

CASE DETECTION

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CASE DETECTION

TUBERCULIN
TESTING

The School Health Services of the Department of Health continued tuberculin testing among adolescents entering secondary schools in New York City. (Ref.b)

The program calls for tuberculin testing of all students newly admitted to the public, parochial and private high schools of New York City and yearly x-ray examination of positive reactors to the test throughout their secondary school careers. Participation of students is based upon parental request.

The sixth year of tuberculin testing in the secondary schools also marked the third year of testing by the Heaf multiple puncture method. Results for the three years are shown, but they are not completely comparable since a refinement in the criteria of reading the results of the test was followed in the second and third year of testing and, whereas PPD (Purified Protein Derivative) was used exclusively for testing in the last two years, OT (Old Tuberculin) was used almost exclusively in the first year.

Positive reaction rates, though lower than in the past with few exceptions, still point up Manhattan schools as having the highest rates and this year Richmond and Brooklyn the lowest. Generally speaking vocational high schools had the highest positive reaction rates and Catholic and Hebrew high schools had the lowest rates.

Altogether, during the school year 1960-1961, with approximately 90,873 students eligible, 64,373, or 71 percent, participated; 59,709 tests were read. Included in the testing were 34 vocational schools(*), 67 public academies(†), 82 Catholic academies and 6 Hebrew academies; or a total of 189 schools.

Of importance in last year's Heaf multiple puncture tests is the fact that the positive reactors were x-rayed in the follow-up work and through December 1960, 6 active cases of tuberculosis were found. (Minimal = 3, Moderately Advanced = 2, Childhood Primary = 1).

(*)Including 3 annexes; (†)also 9 annexes.

TUBERCULIN TESTING IN SECONDARY SCHOOLS, NEW YORK CITY
HEAF MULTIPLE PUNCTURE TEST

Borough	1958-59			1959-60			1960-61		
	Tests Read	Number Positive	Percent Positive	Tests Read	Number Positive	Percent Positive	Tests Read	Number Positive	Percent Positive
Manhattan	12,816	2,973	23.2%	10,555	1,847	17.5%	11,085	1,745	15.7%
Bronx	10,417	2,220	21.3%	9,587	1,287	13.4%	9,620	761	7.9%
Brooklyn	20,473	3,434	16.7%	21,901	1,530	7.0%	22,571	1,483	6.6%
Queens	12,399	1,548	12.5%	11,836	804	6.8%	14,074	1,431	10.2%
Richmond	2,265	415	18.3%	2,310	129	5.6%	2,359	179	7.6%
New York City	58,370	10,590	18.1%	56,189	5,597	10.0%	59,709	5,599	9.4%

Note: Entering students, age range approximately 13-15 years.

In High School surveys most of the tuberculin reactors are given a chest X-ray examination within a two-month period.

CASE DETECTION



The Heaf Multiple Puncture Apparatus used for rapid tuberculin testing surveys of large numbers of children and adults.



Drop of tuberculin applied to forearm prior to use of Heaf Multiple Puncture Apparatus in special survey held in Staten Island industrial plants.

Registering persons for chest x-rays during the Morningside Chest X-ray Survey in Upper Manhattan.



TUBERCULIN TESTING IN SECONDARY SCHOOLS, NEW YORK CITY

HEAF MULTIPLE PUNCTURE TEST
By Type of School, 1960 - 1961

Type	Number of Schools	Tested and Read	Number Positive	Percent Positive
Vocational	34	9,793	1,620	16.5%
Public Academic	67	34,609	2,991	8.6%
Catholic Parochial ...	82	14,921	965	6.5%
Hebrew Parochial	6	386	23	6.0%
Total	189	59,709	5,599	9.4%

TUBERCULIN TESTING IN SECONDARY SCHOOLS
Department of Health, The City of New York
1955 - 1961

School Year	Tested and Read	Number Positive	Percent Positive
1955 - 1956 (a)	46,361	3,852	8.3%
1956 - 1957 (a)	54,373	3,743	6.9%
1957 - 1958 (a)	56,842	3,577	6.3%
1958 - 1959 (b)	58,370	10,590	18.1%
1959 - 1960 (b)	56,189	5,597	10.0%
1960 - 1961 (b)	59,709	5,599	9.4%

Note: Entering students, age range approximately 13-15 years.
(a) Patch test, (b) Heaf multiple puncture test.
Upon subsequent X-raying and follow-up of positive reactors there were active cases of tuberculosis found: 1955-56 = 6, 1956-57 = 11, 1957-58 = 11, 1958-59 = 11, 1959-60 = 14, 1960 through December = 6.

TUBERCULIN TESTING IN 22 PAROCHIAL ELEMENTARY SCHOOLS

New York City, 1959 - 1960

Grade†	Tested and Read	Number Positive*	Percent Positive
First	2,781	69	2.5%
Fourth	2,793	159	5.7%
Seventh	2,678	215	8.0%
Total	8,252	443	5.4%

†As of September 30, 1959 there were 12,070 children registered in these schools. *Heaf multiple puncture test. Ages of children ranged from 6 to 15 years.

Note: In the Heaf testing study of 22 elementary parochial schools which took place in 1959 and 1960, 63.7 percent of the positive reactors were X-rayed (282) within two months. There were 2 active tuberculosis cases among the 443 positive reactors. The number of familial contacts was 1,706 or 3.9 contacts per positive child reactor. Upon subsequent examination of these contacts (1,286 X-rayed), 4 were found to have active tuberculosis. (Ref.c)

FRESH MEADOWS TUBERCULIN TESTING PROGRAM
 Queensboro Tuberculosis and Health Association
 May 3 - May 6, 1960

Age Group	Tested and Read	Number(*) Positive	Percent Positive
0 - 5	135	2	1.4%
6 - 17	279	1	0.4%
18 - 24	20	1	5.0%
25 - 34	170	26	15.3%
35 - 44	251	97	38.6%
45 - 54	106	67	63.2%
55 - 64	56	33	58.9%
65+	18	7	38.9%
Total	1,035	234	22.6%

(*)Heaf multiple puncture test.

REACTION RATES IN NEW YORK CITY

It is estimated that there are now in New York City 2,800,000 people who have been infected with the tubercle bacillus, or one of every three residents. Around 80,000 of these are children under 15 years of age.

On a city-wide average, 2 percent of the children under 5 years of age are tuberculin positive, 4 percent in the group 5 to 9 years, 8 percent in the group 10 to 14 and 20 percent in the group 15 to 20; however, in different neighborhoods wide variations from these figures are observed.

X-RAY EXAMINATIONS FOR TUBERCULOSIS

In 1960 eight hundred thousand chest x-ray examinations for tuberculosis were given in New York City. The majority of the people so examined were adults. This estimate includes community-wide surveys as well as x-rays taken of patients in the Department of Health clinics, persons admitted to general hospitals and examinations by the three Tuberculosis and Health Associations.

The Department of Health reported taking 458,568 chest x-rays, the three local tuberculosis associations 52,890, and 42 general hospitals 307,732, a total of 819,190 for the year.

X-RAY EXAMINATIONS FOR TUBERCULOSIS
New York City, 1950-1960

Year	Department of Health*	Brooklyn TB and Health Assn.	Queensboro TB and Health Assn.	New York TB and Health Assn.	General Hospitals Admissions	Total X-ray Examinations for TB
1950	437,931	44,268	56,654	22,754	...	561,607
1951	523,683	49,133	27,904	24,970	...	625,690
1952	421,702	48,765	29,618	27,590	...	527,675
1953	456,529	46,441	27,905	33,949	...	564,824
1954	511,415	30,261	26,290	25,755	...	593,721
1955	619,247	28,231	35,199	34,663	17,264	734,604
1956	770,954	23,688	33,776	30,846	106,747	966,011
1957	691,467	21,341	32,881	23,759	246,630	1,016,078
1958	432,392	14,198	21,236	19,499	312,815	800,140
1959	427,702	19,690	20,866	20,569	299,389	788,216
1960	458,568	13,294	17,897	21,699	307,732	819,190

*Including x-ray examinations other than for case finding. In addition, chest x-ray examinations were made by the Department of Hospitals Clinics, Private Clinics, and Private Physicians for which agencies data were not available.

DEPARTMENT
OF HEALTH

Of the 458,568 examinations reported upon by the Department of Health, 317,521 chest x-rays were taken in connection with surveys and 141,047 at the clinics during 1960.

X-Ray Examinations
BUREAU OF TUBERCULOSIS, DEPARTMENT OF HEALTH
City of New York

X-Rays for Patients	1955	1956	1957	1958	1959	1960
Attending clinics	162,848	172,319	160,111	150,323	147,828	141,047
Survey cases	456,399	598,635	531,356	282,069	279,874	317,521
(a) In clinics	(61,025)	(62,611)	(40,037)	(38,744)	(41,149)	(45,396)
(b) In field	(395,374)	(536,024)	(491,319)	(243,325)	(238,725)	(272,125)
Total	619,247	770,954	691,467	432,392	427,702	458,568

UNITED STATES

X-RAY EXAMINATIONS FOR TUBERCULOSIS CASE FINDING
1946 - 1960

Year	United States†		New York City	
	Number	Percent‡	Number‡	Percent‡
1946	6,000,000	4.3%	324,578	4.2%
1947	8,700,000	6.1%	452,404	5.8%
1948	11,345,401	7.8%	460,659	5.9%
1949	13,836,600	9.3%	595,747	7.6%
1950	14,793,795	9.8%	561,607	7.1%
1951	12,539,409	8.2%	625,690	7.9%
1952	13,466,229	8.6%	527,675	6.7%
1953	15,545,875	9.8%	564,824	7.2%
1954	16,233,027	10.1%	593,721	7.6%
1955	17,410,509	10.6%	734,604*	9.4%
1956	18,101,678	10.8%	966,011*	12.4%
1957	17,512,800	10.3%	1,016,078*	13.0%
1958	13,488,400	7.8%	800,140*	10.3%
1959			788,216*	10.1%
1960			819,190*	10.5%

†Public Health Service, U. S. Department of Health, Education, and Welfare. ‡By Department of Health and Tuberculosis Associations and since 1955 by various hospitals, exclusive of x-rays taken by other health agencies for which details were not available. §Proportion of total population examined, based on revised population estimates taking into account for New York City 1960 enumeration of population by U. S. Bureau of the Census. *Including chest x-ray examinations of general hospital admissions, 1955=17,264, 1956=106,747, 1957=246,630, 1958=312,815, 1959=299,389, 1960=307,732.

ROUTINE CHEST X-RAY EXAMINATIONS OF PATIENTS
ADMITTED TO GENERAL HOSPITALS

Prior to 1955 no organized program to provide routine chest x-ray examinations of patients admitted to general hospitals was in operation in New York City, although in Upstate New York such a plan had been started by the State Health Department. In 1955, New York State made funds available to provide photofluorographic units on a loan basis and for a modest payment to general and chronic disease hospitals for admission x-rays taken by them under the terms of the plan. The New York City Department of Health was made directly responsible for the supervision of this program. It serves as the liaison agency between the hospitals and the New York State Department of Health. By the end of 1956, 26 hospitals in the city were cooperating and, in 1960, 42 institutions. During 1956, 106,747 x-rays were taken and among them there were 851 cases of active pulmonary tuberculosis, a rate of 8 per 1,000 persons examined. In 1960, according to the New York City Department of Health, the total was 307,732 with 1,419 active cases, a rate of 4.6 per 1,000 examined. Of these, 1,419 cases, 883 or 62 percent were not previously registered.

HOSPITAL ADMISSION CHEST X-RAYS, NEW YORK CITY

Year	Number of Institutions	Total Number X-rayed	Active Pulmonary Tuberculosis†			
			Total Cases Diagnosed		Not Previously Registered	
			Number	Rate‡	Number	Rate‡
1955*	5	17,264	131	7.6	..	--
1956	26	106,747	851	8.0	..	--
1957	39	246,630	1,644	6.7	1,083	4.4
1958	41	312,815	1,727	5.5	..	--
1959	41	299,389	1,589	5.3	1,040	3.4
1960	42	307,732	1,419	4.6	883	2.9

*New York State plan started July 1, 1955.

†X-ray diagnosis. ‡Active pulmonary tuberculosis cases per 1,000 examined. Persons not previously registered compared to total cases diagnosed: 1957=66%, 1959=65%, 1960=62%.

HOSPITAL ADMISSION CHEST X-RAY SURVEY
New York City, 1960

Type§	Total Number X-rayed	Active Pulmonary Tuberculosis			
		Total Cases Diagnosed		Not Previously Registered	
		Number	Rate†	Number	Rate†
In-patients	112,966	819	7.2	489	4.3
Out-patients	157,519	564	3.6	368	2.3
Employees	31,760	25	0.8	17	0.5
Not reported	5,487	11	2.0	9	1.6
Total	307,732	1,419	4.6	883	2.9
Municipal hospitals..	215,722	-	..	811	3.8
Voluntary hospitals..	92,010	-	..	72	0.8

†Active pulmonary tuberculosis cases per 1,000 examined.

§42 hospitals (Municipal = 17, Voluntary = 25).

MORNINGSIDE
MASS X-RAY
SURVEY

The Morningside Mass X-ray Survey, conducted from April 7 to July 31, 1960, resulted in the x-raying of 87,193 persons. Of these, it is estimated that 47,657 or 55 percent were residents of the Central Harlem Health Center District. The remaining 45 percent lived outside the district.

There were 2,983 persons, or 3.4 percent of all those x-rayed, called in for further examination. Of these, 1,907 or 64 percent responded.

One hundred and thirty persons were diagnosed as having active pulmonary tuberculosis.(†) Of these, 93 were not previously registered, yielding a new case-finding rate of 1.1 per thousand persons x-rayed. Seventy-six of these 93 persons were diagnosed after re-examination, while 17 had only survey x-rays.

Case-finding rates were considerably higher for the males than for the females.

This survey was a cooperative venture sponsored by the Department of Health of the City of New York and the New York Tuberculosis and Health Association. The Department of Health furnished technical service including personnel who took x-rays, interpreted the films, and examined patients who required further study. The New York Tuberculosis and Health Association was responsible for promoting public participation through publicity, mass media, and attention-getting activities at the scene of x-ray units.

MORNINGSIDE MASS X-RAY SURVEY, 1960
Active Pulmonary Tuberculosis, Not Previously Registered

Sex and Age	Number X-rayed *	Active Pulmonary Tuberculosis Not Previously Registered	
		Number	Rate per 1,000 X-rays
MALE	51,090	71	1.4
Under 25	10,231	9	0.9
25-44	24,650	33	1.3
45+	15,835	29	1.8
Unknown	374
FEMALE	36,103	22	0.6
Under 25	7,345	5	0.7
25-44	16,514	14	0.8
45+	11,829	3	0.3
Unknown	415
BOTH SEXES	87,193	93	1.1
Under 25	17,576	14	0.8
25-44	41,164	47	1.1
45+	27,664	32	1.2
Unknown	789

*Tabulation of number x-rayed based on 10 percent sample.

(†)In addition, other tuberculosis findings were: 2 other active, 36 activity undetermined, 420 arrested or inactive, 253 apparently cured.

EXAMINATION OF PERSONS EXPOSED TO KNOWN TUBERCULOSIS PATIENTS

According to the Department of Health, The City of New York, in 1959 the tuberculosis case rate among contacts examined for the first time was 13 per thousand examinations.

In a study at Bellevue Hospital of the families of 512 tuberculosis patients, on drug treatment at home from 1955 to 1960, on first examination of 1,779 relatives of patients, 66 additional cases of active tuberculosis were found. These new cases represent a rate of 37 per 1,000 contacts examined. Eighty-four previously known but inactive cases were also discovered, a rate of 47 per 1,000 contacts examined. Among 1,131 persons tuberculin tested there were 619 tuberculin reactors (54.7 percent reactors). Within the five-year period, five of the 619 reactors became ill with active tuberculosis. On subsequent examination of family members previously free from tuberculosis, 32 eventually became tuberculin reactors and 9 cases of progressive disease developed. Four of the cases developed long after disease in the source case had met all criteria for being called "inactive". In two of these cases, previously unknown members of the family were found to have active tuberculosis. In seven of the nine cases, infection was traced to a source other than the patient at home under drug treatment and clinic care. The authors point out that chemotherapy is an effective means of protecting the family of a patient under treatment at home. It cannot be expected to protect them from unknown untreated cases among family associates or in the community. (Ref.d)