1963 | 683 | 4891 | 13.9 |
| 1964 | 581 | 4207 | 13.8 |
| 1965 | 592 | 4242 | 13.9 |
| 1966 | 537 | 3663 | 14.6 |
| 1967 | 525 | 3542 | 14.8 |
| 1968 | 485 | 3224 | 15.0 |
| 1969 | 418 | 2951 | 14.1 |
| 1970 | 386 | 2590 | 14.9 |
| 1971 | 310 | 2572 | 12.0 |
| 1972 | 331 | 2275 | 14.5 |
| 1973 | 262 | 2101 | 12.4 |
| 1974 | 215 | 2022 | 10.6 |
| 1975 | 208 | 2151 | 9.6 |
| 1976 | 187 | 2156 | 8.6 |
| 1977 | 175 | 1605 | 10.9 |
| 1978 | 168 | 1307 | 12.8 |
| 1979 | 119 | 1530 | 7.7 |
| 1980 | 135 | 1514 | 8.9 |
| 1981 | 150 | 1582 | 9.4 |
| 1982 | 157 | 1594 | 9.8 |
| 1983 | 151 | 1651 | 9.1 |

Table 28 and figure 7 illustrate the case fatality rates from 1960 to 1983 for New York City per 100 cases of the tuberculosis disease population. Since standard mortality rates are represented per 100,000 population, this rate is much more definitive since only those persons who are at risk of death from tuberculosis are included in the denominator instead of everyone in the general population. From the graph, a decreasing trend is seen to have developed since 1960 presenting a series of peaks and valleys. Most recently, from 1979 to 1982 New York City has been experiencing increases in the case fatality rate, but from 1982 to 1983 a decrease is again seen. Overall, as new highs appear they are lower than previous highs, and new lows are lower than previous lows thereby allowing for the development of a continuous downward trend. If this pattern continues, although mortality will fluctuate in the short run (1 to 5 years), in the long run (10-20 years) a steadily decreasing case fatality rate is expected.

FIGURE 7

# CASE FATALITY RATE PER 100 CASES NEW YORK CITY, 1960-1983

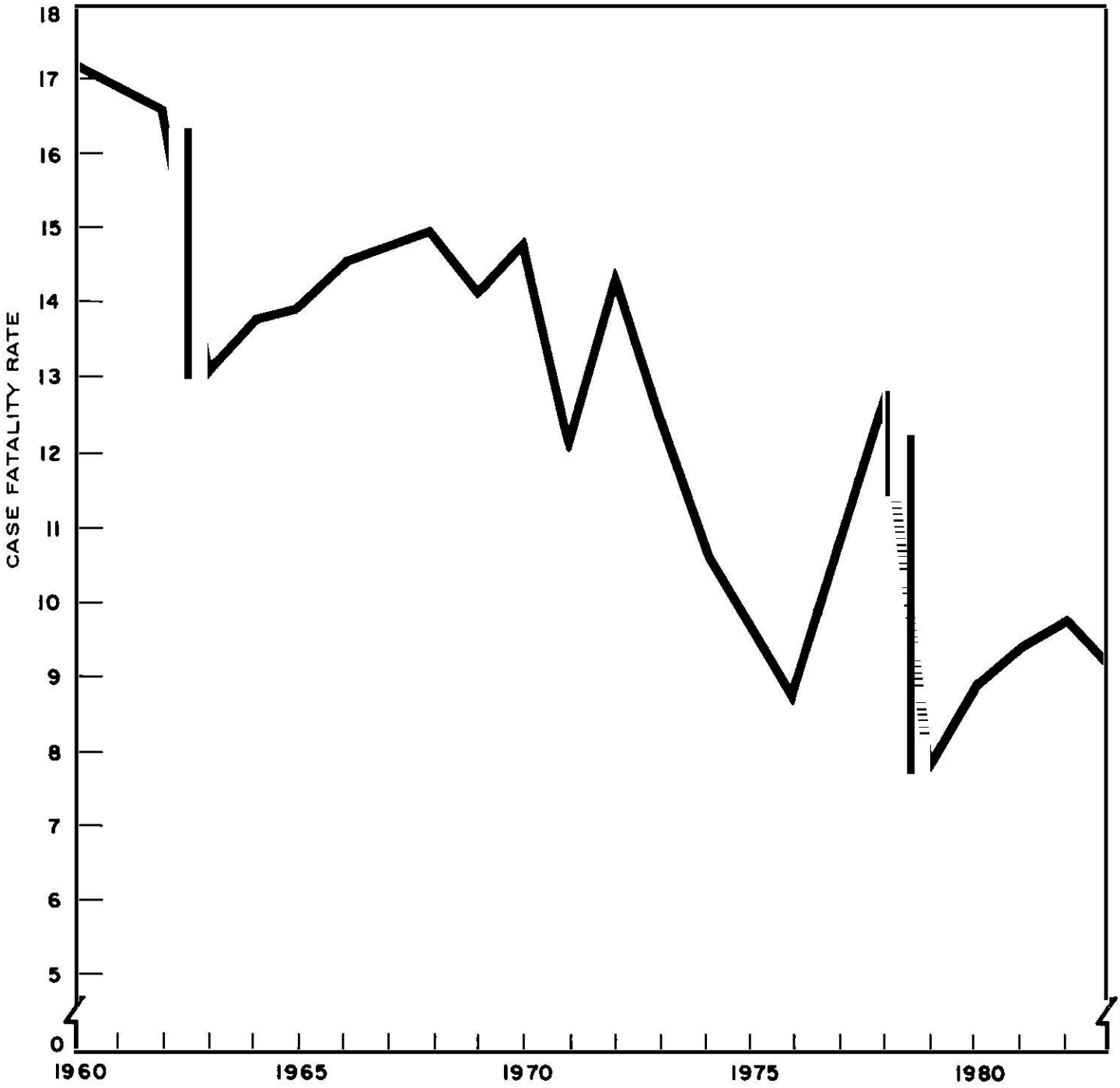


Table 29 provides an illustration of the number of deaths and mortality rates from 1968 to 1983 by county and health district. It is encouraging to note a substantial decrease both in numbers and rates per 100,000 population in each county of New York City. Richmond County has the lowest mortality rate with a 1983 rate of 0.2 down from 2.1 in 1968, followed by Queens County at 0.9 down from 3.0, Bronx County, 1.4 from 3.9, Kings County, 2.2 from 6.6, and New York County, 4.5 from 8.1. As encouraging as this appears, discrete increases by health districts can be identified. In New York County, Central Harlem, the Lower East and West Sides and Riverside, all experienced increases in mortality. In the Bronx, Pelham Bay and Westchester increased. Certain health districts in Kings County, i.e. Bushwick, Ft. Greene, and Red Hook/Gowanus showed increases, while in Queens and Richmond Counties all health districts showed decreases in mortality.

When looking at mortality and mortality rates from 1968-1983, we notice that the numbers have steadily decreased from 1968 (458) to 1984 (151), except from 1980 to 1982. A decrease in numbers seems to again have resumed in 1983. When glancing at the rates per 100,000 population an even better picture emerges. From 1968 to 1980 the rates have steadily decreased from 6.0 to 1.8. The last few years the rate has slightly increased. The decrease over the years attests to the fact that less and less people die from the disease. In order to understand the slight increase, case fatality rates, age specific death rates for males and females, and other aspects of mortality have been computed. The latter are scrutinized in other sections of this report.

Table 29
Tuberculosis Mortality and Mortality Rates
by County and Health District of Residence
1968-1983

| | Mortality[1] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Health District | '68 | '69 | '70 | '71 | '72 | '73 | '74 | '75 | '76 | '77 | '78 | '79 | '80 | '81 | '82 | '83 |
| Central Harlem | 42 | 44 | 41 | 35 | 37 | 28 | 22 | 20 | 25 | 21 | 18 | 12 | 13 | 9 | 22 | 19 |
| East Harlem | 16 | 8 | 10 | 5 | 7 | 3 | 2 | 3 | 8 | 4 | 6 | 3 | 5 | 4 | 5 | 3 |
| Kips Bay/Yorkville | 1 | 5 | 11 | 0 | 5 | 3 | 1 | 1 | 1 | 2 | 3 | 0 | 3 | 5 | 1 | 1 |
| Lower East Side | 15 | 18 | 14 | 15 | 27 | 18 | 12 | 10 | 8 | 9 | 9 | 5 | 3 | 11 | 12 | 14 |
| Lower West Side | 30 | 19 | 19 | 16 | 18 | 19 | 15 | 12 | 5 | 19 | 13 | 4 | 8 | 7 | 9 | 10 |
| Riverside | 21 | 14 | 14 | 7 | 8 | 7 | 11 | 4 | 11 | 8 | 6 | 6 | 9 | 5 | 9 | 11 |
| Washington Heights | 17 | 20 | 9 | 14 | 10 | 9 | 5 | 7 | 2 | 9 | 9 | 8 | 4 | 13 | 8 | 7 |
| Subtotal | 142 | 128 | 118 | 92 | 113 | 88 | 69 | 57 | 60 | 72 | 64 | 38 | 45 | 54 | 67 | 64 |
| Fordham/Riverside | 8 | 7 | 9 | 5 | 4 | 3 | 2 | 5 | 5 | 2 | 2 | 0 | 5 | 3 | 4 | 1 |
| Morrisania | 14 | 22 | 22 | 11 | 12 | 11 | 7 | 9 | 5 | 1 | 7 | 2 | 7 | 2 | 4 | 3 |
| Mott Haven | 10 | 8 | 11 | 6 | 15 | 10 | 3 | 4 | 3 | 5 | 3 | 5 | 1 | 4 | 5 | 3 |
| Pelham Bay | 6 | 5 | 2 | 2 | 3 | 2 | 3 | 2 | 5 | 3 | 4 | 3 | 1 | 3 | 2 | 4 |
| Tremont | 11 | 8 | 16 | 8 | 8 | 6 | 5 | 6 | 2 | 3 | 6 | 4 | 1 | 4 | 4 | 2 |
| Westchester | 9 | 2 | 7 | 4 | 10 | 6 | 7 | 6 | 5 | 7 | 5 | 2 | 3 | 4 | 2 | 4 |
| Subtotal | 58 | 52 | 67 | 36 | 54 | 38 | 27 | 32 | 25 | 21 | 27 | 27 | 18 | 20 | 21 | 17 |
| Bay Ridge | 9 | 7 | 8 | 7 | 5 | 10 | 2 | 0 | 7 | 6 | 1 | 0 | 3 | 2 | 3 | 3 |
| Bedford | 30 | 32 | 32 | 30 | 27 | 19 | 17 | 15 | 12 | 4 | 14 | 4 | 8 | 13 | 12 | 6 |
| Brownsville | 23 | 15 | 12 | 20 | 14 | 7 | 7 | 4 | 9 | 8 | 11 | 2 | 1 | 3 | 7 | 6 |
| Bushwick | 15 | 12 | 5 | 10 | 9 | 6 | 7 | 11 | 5 | 5 | 5 | 2 | 13 | 6 | 6 | 7 |
| Flatbush | 23 | 14 | 11 | 12 | 6 | 9 | 9 | 10 | 5 | 6 | 3 | 7 | 7 | 9 | 3 | 6 |
| Fort Greene | 26 | 27 | 19 | 26 | 12 | 13 | 8 | 15 | 8 | 7 | 3 | 8 | 10 | 5 | 5 | 9 |
| Gravesend | 13 | 6 | 11 | 4 | 5 | 5 | 3 | 3 | 3 | 2 | 2 | 4 | 3 | 1 | 1 | 3 |
| Red Hook/Gowanus | 10 | 10 | 11 | 5 | 6 | 6 | 3 | 2 | 4 | 5 | 5 | 6 | 3 | 2 | 2 | 6 |
| Sunset Park | 11 | 6 | 5 | 6 | 9 | 4 | 3 | 2 | 2 | 1 | 1 | 4 | 2 | 1 | 1 | 1 |
| Williamsburg/Greenpoint | 12 | 13 | 12 | 6 | 8 | 5 | 9 | 7 | 10 | 4 | 4 | 1 | 2 | 6 | 3 | 3 |
| Subtotal | 172 | 142 | 126 | 126 | 102 | 84 | 68 | 69 | 65 | 48 | 49 | 38 | 52 | 48 | 43 | 50 |
| Astoria/L.I.C. | 9 | 9 | 6 | 4 | 9 | 6 | 5 | 7 | 7 | 4 | 3 | 2 | 2 | 2 | 2 | 1 |
| Corona | 8 | 11 | 7 | 3 | 8 | 5 | 2 | 1 | 3 | 3 | 2 | 1 | 2 | 3 | 4 | 4 |
| Flushing | 6 | 7 | 11 | 4 | 4 | 1 | 4 | 3 | 1 | 5 | 4 | 4 | 3 | 3 | 3 | 2 |
| Jamaica East | 13 | 14 | 15 | 10 | 15 | 8 | 9 | 7 | 3 | 3 | 10 | 4 | 6 | 3 | 6 | 5 |
| Jamaica West | 12 | 10 | 3 | 5 | 6 | 8 | 5 | 6 | 7 | 5 | 4 | 5 | 3 | 5 | 4 | 4 |
| Maspeth/Forest Hills | 12 | 11 | 7 | 3 | 5 | 4 | 7 | 3 | 3 | 1 | 4 | 2 | 0 | 3 | 4 | 2 |
| Subtotal | 60 | 62 | 49 | 29 | 47 | 32 | 32 | 27 | 24 | 21 | 27 | 19 | 16 | 19 | 23 | 18 |
| Richmond | 6 | 3 | 6 | 7 | 4 | 6 | 3 | 7 | 3 | 3 | 7 | 1 | 4 | 3 | 3 | 1 |
| N W YORK CITY | 485 | 418 | 386 | 310 | 335 | 259 | 215 | 208 | 187 | 176 | 174 | 119 | 135 | 144 | 157 | 151 |

1 TB Mortality include both primary and contributing causes of death.

2 Rate per 100,000 of New York City population.

Rate[2]

| '68 | '69 | '70 | '71 | '72 | '73 | '74 | '75 | '76 | '77 | '78 | '79 | '80 | '81 | '82 | '83 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.2 | 19.0 | 22.4 | 19.1 | 20.2 | 15.3 | 12.0 | 10.9 | 13.7 | 13.2 | 16.3 | 7.5 | 8.2 | 7.4 | 18.0 | 15.5 |
| 8.8 | 4.4 | 6.4 | 3.2 | 4.5 | 1.9 | 1.3 | 1.9 | 5.1 | 3.0 | 4.5 | 2.2 | 3.6 | 3.2 | 4.8 | 2.4 |
| 0.4 | 2.0 | 4.8 | - | 2.2 | 1.3 | 0.4 | 0.4 | 0.4 | 0.9 | 1.3 | 0.0 | 1.3 | 2.2 | 0.4 | 0.4 |
| 5.3 | 6.3 | 5.6 | 6.0 | 10.8 | 7.2 | 4.8 | 4.0 | 3.2 | 3.8 | 3.8 | 2.1 | 1.3 | 4.7 | 5.2 | 6.1 |
| 11.9 | 7.0 | 7.5 | 6.3 | 7.1 | 7.5 | 5.9 | 4.7 | 2.0 | 7.7 | 5.2 | 1.6 | 3.2 | 2.6 | 3.3 | 3.7 |
| 7.8 | 5.2 | 6.4 | 3.2 | 3.6 | 3.2 | 5.0 | 1.8 | 5.0 | 3.8 | 2.8 | 2.8 | 4.2 | 1.3 | 4.3 | 5.3 |
| 6.5 | 7.7 | 3.6 | 5.7 | 4.0 | 3.6 | 2.0 | 2.8 | 0.8 | 3.8 | 3.8 | 3.4 | 1.7 | 5.4 | 3.3 | 2.8 |
| 8.1 | 7.3 | 7.7 | 6.0 | 7.3 | 5.7 | 4.5 | 3.7 | 3.9 | 5.0 | 4.4 | 2.6 | 3.1 | 3.8 | 4.7 | 4.5 |
| 3.4 | 3.0 | 3.7 | 2.0 | 1.6 | 1.2 | 0.8 | 2.1 | 2.0 | 0.8 | 0.8 | 0.0 | 2.0 | 1.3 | 1.7 | 0.4 |
| 5.3 | 8.3 | 8.4 | 4.2 | 4.6 | 4.2 | 2.7 | 3.4 | 1.9 | 0.5 | 3.3 | 0.9 | 3.3 | 1.5 | 2.9 | 2.2 |
| 4.4 | 3.5 | 5.2 | 2.8 | 7.0 | 4.7 | 1.4 | 1.9 | 1.4 | 2.9 | 1.8 | 2.9 | 0.6 | 3.2 | 4.0 | 2.5 |
| 3.0 | 2.5 | 1.0 | 1.0 | 1.5 | 1.9 | 1.5 | 1.0 | 2.4 | 1.3 | 1.8 | 1.3 | 0.4 | 1.4 | 0.9 | 1.8 |
| 4.2 | 3.0 | 6.2 | 3.1 | 3.1 | 2.3 | 1.9 | 2.3 | 0.8 | 1.2 | 2.5 | 1.7 | 0.4 | 4.2 | 2.3 | 1.1 |
| 3.2 | 0.7 | 2.4 | 1.4 | 3.5 | 2.1 | 2.4 | 2.1 | 1.7 | 2.4 | 1.7 | 0.7 | 1.0 | 1.4 | 0.7 | 1.4 |
| 3.9 | 3.5 | 4.6 | 2.4 | 3.7 | 2.6 | 1.8 | 2.2 | 1.7 | 1.5 | 2.0 | 1.3 | 1.3 | 1.7 | 1.8 | 1.4 |
| 3.2 | 2.5 | 2.9 | 2.6 | 1.8 | 3.7 | 0.7 | - | 2.6 | 2.3 | 0.4 | 0.0 | 1.1 | 0.8 | 1.2 | 1.2 |
| 10.7 | 11.4 | 11.6 | 10.9 | 9.8 | 6.9 | 6.2 | 5.4 | 4.3 | 1.6 | 5.5 | 1.6 | 3.3 | 6.2 | 5.7 | 2.8 |
| 7.5 | 4.9 | 3.8 | 6.3 | 4.4 | 2.2 | 2.2 | 1.2 | 2.8 | 2.6 | 3.6 | 0.7 | 0.3 | 1.1 | 2.6 | 2.2 |
| 7.5 | 6.0 | 2.2 | 4.3 | 3.9 | 2.6 | 3.0 | 4.8 | 2.2 | 2.4 | 2.4 | 1.0 | 6.3 | 3.6 | 3.6 | 4.2 |
| 4.6 | 2.8 | 2.2 | 2.4 | 1.2 | 1.8 | 1.8 | 2.0 | 1.0 | 1.2 | 0.6 | 1.5 | 1.5 | 1.9 | 6.2 | 1.2 |
| 12.7 | 13.2 | 9.5 | 13.1 | 6.0 | 6.5 | 4.0 | 7.5 | 4.0 | 3.9 | 1.7 | 4.4 | 5.5 | 3.4 | 3.4 | 6.1 |
| 4.0 | 1.8 | 3.4 | 1.3 | 1.6 | 1.6 | 0.9 | 1.0 | 0.9 | 0.6 | 0.6 | 1.3 | 1.0 | 0.3 | 3.4 | 1.4 |
| 6.5 | 6.5 | 7.8 | 3.5 | 4.3 | 4.3 | 2.1 | 1.4 | 2.8 | 3.8 | 3.8 | 4.5 | 2.2 | 1.7 | 1.7 | 5.2 |
| 6.0 | 3.3 | 2.7 | 3.2 | 4.9 | 2.2 | 1.6 | 1.1 | 1.1 | 0.6 | 0.6 | 2.3 | 1.1 | 0.6 | 0.6 | 0.6 |
| 6.4 | 6.9 | 6.8 | 3.4 | 4.5 | 2.8 | 5.1 | 4.0 | 5.7 | 2.4 | 1.4 | 0.6 | 1.2 | 4.2 | 2.1 | 2.1 |
| 6.6 | 5.4 | 4.8 | 4.8 | 3.9 | 3.2 | 2.6 | 2.6 | 2.5 | 1.9 | 2.0 | 1.5 | 2.1 | 2.2 | 1.9 | 2.2 |
| 3.6 | 3.6 | 2.4 | 1.6 | 3.6 | 2.4 | 2.0 | 2.8 | 2.8 | 1.6 | 1.2 | 0.8 | 0.8 | 0.8 | 0.8 | 0.4 |
| 3.2 | 4.4 | 2.7 | 1.2 | 3.1 | 2.0 | 0.8 | 0.4 | 1.2 | 1.2 | 0.8 | 0.4 | 0.8 | 1.1 | 1.5 | 1.5 |
| 1.1 | 1.3 | 2.3 | 0.8 | 0.8 | 0.2 | 0.8 | 0.6 | 0.2 | 1.0 | 0.8 | 0.8 | 0.6 | 0.7 | 0.6 | 0.4 |
| 4.1 | 4.4 | 4.4 | 2.9 | 4.4 | 2.3 | 2.6 | 2.0 | 0.9 | 0.9 | 3.0 | 1.2 | 1.8 | 0.9 | 1.8 | 1.5 |
| 3.4 | 2.8 | 0.8 | 1.4 | 1.7 | 2.2 | 1.4 | 1.7 | 1.9 | 1.3 | 1.1 | 1.3 | 0.8 | 1.4 | 1.1 | 1.1 |
| 4.1 | 3.8 | 2.4 | 1.0 | 1.7 | 1.4 | 2.4 | 1.0 | 1.0 | 0.3 | 1.4 | 0.7 | 0.0 | 1.1 | 1.4 | 0.7 |
| 3.0 | 3.1 | 2.5 | 1.4 | 2.4 | 1.6 | 1.6 | 1.4 | 1.2 | 1.1 | 1.4 | 1.0 | 0.8 | 1.0 | 1.2 | 0.9 |
| 2.1 | 1.1 | 2.0 | 2.4 | 1.4 | 2.0 | 1.0 | 2.4 | 1.0 | 0.9 | 2.1 | 0.3 | 1.2 | 0.9 | 0.8 | 0.2 |
| 6.0 | 5.2 | 4.9 | 3.9 | 4.2 | 3.3 | 2.7 | 2.6 | 3.9 | 2.3 | 2.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.1 |

## Section III: Prevalence of Disease

### L. Supervised Therapy Program

Supervised tuberculosis therapy is designed to provide adequate therapy to those individuals who would otherwise not be able to obtain it due to a wide variety of social-psychic problems such as alcoholism and homelessness. By employing outreach workers who personally present medicine to patients in their home, other places of residence, or sometimes on the street,the Bureau of Tuberculosis is able to demonstrate great success in treating the traditionally noncompliant patient population as demonstrated by a continuity of therapy index of 98 percent and bacteriology (conversion of sputum) index within 3 months of 83 percent for 1983.

Medical facilities throughout New York City are encouraged to refer tuberculosis patients meeting the criteria for S.T.P. admission to the Bureau in order to initiate an evaluation and follow-up. The criteria for admission to S.T.P. are:

1. frequently missed clinical appointments
2. drug resistance
3. mental incompetence
4. chronic alcoholism
5. failure to respond to therapy
6. continued positive bacteriologies
7. failure to self-administer medication
8. patient defaulting on clinic appointments
9. more than two hospital admissions for TB
10. a living condition conducive to noncompliance

The present compliment of seven outreach workers investigates each referral, and once the patient is enrolled in the program continues to provide regular medication. All newly enrolled patients are started on daily observed therapy, and depending on an individual evaluation may have intermittent supervision instituted.

Table 30

Case Register
Supervised Therapy Program
New York City 1983

Patients under supervision, January 1, 1983.....29
Patients added to supervision during 1983.....71
Patients removed from supervision during 1983.....43

Supervision completed.....30
Moved out of jurisdiction.....2
Returned to clinic supervision.....4
Readmitted to hospital.....3
Lost to supervision.....2
Died (not from tuberculosis).....2

Patients under supervision, December 31, 1983.....57

Table 30 shows the current patient register for the period from January 1, 1983 to December 31, 1983. During this time, 288 patients were referred for supervision. The majority of the referrals were received by the Supervised Therapy Program Manager from the Bureau's own central record system or from field Public Health Advisors.

Of the 288 patient referrals, 71 were located and enrolled in the program for an enrollment rate of 25 percent. These patients having their therapy supervised are considered to be the most difficult to manage and have eluded proper clinic-based therapy for months or years.

Drug therapy consists of 14 different drug combinations designed to effectively meet the needs of all 57 patients and they are:

| Drug Regimen | Number of Patients Prescribed |
|---|---|
| Inh, Rif | 25 |
| Inh, Rif, Emb | 14 |
| Inh, Rif, Pza | 3 |
| Inh, Rif, Eth | 1 |
| Inh, Emb, Pza | 4 |
| Rif, Eth, Pza | 1 |
| Emb, Pza, Eth | 1 |
| Emb, Pza, C.S. | 1 |
| Inh, Rif, Eth, Pza | 1 |
| Inh, Emb | 2 |
| Inh, Rif, Emb, Pza, Sm | 1 |
| Inh, Rif, Emb, Pza | 1 |
| Inh,Rif, Emb, Eth | 1 |
| Inh, Emb, Pza, Eth | 1 |

M. Study 21

The U.S. Public Health Service, through the National Centers for Disease Control has selected three nationally recognized New York City municipal hospitals to participate in their therapy trial Study 21.

The primary purpose of this multicenter clinical trial is to compare the efficacy, toxicity, and acceptability of a six month regimen of isoniazid and rifampin supplemented with pyrazinamide for the first two months, with a control regimen of nine months of isoniazid and rifampin in patients with pulmonary tuberculosis. The secondary purpose of this trial is to determine the acceptability of supervised twice weekly therapy for patients who fail to adhere to the self-administered daily regimens.

Investigation of the proposed 6 month regimen is justified for several reasons: 1) It may decrease the risk of adverse reaction by reducing duration of exposure to drugs. 2) It may reduce the cost of providing clinic services. 3) It may increase compliance i.e., increase the percent of patients completing an adequate course of chemotherapy. 4) It should decrease the likelihood of relapse even for patients who abscond before completing treatment. 5) It may have the epidemiologic advantage of reducing transmission of infection since more patients will be culture negative earlier in treatment.

This USPHS trial will determine the efficacy of a six month regimen (two months of isoniazid, rifampin, and pyrazinamide followed by four months of isoniazid and rifampin) which, for most patients, will be self administered on a daily basis. Participants in this trial who are unreliable in self-administering medication will be switched to directly administered twice weekly therapy as recommended in the joint ATS-CDC short course chemotherapy statement.

Table 31
Study 21
Current Status

| Statistical Categories | Participant Hospitals | | | Totals |
|---|---|---|---|---|
| | Harlem | Bellevue | KCH | |
| Number of Patients Entered | 32 | 16 | 95 | 143 |
| Number of Patients Ineligible | 7 | 1 | 21 | 29 |
| Percent Ineligible | 21.8 | 6.2 | 22.1 | 20.2 |
| Number of Patients Eligible | 25 | 15 | 74 | 114 |
| Number of Patients Withdrawn | 8 | 4 | 10 | 22 |
| Percent of Patients Withdrawn | 32.0 | 26.6 | 13.5 | 19.2 |
| Number of Patients on Current Therapy | 8 | 11 | 21 | 40 |
| Number of Patients Currently Compliant | 7 | 10 | 16 | 33 |
| Percent of Patients Currently Compliant | 87.5 | 90.9 | 76.1 | 82.5 |
| Number of Patients Entering 2 yr. Observation | 9 | 0 | 43 | 52 |
| Percent of Patients Entering Observation from Those Entered | 28.1 | 0 | 45.2 | 36.3 |

As shown in the above table, 143 patients have been admitted to the study. Of these patients, 29 (20.2%) were subsequently found to be ineligible due to a negative pretrial culture, a resistant pretrial culture, prior therapy, drugs contraindicated, atypical pretrial culture, or other non-tuberculosis case. Of the 114 eligible patients, 22 (19.2%) have withdrawn from the study. Of the remaining 92 patients, 40 (42%) are currently receiving therapy, 33 (82%) are compliant and 52 (36.3% of those entering the study) have completed therapy and have entered the observation phase.

## N. Review of Hospital Tuberculosis Patient Records

As part of this Bureau's effort to ensure high standards of medical care, hospital medical records of tuberculosis patients are periodically reviewed. Since the New York City Health Department manages only a small portion (20%) of the total number of patients with tuberculosis in this city, the other 80% of the patients must rely upon these reviews and the persuasive advice of the Bureau of Tuberculosis to other health care providers for assurance of quality care. Unfortunately, even though the Bureau of Tuberculosis argues the positions recommended by the American Lung Association, the National Centers for Disease Control, the American Thoracic Society, and the International Union Against Tuberculosis, without universal case management authority many problems continue to be identified. Examples of these case management problems from recent hospital medical record audits will serve to illustrate:

1. not anticipating patient compliance problems when the patient is an acknowledged drug addict or alcoholic.

2. not requesting sensitivity studies when, after three or four months of therapy, the patient's organisms have not responded.

3. changing the patient's drug regimen for no apparent reason.

4. not prescribing effective antituberculosis drugs when drug resistance is identified.

5. excessive use of chest x-rays.

6. issuing patient appointments at two or three month intervals.

7. continuing a patient on anti-tuberculosis drugs much longer than necessary.

It will only be through close adherence to accepted practice that the elimination of these case management problems will be brought about. This Bureau will continue to bring these problems to the attention of those responsible, but the entire medical community must be alert and responsive if these problems are to be corrected.

O. Tuberculosis Prevalence (Tables 32 and 33, figure 8)

As of December 31, 1983 there were 2,190 cases of tuberculosis under medical supervision in New York City. Of that number,340 (15.5%) were in hospital while the remainder (1,850) were ambulatory. This compares with 2,602 patients under medical supervision on December 31, 1982 with 190 (7%) in hospital. Even though 1983 morbidity increased again for the fourth straight year,New York City experienced a decrease in the prevalence due to the general acceptance of short course chemotherapy by the health care provider. Short course chemotherapy has reduced the duration of chemotherapy from as long as 24 months to 9 months thereby allowing for a more rapid discharge from medical supervision. During 1983 there were 1,633 cases (1,092 in 1982) closed to supervision with 1,097 (67%) completing therapy compared with 590 (58%) in 1982; 81 (5.0%) moved from New York City jurisdiction (65 in 1982, 6%); 304 (18.6%)were lost to supervision (231 in 1982, 22%); and 151 ( 9 %) expired (143 in 1982, 14%). Patients who remain under medical supervision may receive their follow-up care at municipal hospitals, voluntary, private hospitals and New York City chest clinics and private doctors'offices.

The Bureau of Tuberculosis has information that of the total number of cases under supervision, 1,130 (61%) were on current treatment compared to 63% as of December 31, 1982. At the end of 1983, 1,765 patients were recommended for treatment,with two or more drugs with 1,100 (62%) current for treatment compared with 2,200 recommended for treatment with two or more drugs and 1,428 (65%) current for treatment at the end of 1982. Problem areas, in addition to the fact that only 62% of all patients recommended for treatment with two or more drugs being current for therapy, is the problem of patients being recommended one drug,41 (117 in 1982) and no drugs or where the status of treatment is unknown, 44 (94 in 1982). Vast improvement has been made since the end of 1982 when these patients represented 8.0% of the total prevalence as compared with 3.8% currently. When these inappropriately supervised patients are added to those recommended for two or more drugs and who are not current, they account for 34.0% of the total prevalence (750 patients) not being adequately managed. These patients are at risk of developing acquired drug resistance and may infect other members of the community.

In addition to patients remaining current on chemotherapy, it is important for the health care provider to collect specimens for the mycobacteriology laboratory monthly in order to monitor the results of therapy as recommended by C.D.C., ATS and the Bureau. Of the 1,765 patients recommended for two or more drugs, 941 (53.3%) had bacteriology either unknown or not done. This compares with 904 (41%) in 1982. Other problems arise from those patients who are recommended one drug or no anti-tuberculosis drugs who have positive bacteriology. At the end of 1983 they represented 5.8% (5 patients) of those patients so recommended,while at the end of 1982 they represented 6.6% (14 patients) of those patients recommended one or no anti-tuberculosis drugs. The primary cause of the problem of providers not collecting specimens may be corrected with the City Laboratorys new policy of accepting specimens from the medical community at large without fee. Once the health care providers respond to this new policy, we expect to see a reduction in the number of patients who have bacteriology either unknown or not done.

Table 32

Tuberculosis Program Management Report
Case Register
Tuberculosis Prevalence
New York City
January 1 to December 31, 1982 and 1983

| | 1983 | 1982 |
|---|---|---|
| A. Patients under supervision at the beginning of the period | 2,602 | 2,623 |
| B. Patients added during the period | 1,221 | 1,008 |
| C. Patients closed to supervision during the period | 1,633 | 1,029 |
| 1. Supervision completed | 1,097 | 590 |
| 2. Moved out of jurisdiction | 81 | 65 |
| 3. Lost | 304 | 231 |
| 4. Died | 151 | 143 |
| D. Patients under supervision at the end of the period | 2,190 | 2,602 |
| 1. Patients in a general hospital | 340 | 190 |
| 2. Patients at home | 1,850 | 2,412 |

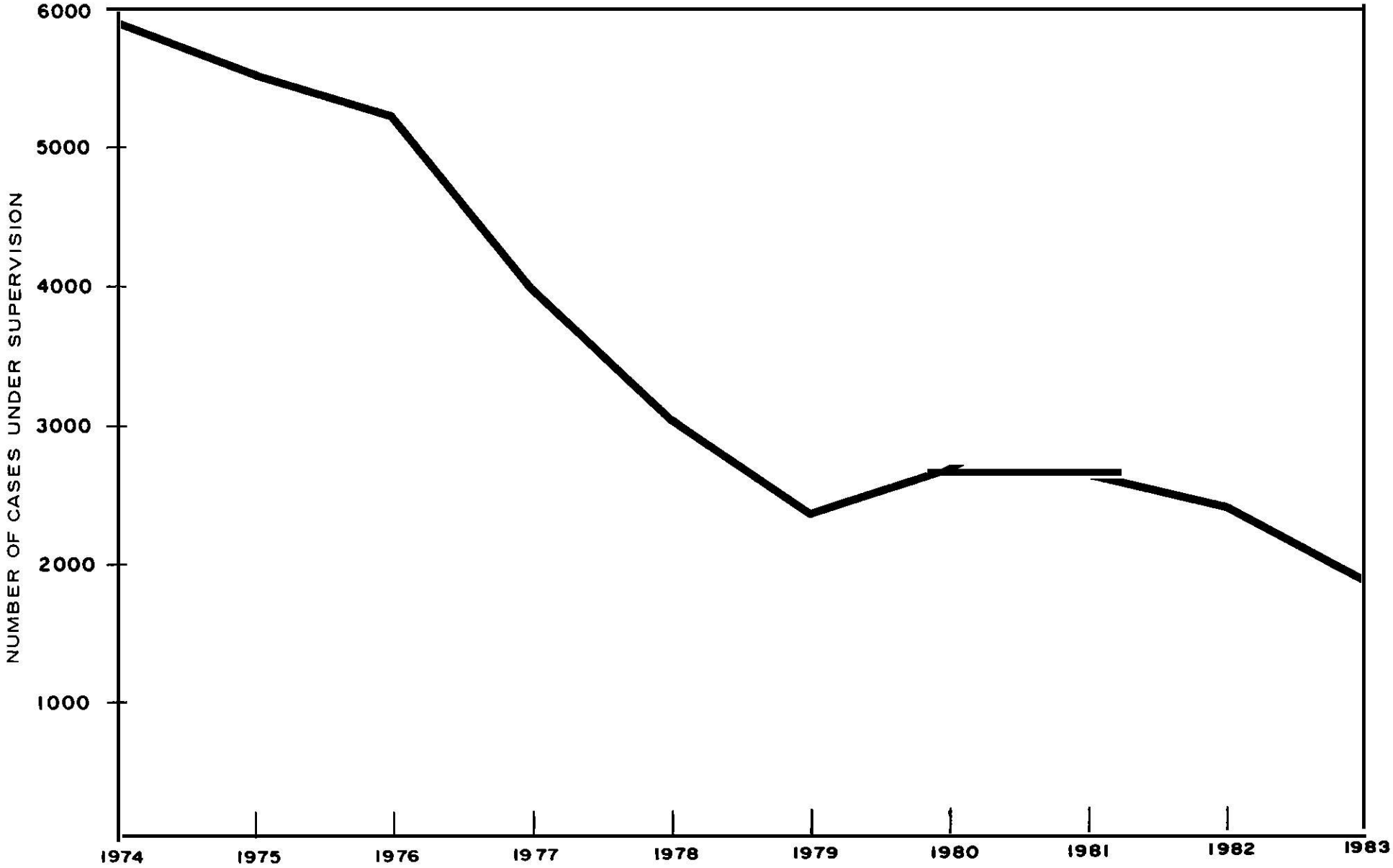
Table 33
Status of Patients at Home As of
December 31, 1982 and 1983

| | Total | | Two or More TB Drug | | One TB Drug | | No TB Drugs or Unknown | |
|---|---|---|---|---|---|---|---|---|
| | 1983 | 1982 | 1983 | 1982 | 1983 | 1982 | 1983 | 1982 |
| Chemotherapy Recommendation | 1,850 | 2,412 | 1,765 | 2,201 | 41 | 117 | 44 | 94 |
| 1. Cases currently on chemotherapy | 1,130 | 1,509 | 1,100 | 1,428 | 30 | 81 | 0 | 0 |
| 2. Cases not currently on chemotherapy | 720 | 903 | 665 | 773 | 11 | 36 | 44 | 94 |
| Bacteriology | | | | | | | | |
| 1. Positive within past 3 months | 155 | 194 | 147 | 180 | 4 | 1 | 1 | 13 |
| 2. Negative within past 3 months | 528 | 416 | 514 | 372 | 15 | 43 | 2 | 1 |
| 3. Not recommended | 170 | 789 | 163 | 745 | 0 | 42 | 7 | 2 |
| 4. Unknown or not done | 997 | 1,013 | 941 | 904 | 22 | 31 | 34 | 78 |
| Medical Review | | | | | | | | |
| 1. Cases with medical review within past 3 months | 1,130 | 1,509 | 1,100 | 1,428 | 30 | 81 | 3 | 14 |

Prevalence by category of health care provider reveals that 11.2% is being supervised by the Department of Health, 42% by municipal hospitals, 28% by private voluntary hospitals, and 19% by other parties.

FIGURE 8

# TUBERCULOUS DISEASE PREVALENCE UNDER SUPERVISION DECEMBER 31, 1974 - 1983, NEW YORK CITY



P. Contact Summary

Table 34 highlights the degree of success the TB program has had with preventing future disease. Since it is widely known that infected contacts are among those at greatest risk of progressive disease, the greatest impact in reducing future disease can be made by identifying close contacts and starting them on a course of preventive treatment. In 1983 the compliment of Public Health Advisors identified 3,310 contacts (3,164 in 1982) for a contact index, or the number of contacts identified per case interviewed, of 3.7 (3.0 in 1982), of the ocntacts identified, 2,975 (90%) were examined and 826 (28%) were found to be infected without disease. This compares with 2,915 (92%) examined in 1982, identifying 929 (32%) to be infected without disease. Identifying contacts and testing them for infection will allow the provider to focus on those persons at greatest risk of developing disease and in need of preventive treatment. In 1983, 524 (63%) of the infected contacts were started on prevention. This compares with 63% in 1982 and 80% in 1981. The inability of the Bureau to ensure that infected contacts are at least started on a course of preventive treatment will add to future morbidity in New York. It is estimated that 5% (national average) of the newly infected individuals who are not covered by isoniazid prevention will develop disease within the first two years of infection. An extensive discussion on this subject was included in the annual report for 1982.

Table 34

Summary of Close Contacts Identified and Examined
1980, 1981, 1982, and 1983
New York City

| | 1980 | 1981 | 1982 | 1983 |
|---|---|---|---|---|
| # Identified | 2,071 (2.5/case) | 2,827 (2.4/case) | 3,164 (3.0/case) | 3,310 (3.7/case) |
| # Examined | 1,854 (90%) | 2,612 (92%) | 2,915 (92%) | 2,975 (90%) |
| # Not Infected | 1,229 (66%) | 1,753 (67%) | 1,896 (65%) | 2,071 (70%) |
| # Not Infected on Treatment | 196 (16%) | 675 (34%) | 233 (12%) | 306 (15%) |
| # Infected, without Disease | 578 (31%) | 812 (31%) | 929 (32%) | 826 (28%) |
| # Infected, on Treatment | 425 (74%) | 652 (80%) | 587 (63%) | 524 (63%) |
| # Infected, with Disease | 47 (2.5%) | 47 (1.8%) | 53 (1.8%) | 78 (2.6%) |
| # Tuberculin Status Unknown | 0 (0.0%) | 0 (0.0%) | 37 (1.2%) | 0 (0.0%) |

## Section IV: Control of Tuberculosis

### A. Introduction

Control of tuberculosis is defined as those activities mandated which involve the protection of public health. The responsible agent for meeting public health obligations is the Bureau of Tuberculosis. These responsibilities concern personal health through the elimination of death, disability, illness, emotional trauma, family disruption, and social stigma. The responsibilities concern public health by interruption of and prevention of transmission of tubercle bacilli to other members of the population. The program's ultimate goal is to eliminate tuberculosis as a personal and public health problem. The existing prevalence and an increasing morbidity indicate that tuberculosis is a disease of significant volume and consequence in New York City.

### B. New York City Tuberculosis Control Program General Responsibilities

1. To ensure that all cases of tuberculosis that are suspected or diagnosed in New York City's medical facilities are reported to the Bureau of Tuberculosis; to institute measures to ensure that such reporting is done in a timely and thorough manner; and to take corrective action when less than required results occur.

2. To ensure that epidemiologic follow-up is performed on all reported cases of infectious tuberculosis, i.e. contacts to such cases are identified and brought to examination and treatment.

3. To ensure that diseased patients are on effective treatment; to monitor the care of such patients; and to take corrective action to return delinquent/noncompliant patients to medical supervision and treatment.

4. To develop and disseminate Department policies, procedures, and guidelines for the proper management and treatment of tuberculosis.

5. To maintain documents and records, compile data, and information for the purpose of analyzing and assessing the scope and magnitude of the tuberculosis problem in New York City.

### C. Basic Tuberculosis Objectives

In order for tuberculosis to be controlled, the following must occur:

1. Persons with disease able to infect others must be rendered non-infectious.

2. Persons with disease must remain non-infectious.

3. Persons with infection must be prevented from developing disease.

D. Methodology to Achieve Basic Objectives

1. All tuberculosis cases and suspected cases must receive a rapid diagnosis and,more importantly, be placed on an effective tuberculosis drug regimen.

2. All tuberculosis cases must be continuous in taking drugs and complete the prescribed course of treatment.

3. All tuberculosis cases with positive sputum must convert to negative in the shortest possible time.

4. Contacts to infectious tuberculosis must be rapidly identified and brought to examination and treatment.

5. Persons on preventive treatment must be continuous in taking their drug and complete the prescribed course.

E. Performance Indicators

1. Continuity and Completion of Drug Therapy

Cases of tuberculosis started on chemotherapy are evaluated for their continuity of drug therapy during the initial 12 months of treatment and for completion of their prescribed course of drug therapy. Cases are evaluated on quarterly basis, using cohorts of cases reported January-March, April-June, July-September, and October-December of the incidence year. A high level of achievement in this indicator assures the Bureau that infectious cases will become non-infectious and that non-infectious cases will not become infectious. Provided the case has been recommended to be treated with effective anti-tuberculosis drugs and takes the drugs with minimal interruption to completion of the prescribed course, the patient will become non-infectious within a short period of time and will be cured.

The Bureau's optimal objective is to have at least 95% of the cases started on drugs maintain continuity without interruption for 12 consecutive months and have 90% completed the prescribed course of therapy. Table 35 presents the current results of this performance indicator.

F. Continuity and Completion of Drug Therapy

An integral component of this Bureau's responsibility is to render patients with disease noninfectious (conversion of positive sputum to negative) and to continue them to remain noninfectious (no relapse or reactivations) by ensuring patients remain on effective anti-tuberculosis chemotherapy for a sufficient period of time to effect a cure. This can now be accomplished in as few as nine uninterrupted months of therapy with regimens containing a core of isoniazid and rifampin. A measure of this Bureau's effectiveness as a control program is by the percentage of patients started who complete nine uninterrupted months of therapy. The objective is currently for 95% continuity and completion.

Table 35 illustrates the percentage of patients within cohort groups who have completed at least twelve continuous months of therapy. From the first quarter of 1979 through the first quarter of 1983 the cohort groups have varied from a low of 51% (April-June 1981) to a high of 76% (January-March 1981). The average for all cohort groups is 63% completion. Reasons for such unacceptably low percentages of completion of therapy can be cited such as when patients begin to feel better after a few months of therapy they are much more difficult to motivate and compliance problems ensue; also, patients with social problems such as alcoholism and homelessness present motivational challenges. An approach to these patient problems preventing drug continuity is direct supervision of therapy. It has been shown, although on a limited basis here in New York, that with directly supervised therapy patients can be expected to attain in excess of 95% continuity (see the Suervised Therapy Program section of this report).

The majority of the patients must be relied upon to present at clinic monthly and ingest daily medicine. This arrangement allows for delinquency from clinic appointment and noncompliance with drugs which this Bureau may not be aware of until weeks or months after the fact, at which time the opportunity for the patient to be continuous has already been lost.

Table 35
Continuity and Completion of Drug Therapy

| Cohort of Cases | % of Cases Continuous on Therapy for 12 Months | % of Cases* Completing Therapy |
|---|---|---|
| Jan.-Mar. 1979 | 57 | 63 |
| Apr.-June 1979 | 58 | 64 |
| July-Sept. 1979 | 58 | 67 |
| Oct.-Dec. 1979 | 52 | 62 |
| Jan.-Mar. 1980 | 68 | 76 |
| Apr.-June 1980 | 56 | 71 |
| July-Sept. 1980 | 57 | 66 |
| Oct.-Dec. 1980 | 61 | 77 |
| Jan.-Mar. 1981 | 76 | - |
| Apr.-June 1981 | 51 | - |
| July-Sept. 1981 | 63 | - |
| Oct.-Dec. 1981 | 70 | - |
| Jan.-Mar. 1982 | 70 | - |
| Apr.-June 1982 | 70 | - |
| July-Sept. 1982 | 72 | - |
| Oct.-Dec. 1982 | 70 | - |
| Jan.-Mar. 1983 | 61 | - |

*The % of Cases Completing Therapy from 1979-1980 was based on 24 months of treatment. Since the inception of short course chemotherapy this index is no longer used. The Bureau presently considers nine months of continuous therapy in most instances sufficient for completion of treatment.

Table 36
Conversion of Positive Sputum Culture Cases of TB at Three and Six Months of Cases Reported January-March 1980 to July-September 1983 in Percent, New York City

| Cohort of Cases | % of Cases Converting Sputum Culture to Negative | |
|---|---|---|
| | Within 3 Months | Within 6 Months |
| Jan.-Mar. 1980 | 26 | 41 |
| Apr.-June 1980 | 28 | 41 |
| July-Sept. 1980 | 22 | 49 |
| Oct.-Dec. 1980 | 35 | 51 |
| Jan.-Mar. 1981 | 27 | 50 |
| Apr.-June 1981 | 34 | 53 |
| July-Sept. 1981 | 40 | 50 |
| Oct.-Dec. 1981 | 22 | 34 |
| Jan.-Mar. 1982 | 37 | 62 |
| Apr.-June 1982 | 61 | 73 |
| July-Sept. 1982 | 43 | 56 |
| Oct.-Dec. 1982 | 44 | 70 |
| Jan.-Mar. 1983 | 43 | 63 |
| Apr.-June 1983 | 37 | 58 |
| July-Sept. 1983 | 29 | 48 |

Bacteriologic Conversion of Sputum

Table 36 illustrates the conversion of sputum from positive to negative and represents the percentage of patients who convert within three and six months from when the initial positive sputum was obtained. One of the objectives of the Bureau of Tuberculosis is that all those individuals who are infected with disease and are able to transmit infection to others should be rendered non-infectious provided the antituberculosis agents prescribed are effective and the patients adhere to the regimen. It should be expected, with the currently recommended initial therapeutic regimen for uncomplicated disease of isoniazid and rifampin, to convert in excess of 75% of the cases reported with positive sputum within three months and 95% within six months.

Unfortunately, due to a variety of reasons those expectations have not been met. To illustrate this, the following is an analysis of a typical cohort group of 250 patients reported from July 1 to September 31, 1983, each with an initial positive sputum. At three months following their initial positive sputum, of the 250 patients only 74 had documented evidence of sputum conversion while 176 were without a negative sputum. By describing the aforementioned 176 as being without a negative sputum, it does not necessarily mean they had positive sputums, but that a variety of situations may exist to prevent documentation of a negative sputum within three months. An exact accounting of the 176 without negative sputum yielded the following: (a) 101 patients had no sputums collected following the initial sputum collection; (b) 23 patients had a follow-up sputum positive, but no further sputums obtained subsequent to the positive; (c) 37 patients were positive at three months; (d) 4 patients had specimens obtained that were not sputum; (e) 2 patients died; and (f) 9 patients had sputums pending. It is evident from the foregoing illustration that with 101 (57%) of the patients noted not to be sputum negative within three months, by not having sputums obtained following the initial sputum it becomes impossible to achieve the program objective of sputum conversion. This is an area the Bureau has been dwelling on over the years, striving to convince physicians of the importance of follow-up sputum collections to document conversion as a means of accurately monitoring the efficacy of therapy and to assure that the patient is no longer communicable.

## G. Tuberculosis in its Proper Perspective

The reasons given for individuals developing disease from tuberculosis have been varied and many throughout the years from being thought of as a genetic condition linked with artistic sensitivity to ingesting the germs from contaminated eating and drinking utensils to finally being acknowledged as an airborne infectious agent communicated from person to person. Epidemiologically, the transmission of tuberculosis has been well known for many years with the infectiousness of this organism being demonstrated and well documented to provide a body of knowledge sufficient to conclude this disease is more prevalent when certain conditions are present. Some of these conditions have been thought of as poor nutrition, poor personal health, overcrowding, lack of fresh air, or lack of cleanliness. This list could go on describing a whole host of undesirable individual and group traits such as drug addiction, alcoholism, and homelessness, but the overall description is one of social decay and deprivation. The common thread running through tuberculosis is therefore social, not nutritional nor medical.

To illustrate and lend support to what many people intuitively believe to be the causes of the problems of tuberculosis morbidity and mortality, tables 37 and 38 have been prepared. Within these tables thirteen health districts are measured according to ten variables. The variables are infant mortality rates, age adjusted disease rates, pneumonia - influenza mortality rates, homicide rates, cirrhosis rates, median income, median years of school completed, tuberculosis morbidity rates, and tuberculosis mortality rates. These variables have been chosen because they are indicative of both individual and collective welfare, i.e. quality of life. The health districts were selected from throughout the five boroughs to represent all social strata, from the lowest with Morrisania or Bushwick to the highest with Kips Bay-Yorkville or Richmond and with the lower East Side or Bedford representing the middle. The highest rates for tuberculosis morbidity and mortality are within the Central Harlem District with 109.0 and 15.5 respectively per 100,000 population. Additionally, Central Harlem is at greatest disadvantage in most all other categories of variables measured among health districts. Conversely, Richmond Health District has the lowest T.B. morbidity and mortality, with rates of 5.3 and 0.2 respectively while being among the least disadvantaged in all other variables as measured among health districts.

It is suggested by the data that a relative causal relationship exists between the high rates of tuberculosis morbidity and mortality and the negative indices of "quality of life" variables. This relationship is also illustrated among low tuberculosis morbidity and mortality rate areas and their respective positive indices of the "quality of life"variables. Several conclusions may be derived from the tables. Firstly, people living in Central Harlem, Morrisania, Brownsville, and Bushwick are at a high risk for acquiring tuberculosis when compared to other areas. The risk of developing tuberculosis disease is no different in terms of the risk of developingother conditions, though they behave independently. The populations of these areas live in overcrowded conditions, are economically disadvantaged, and have in general a high mortality. The association of T.B. with bad socio-economic conditions as pointed out in previous reports is again quite obvious. Higher income, more education and less or no overcrowding,

all point to low tuberculosis rates. It is further suggested then, for real success in eliminating tuberculosis as a public health problem within society, fundamental structural changes must be made in order to improve the conditions of disadvantaged areas which also suffer a disproportionate tuberculosis problem.

In order to objectively illustrate a definite cause and effect relationship between the quality of life and tuberculosis, a retrospective study of the previous twenty years is necessary to monitor and note the changes by health district of the quality of life indices with tuberculosis rates.

A pictorial representation of the incidence of T.B. in New York City by Health Districts is given in figure 9. The map outlines the areas by case rates per 100,000 population. It is quite obvious that the highest rates occur in Central Harlem, the Lower East Side (> 50), the South Bronx and the Bedford-Stuyvesant and Fort Greene areas of Brooklyn. The map supports the data listed in tables 37 and 38 and once again highlights the socio-economic patterns.

Table 37
Tuberculosis Compared With Other Social Indicators For Selected Health Districts

| Health Districts | (1) Infant Mortality 1982 | 1983 | (2) Age Adjusted Disease Rates 1980 | (3) Pneumonia Flu Mortality Rates 1981 | 1982 | (4) Homicides 1981 | 1982 | (5) Cirrhosis 1981 | 1982 | Median Income 1980 | Percent Adults on Pub. Asst. Ap. 1983 | Median Yrs. of School Completed 1980 | TB Rates 1983 (6) Morb. | (7) Mort. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Central Harlem | 27.6 | 21.2 | 12.2 | 67.2 | 75.4 | 95.1 | 82.0 | 118.9 | 90.2 | $ 9337 | 17.6 | 11.1 | 109.0 | 15.5 |
| East Harlem | 17.4 | 14.5 | 7.9 | 40.9 | 38.5 | 40.9 | 46.5 | 53.7 | 50.3 | $10695 | 14.5 | 10.7 | 39.2 | 2.4 |
| Lower East Side | 9.4 | 7.2 | 6.7 | 37.5 | 32.7 | 28.3 | 24.0 | 43.6 | 43.2 | $14345 | 5.5 | 12.2 | 59.2 | 6.1 |
| Lower West Side | 12.6 | 10.3 | 6.2 | 42.0 | 34.3 | 20.4 | 18.4 | 31.3 | 38.0 | $20868 | 2.4 | 14.1 | 37.9 | 3.7 |
| Bedford | 25.3 | 19.4 | 8.4 | 24.0 | 21.6 | 45.1 | 50.4 | 47.0 | 31.6 | $11214 | 15.8 | 11.7 | 44.5 | 2.8 |
| Fort Greene | 24.3 | 22.3 | 8.9 | 35.4 | 27.9 | 52.5 | 35.4 | 39.5 | 40.9 | $11000 | 15.9 | 11.7 | 44.9 | 6.1 |
| Kips Bay-Yorkville | 7.5 | 10.8 | 4.6 | 34.1 | 28.9 | 5.6 | 3.9 | 16.0 | 18.6 | $42500 | 0.5 | 15.7 | 7.3 | 0.4 |
| Bay Ridge | 9.7 | 8.5 | 5.8 | 34.1 | 30.5 | 8.4 | 11.6 | 22.9 | 16.5 | $18550 | 2.7 | 11.9 | 6.4 | 1.2 |
| Maspeth-Forest Hills | 8.7 | 7.6 | 5.3 | 39.1 | 29.3 | 8.3 | 8.0 | 15.6 | 18.1 | $21755 | 1.4 | 11.9 | 9.0 | 0.7 |
| Morrisania | 21.4 | 18.6 | 8.8 | 19.3 | 34.2 | 64.7 | 63.2 | 39.4 | 32.0 | $ 7850 | 25.4 | 10.2 | 40.1 | 2.2 |
| Brownsville | 18.3 | 18.4 | 7.1 | 22.1 | 21.8 | 42.4 | 35.0 | 22.1 | 20.6 | $13325 | 13.0 | 11.3 | 26.9 | 2.2 |
| Bushwick | 14.0 | 19.9 | 8.2 | 21.6 | 15.0 | 47.4 | 34.8 | 42.6 | 30.0 | $ 9010 | 22.5 | 10.2 | 38.4 | 4.2 |
| Richmond | 11.4 | 11.4 | 6.0 | 20.5 | 28.4 | 8.5 | 8.0 | 11.1 | 9.7 | $24010 | 2.4 | 12.4 | 5.3 | 0.2 |

(1) Range of 7.5 to 27.6 in 1982 per 1000 live births
(2) Range of 4.6 to 12.2 in 1980 per 1000 population
(3) Range of 15.0 to 75.4 in 1982 per 100,000 population
(4) Range of 3.9 to 82.0 in 1982 per 100,000 population
(5) Range of 9.7 to 90.2 in 1982 per 100,000 population
(6) Range of 5.3 to 109 in 1983 per 100,000 population
(7) Range of 0.4 to 15.5 in 1983 per 100,000 population

Table 38
Ranking of Health Districts by Variables on a Scale of 1 to 13 From Least Disadvantaged to Most Disadvantaged

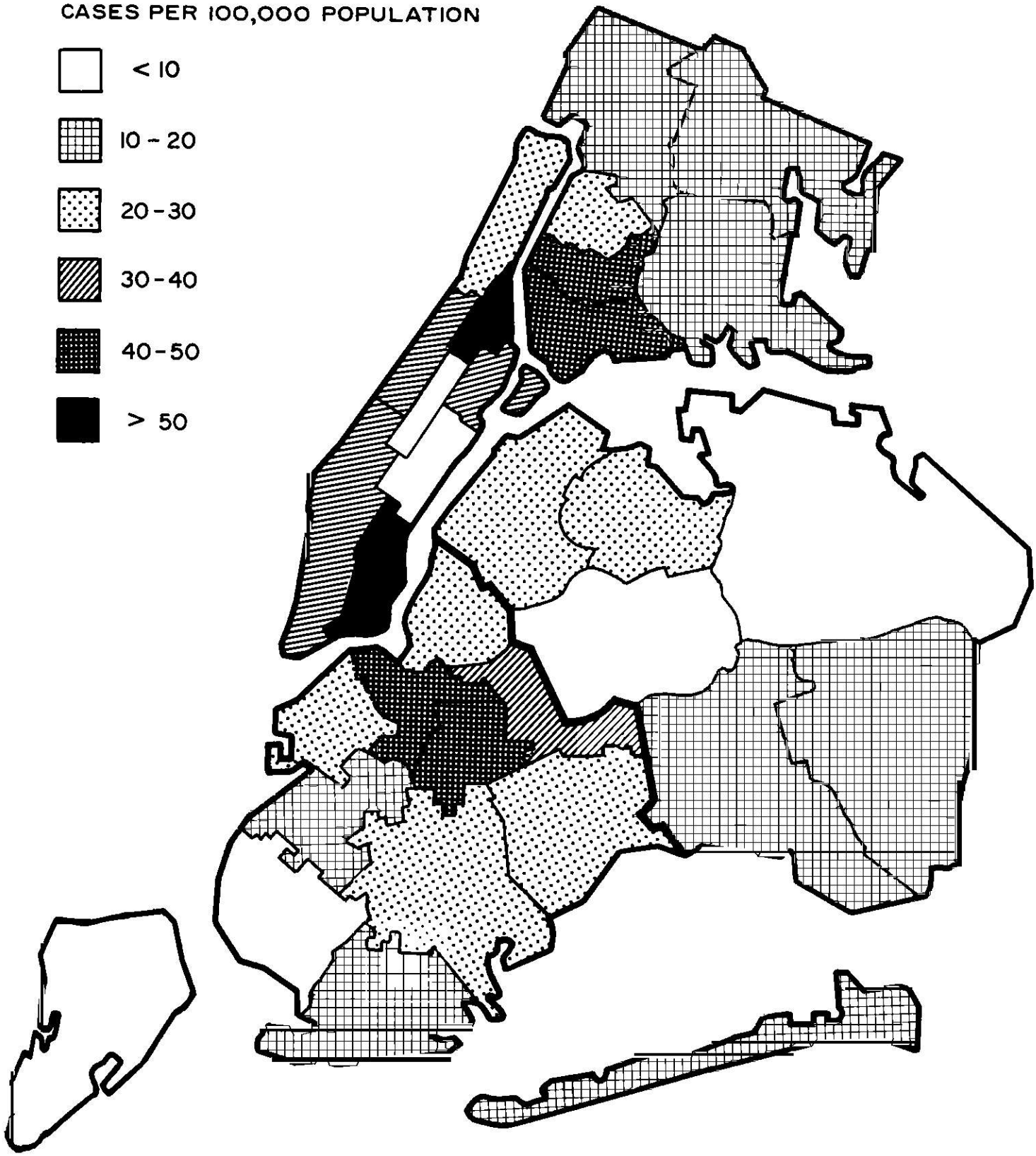
| Health District | Infant Mortality 1983 | Age Adjusted Disease 1980 | Pneumonia Flu Mortality 1982 | Homicides 1982 | Cirrhosis 1982 | Median Income 1980 | Adults on Pub. Asst. 1980 | Yrs. of School Completed 1980 | TB Morbidity 1983 | TB Mortality 1983 | *District Average |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Central Harlem | 12 | 13 | 13 | 13 | 13 | 11 | 11 | 10 | 13 | 13 | 12.1 |
| East Harlem | 7 | 8 | 12 | 10 | 12 | 10 | 8 | 11 | 8 | 7 | 7.9 |
| Lower East Side | 1 | 6 | 9 | 6 | 11 | 6 | 6 | 4 | 12 | 11 | 5.2 |
| Lower West Side | 4 | 5 | 11 | 5 | 9 | 4 | 3 | 2 | 6 | 9 | 4.5 |
| Bedford | 10 | 10 | 2 | 11 | 7 | 8 | 9 | 7 | 10 | 8 | 6.6 |
| Fort Greene | 13 | 12 | 4 | 9 | 10 | 9 | 10 | 7 | 11 | 11 | 7.2 |
| Kips Bay-Yorkville | 5 | 1 | 5 | 1 | 4 | 1 | 1 | 1 | 3 | 2 | 1.8 |
| Maspeth-Forest Hills | 3 | 2 | 7 | 2 | 3 | 3 | 2 | 5 | 4 | 3 | 3.2 |
| Morrisania | 2 | 11 | 10 | 12 | 8 | 13 | 13 | 12 | 9 | 5 | 11.1 |
| Brownsville | 9 | 7 | 3 | 8 | 5 | 7 | 7 | 9 | 5 | 5 | 8.0 |
| Bushwick | 8 | 9 | 1 | 7 | 6 | 12 | 12 | 12 | 7 | 10 | 8.2 |
| Richmond | 11 | 4 | 6 | 2 | 1 | 2 | 3 | 3 | 1 | 1 | 3.2 |
| Bay Ridge | 6 | 3 | 8 | 4 | 2 | 5 | 5 | 5 | 2 | 4 | 4.3 |

*Exclusive of tuberculosis morbidity and mortality

Note: Duplicate numerical rank order indicate ties

Figure 9

# 1983 TUBERCULOSIS INCIDENCE NEW YORK CITY by HEALTH DISTRICT



RETURN TO
MARIE DORSINVILLE

CHRISTMAS SEALS
Fight Lung Disease
IT'S A MATTER OF LIFE AND BREATH