

TUBERCULOSIS IN A HEALTH CENTRE PRACTICE

A retrospective analysis over eight years

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*The weariness, the fever and the fret . . .
where youth grows pale, and spectre thin, and dies.*

DESCRIBING his own disease, Keats gave romantic expression to the classical symptoms of tuberculosis, known as "the white scourge", and "the captain of the army of death". Up to 1939 there was little to indicate that treatment did more than delay the fatal event in those who would have died without treatment¹ and at the end of the nineteenth century in Britain it caused 60,000 deaths a year—one in every five deaths were due to tuberculosis. (Today the death rate is down to one in every 80 and most of these are old people: in 1960 only 400 persons under the age of 40 died from tuberculosis.²) Since complete victory over the disease is now a practical possibility, we may wonder even at this figure, and a scrupulous examination of the case incidence is necessary.

Social background

Darbshire House is a health centre in Manchester where four practitioners have a combined population on their lists of approximately 12,000 patients (table VI). The area is geographically circumscribed within 2-3 miles radius of the Manchester Infirmary, and includes a predominant slum area, scheduled for clearance, with a large area which encompasses old Victorian mansions that are the transit homes—as bedsitters and flats—of a constantly shifting population. The population of the practice is thus un-

TABLE VI
TOTAL PRACTICE POPULATION AT RISK

Year		Year	
1954	12,717	1959	11,275
1955	12,415	1960	11,228
1956	12,380	1961	11,498
1957	12,510	1962	11,497
1958	11,262		

Mean practice population—11,881

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duly loaded with immigrants, Irish, Indians and West Indians. Its age structure in 1963 was:

	<i>Male</i>	<i>Female</i>
0-4 ..	504	546
5-14 ..	827	768
15-44 ..	2808	2561
45-64 ..	1329	1470
65+ ..	347	689
	5815	6034

Tuberculosis is a particular problem in the City of Manchester. In the Medical Officer of Health's Report for 1961² the death rates for respiratory tuberculosis in the various years were given as:

	<i>Death rate per 1,000 Manchester</i>	<i>Death rate per 1,000 England and Wales</i>
1959	0.12	0.077
1960	0.12	0.068
1961	0.08	0.065

The City of Manchester had almost twice the national death rate for tuberculosis, albeit a decreasing rate year by year.

Source of information

The practice is fortunate to possess the facilities for x-ray within the building, and so the following information on cases of tuberculosis is available.

1. X-ray reports, classified by 'signals' as positive tuberculosis in the filed films.
2. Notification of cases to the medical officer of health—copies.
3. Card index of hospital referrals.
4. Disease register—obtained from the records unit of the Research Committee of the Council of the College of General Practitioners.

These four are concurrent in that a diagnosis will be suggested by x-ray examination, the patient duly referred for treatment and this will be noted in the card-index. Later cases are recorded in the disease register covering the combined practices. This latter (the 'E' book)³ is the most valuable and accurate source of statistics for the four practices, and was maintained for an experimental year, 1962/3.

Detection of cases

The detection of cases is therefore probably as accurate in Darbshire House (Fry⁴ suggests an average of six cases per practice under observation or treatment at any one time in any one year) as anywhere in the country, since with a radiographer within the building it requires little effort by the general practitioner or patient to obtain a chest radiograph. One avoids thus the biggest pitfall of Mass Miniature Radiography surveys where it is acknowledged that the "yield of active cases was found to rise when special efforts were made to x-ray persons who would usually escape examination",⁵

and where similarly Cochrane reported "there appears to be a greater amount of positive tuberculosis in the residue of the population who resist examination by Mass Miniature Radiography than in those who come easily and early."⁶

Moreover, the elderly chronic bronchitic who is very susceptible to this disease⁷ is frequently reviewed by the general practitioner to assess the effect of treatment, and is quickly picked up when the characteristics of tubercule show on the x-ray.

Procedure

The patient reported as suspected of tuberculosis by the radiologist is referred to the chest clinic. Here the inadequacy of general-practitioner research based on notification figures is notable. The family doctor does not risk notification if there is any doubt in diagnosis: he leaves it to the chest clinic who do it but do not inform the general practitioner.⁹ Hence the notification rates for the practice are low, and although a total of 75 males and 59 females with tuberculosis occurred in eight years practice only six males and three females have been notified from the practice. The Medical Officer of Health's Report for Manchester (1961) shows the source of tuberculosis notification as follows:

General practitioner	34 cases notified		
Chest clinic	253	"	"
General hospitals	41	"	"
Sanatoria	52	"	"
H.M. forces	2	"	"

Thus a case may be suspected, x-rayed and referred to the clinic with the responsibility for final diagnosis, notification and contact tracing. The family doctor continues to provide the treatment for that particular person, based on the recommendations received from the clinic.

Findings

As a result of these detection procedures it is notable (tables I and II) that tuberculosis of the respiratory system is not declining annually in this practice—despite a slight reduction in the practice lists (table VI). Moreover, in 1962 the prevalence was nearly double that of any of the previous eight years with the consequent increase in the total number of patients from this practice either in sanatoria or on chemotherapy.

The figures, of course, are small. There is an average of three non-pulmonary and 16 pulmonary cases per year, and if represented in the rates per 1,000 then variations in the rate do not appear so significant as a consideration of the total number. Nevertheless, an increase cannot be denied, and this in the face of national figures

which indicate an annual decline in the disease, is a cause for concern.

The age of cases

The prevalence of the cases occurring by age group analysis is significant. Table III showing the age incidence of all cases, is comparable to the figures of Fry⁴ on age distribution of tuberculosis of the respiratory system, dealt with in general practice, where he suggested one might expect:

	<i>All ages</i>	<i>0—14</i>	<i>15—44</i>	<i>45—64</i>	<i>65+</i>
Patient consulting rates per 1,000 at risk ..	3	1	4	3	2

This age incidence, however, is strikingly at variance with the national notification rate (figure) where the peak age rises to 65 for males in 1960. The figures of maximum incidence in this practice are showing a decided shift to the younger age groups in the last two years. For the first time in 1961 and again in 1962 cases are noted occurring in patients below the age of 15.

TABLE I
PULMONARY TUBERCULOSIS—PREVALENCE
OF KNOWN CASES IN PRACTICE POPULATION
OF 12,000

TOTAL NUMBER BY YEAR STATED

	<i>Males</i>	<i>Females</i>	<i>Total</i>
1955/6 ..	12	6	18
1957/8 ..	18	11	29
1959 ..	9	6	15
1960 ..	4	12	16
1961 ..	10	6	16
1962 ..	22	18	40
Total ..	75	59	134

TABLE II
ACTIVE CASES OF PULMONARY TUBERCULOSIS
ON CHEMOTHERAPY OR IN SANATORIA
IN THE YEAR INDICATED FROM THE
PRACTICE POPULATION OF 12,000

	<i>Males</i>	<i>Females</i>	<i>Total</i>
1955/6 ..	5	1	6
1957/8 ..	9	6	15
1959 ..	4	2	6
1960 ..	2	7	9
1961 ..	6	1	7
1962 ..	18	10	28
Total ..	44	27	71

Non-pulmonary tuberculosis

The incidence of non-pulmonary tuberculosis is annually almost consistent. Furthermore the Medical Officer of Health for Manchester reported in 1961 an increase in the number of new cases in the city from 35 to 39. Regrettably all the advances claimed for chemotherapy and early diagnosis seem to have had little effect on this aspect of the disease in the last eight years, although it can be a more crippling and deforming disorder than that of its pulmonary fellow. (cf. table IV for details of cases).

Other measures of community infection are available from post-

TABLE III
DISTRIBUTION OF KNOWN CASES OF PULMONARY TUBERCULOSIS IN POPULATION OF 12,000 ACCORDING TO AGE GROUP

Age in years	1955/6		1957/8		1959		1960		1961		1962		Totals all years		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Both sex.
0-15									2		1	1	3	1	4
16-25	7	3	3			4		4	4	1	5	4	19	16	35
26-35	2	2	2	4	2	1	2	2	1	4	7	5	16	18	34
36-45	1	1	8	5	2			1	1		2	2	14	9	23
46-65			4	2	4	1	2	4	2	1	6	6	18	14	32
66+	2		1		1						1		5	—	5

TABLE IV KNOWN CASES OF NON-RESPIRATORY TUBERCULOSIS IN PRACTICE POPULATION OF 12,000, BY AGE GROUPS

TABLE V INCIDENCE OF KNOWN CASES OF NON-RESPIRATORY TUBERCULOSIS OVER EIGHT YEARS

	Males	Females
5-14 ..		1
15-24 ..	3	1
25-34 ..	3	3
35-44 ..		2
45-64 ..	3	2
65+ ..		2

1954 ..	3
1955 ..	5
1956 ..	2
1957 ..	1
1958 ..	3
1959 ..	2
1960 ..	2
1961 ..	—
1962 ..	2
Total	20

Hospitalization required in 6 cases
 Remainder under observation

Of this total 3 Irish immigrants, 2 Indian immigrants

Conditions—Bone 7 (hip, wrist, knee)
 Kidney 1
 Gland 2
 Spine 6
 Meninges 2
 Skin 2

mortem notification, but this rarely comes to light in general practice although the Medical Officer of Health indicates 14 males and seven female cases reported to him in this city by post-mortem notification in 1961. This is out of a total of 380 males and 116 females so there

can be little doubt that tuberculosis still exists unknown and undiagnosed in the practice population.

Discussion

We have a disease which could theoretically be eradicated from the community, an administrative structure to deal with it, drugs which cure and a ready means of early diagnosis. Why then should we detect in an urban general practice a rise in its incidence and an increasing incidence in the younger age groups?

Firstly, as discussed above, this practice, if any, might be expected to show, by virtue of its urban situation, class, distribution, shifting and immigrant population a greater incidence than the national average. By the Registrar General's classification of the population into five social classes according to the occupation of the male wage earner, in Manchester, in 1960 the population could be compared with England and Wales in proportion to these five groups as follows:

And furthermore the incidence of the disease of tuberculosis in this city is higher than the national average (2, see above).

Secondly, tuberculosis in patients who present themselves is detected, recorded and dealt with quickly by virtue of the x-ray facilities in the building. However, one can note a

gulf in communication and co-ordination between the chest clinic, local authority, and practitioner leading to a possibly too casual or ineffective attitude, in the prevention of tuberculosis. One might consider the family doctor is the man who, with the health visitor and social worker, can ensure an adequate home contact—screening by x-ray, Heat gun and B.C.G. vaccination—but here difficulties arise since other members of the same household may be registered with other practitioners. This disease has no respect for the tripartite division of the Health Service!

It has been suggested (W.H.O. Conference on Tuberculosis, reported in the *Lancet* 22 October 1960) that prophylactic anti-tuberculous drugs should be administered to the families of open cases—but this as far as I can ascertain has never yet been done nor accepted in general practice as a routine, although for complete eradication of the disease from the community it may well have to be entertained as a possible measure.

Finally, I doubt if anyone would deny that a medical examination before entry into this country as an immigrant should be mandatory

<i>Social class</i>	<i>England and Wales percentage</i>	<i>Manchester percentage</i>
I ..	3.3	2.3
II ..	15.0	11.9
III ..	52.7	55.4
IV ..	16.2	13.9
V ..	12.8	16.5

and that the importation of undetected 'open' cases into the community is a crime against the public health, and yet the profession still awaits this legal sanction, at present only employed by the U.S.A., Scandinavia and certain Commonwealth countries. On this point it is noteworthy that one quarter of the non-respiratory tuberculous cases were in immigrant families.

Conclusion

It has been estimated⁹ that already the value of antituberculous therapy has provided an economic benefit to England and Wales alone of at least £55 million per annum. Furthermore, as Mantoux studies have recently demonstrated the younger members of the population are thus growing up susceptible to the disease and the immunity that exposure afforded them at one time is perhaps something we must replace by B.C.G. vaccination. Yet the dangers of a casual attitude by the community, official health authority, doctor and patient alike may, as may seem apparent from the figures of this practice, lose us this benefit, if "the captain of the army of death" rides unchecked again.

Summary

The case incidence of tuberculosis in an urban practice of 12,000 is investigated. A rise in the number of cases and a shift in incidence to the younger age groups is noticed. The reasons for this are discussed and a theoretical plan for the eradication of the disease from the community is suggested.

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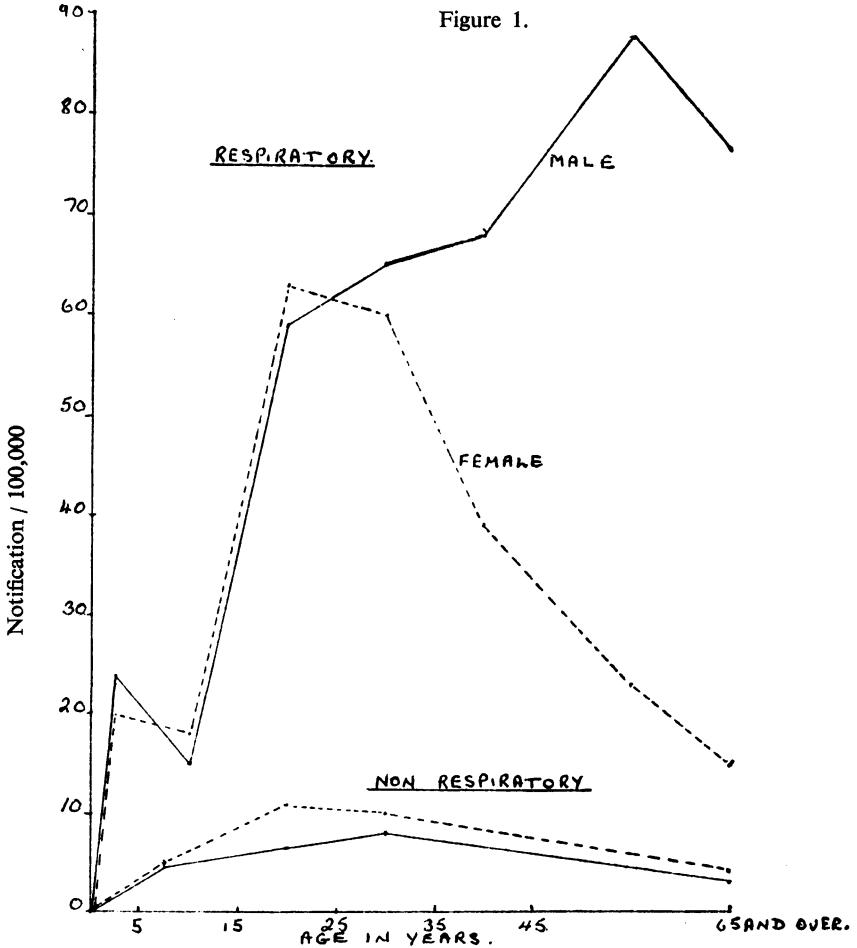
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APPENDIX I

The elimination of tuberculosis

1. Increase resistance to tuberculosis of the community:
 - BCG vaccine
 - Clean air, ventilation, eliminate overcrowding, improve housing.
 - Raise general standard of living.

2. Separate infectious from non-infectious people:
 - Heaf gun tuberculin test—BCG where negative.
 - Tuberculin positive—but no disease then survey regularly by M.M.R.
 - Prophylactic chemotherapy for families.
3. Bovine tuberculosis:
 - T.T. herds.
 - Pasteurized milk.
4. Immigrants:
 - Proved non-tuberculous before entry.
 - Tuberculosis susceptible, BCG or regular M.M.R.
5. Detection:
 - Impetus for detection at general practitioner level by closer liaison with chest clinics or with health visitors.
 - Improved facilities or open access to x-ray for all practitioners made more easy and convenient to patient and doctor.



TUBERCULOSIS, RESPIRATORY AND NON-RESPIRATORY: notification rates per 100,000 living, by sex and age, England and Wales, 1960