

SECOND CARNEGIE INQUIRY INTO POVERTY
AND DEVELOPMENT IN SOUTHERN AFRICA

The implementation of tuberculosis
policy in three areas
in South Africa

by

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ABSTRACT

This is the second of three studies examining aspects of tuberculosis control in South Africa. The implementation of tuberculosis policy at hospital and clinic level is examined in three areas (Cape Town, Paarl and the Ciskei). Methods of diagnosis, treatment regimes and general control measures are investigated. It is found that aspects such as bacteriological diagnosis, standardised treatment regimes, supervision of therapy and contact tracing are not being correctly implemented. Compliance is also found to be poor. It is suggested that further research is needed to establish reasons for failure to implement aspects of policy, and solutions to the problems.

two clinics thought by the health authorities in charge of TB in the area to be representative of the area, were studied. The records of ten clinics were studied. The records of four hospitals - one in Cape Town, one in Paarl, one in a rural area of the Ciskei and one in an urban area, were also studied.

At each institution, the staff were asked for a list of all patients on TB treatment. If there were less than fifty patients at a particular institution, all were included in the sample. If there were more than fifty, sequential sampling was used to select a sample of fifty. 557 records were examined. Cases of non-pulmonary TB were excluding, leaving 548 cases. For the purposes of analysis, the hospitals in all three areas were grouped together and compared with the clinics in each area.

The following aspects of TB policy were investigated: methods of diagnosis, treatment regimes and general control measures, excluding BCG vaccination and TB health education. Information on the latter two aspects was not available from clinic and hospital records.

RESULTS

The Sample

The age distribution of the sample is shown in Figure 1. 52% of the sample were males and 48% females. Of the 356 adults, only 192 had records of their employment status at the time of diagnosis. Of these 91 were employed and 101 unemployed.

Methods of Diagnosis

Adults

Of the 356 adults, 306 had abnormal X-rays, 7 normal X-rays and 43 had no record of X-ray. There were 186 (52%) bacteriologically proven (direct smear and/or culture) cases of TB. 60 (17%) had negative bacteriology and 110 (31%) had no record of any bacteriological examination. Only 117 cases (33%) had cultures done. Of these, 70 had already been diagnosed by direct microscopy. Only 8 cases with negative direct microscopy were found to be positive on culture.

The variations in method of diagnosis by area are shown in Table II.

Children

Both X-ray and Heaf testing were used in the diagnosis of TB in children. The results are shown in Table III.

Treatment

a) Regimes

The treatment regimes being used for adults and children are shown in Tables IV and V.

(Insert Table IV here)

(Insert Table V here)

b) Duration

The duration of treatment is shown in Table VI.

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(Insert Table VI here)

c) Previous Hospital Treatment

Of the patients attending clinics in the three areas, 61% had been previously hospitalised in the Ciskei, 26% in Paarl and 4% in Cape Town.

d) Supervision

The percentage of adults receiving daily supervised therapy varied according to regime and area. (See Table VII)

(Insert Table VII here)

The percentage of children receiving daily supervised therapy varied according to regime and area. (See Table VIII)

(Insert Table VIII here)

With the exception of 17 cases, all supervision occurred at the hospital or clinic concerned. Of the 17 cases, 16 (10 in Cape Town and 6 in Paarl) received supervised therapy at work. One case received supervised therapy at school.

e) Compliance

Compliance rates were divided into four categories: 25% or less, 26 - 49%, 50 - 74%, and 75% or more of the total number of possible doses. The results according to area are shown in Table IX.

(Insert Table IX here)

General Control Methods

a) Case Finding

The manner in which patients were referred to the clinic or hospital concerned is shown in Table X. The sample also included 64 cases on prophylactic treatment as a result of contact tracing. Of the remaining 484 cases, 114 (24%) did not have records of method of referral. 29 (8%) of those with records were referred as a result of active case finding (that is, the health services seek out the cases), and 339 (92%) as a result of passive case finding (that is, the patient himself seeks treatment).

(Insert Table X here)

b) Contact Tracing

In order for contacts to be followed up, it is necessary first to record their names and then to trace and screen them. Records were not available for two of the hospitals. Results differed markedly from clinic to clinic and thus are given for each TB health service in Table XI.

(Insert Table XI here)

c) Notification

63% (346) of cases had record of notification.

DISCUSSION

Diagnosis

The importance of bacteriological as well as radiological diagnosis has been emphasised by the WHO (4) and the American Lung Association (5). Studies on the unreliability of chest radiography in the diagnosis of TB have been summarised by Toman (6). In the TB health services studied, radiography is widely used, with 306 out of 356 adults having abnormal X-rays. Only 183 of these 306 patients had records of bacteriological proof of diagnosis. The percentage of patients with bacteriologically proven TB varied from 74% of those hospitalised to 22% of those attending clinics in the Ciskei (see Table II). In a previous study of TB policy, the health authorities in charge of TB services reported problems in getting specimens to and results back from central laboratories as a result of long delays, transport and staff problems. Possibly the use of peripheral laboratories manned by people with limited training might provide a more accessible, convenient service. This has been found in India (6). Research would have to be done in the South African situation.

Culture is only used to a very limited extent. Diagnosis of TB in children is done by a combination of X-ray and tuberculin testing. Heaf and not^C Mantoux tests are generally used. The latter is regarded as a more reliable diagnostic tool (7). For 36% of the children attending the clinics studied in the Ciskei there was no record of how diagnosis was made. This makes the monitoring of progress difficult.

Treatment

a) Regimes

Rifampicin-containing regimes are extensively used in hospitals and in the Cape Town clinics. The only other State Health-recommended regime that is used is Schedule 3 (INH, PZA, Streptomycin, Ethambutol daily). This is used to a very limited degree in the Ciskei. Other regimes, i.e. those not recommended by State Health, are used fairly extensively in the Paarl clinics (33% of patients) and in the Ciskei clinics (74% of patients). How effective these other regimes are is uncertain.

The majority of the children in the sample (63%) were on full TB treatment, i.e. short course regimes containing rifampicin. 23% were being treated for strongly positive tuberculin reactions (0 - 5 years) and uncomplicated primary TB with two drugs. In Paarl (21%) and the Ciskei (33%) regimes other than those recommended by State Health are being used.

b) Duration

When short course regimes containing rifampicin are used the majority of patients should not be on treatment for longer than 6 months. In both Paarl and the Ciskei where other regimes are used to a significant extent, the majority of patients have been on treatment for longer than 6 months.

c) Previous Hospital Treatment

The aim of modern TB chemotherapy is that the majority of patients should be treated on an ambulatory domiciliary basis. (Glatthaar) The Ciskei has a policy to hospitalise as many TB patients as possible. 61% of patients attending clinics in the Ciskei have previously been in hospital.

d) Supervision

The majority of patients receiving rifampicin-containing regimes receive supervised treatment, whereas very few of those on other regimes do. If the aims of supervision are of improving patient compliance and not merely ensuring that expensive drugs like rifampicin are not wasted, then this situation is unsatisfactory.

One of the great advantages of modern chemotherapy is that it allows TB patients to be treated in the community and to continue to be economically active. In the sample under consideration, 91 patients were employed at the time of diagnosis. 44 of these were hospitalised. Of the remaining 47, only 176 were receiving supervised therapy at work. Ideally, as many patients as

possible should receive treatment at work in order to ensure that their disease causes as little disruption as possible to their normal lives. All other supervised therapy was administered at hospitals or clinics, indicating that as yet there is very little participation of the community in supervised therapy, one of the aims of the national tuberculosis control programme.

e) Compliance

Compliance, outside of hospitals, is generally poor, with only 50% of patients receiving 75% or more of their treatment in the Cape Town clinics, 44% in Paarl and 25% in the Ciskei. This is obviously a major block to effective TB control.

General Control Methods

a) Case Finding

Passive case finding plays by far the greatest role in the detection of TB cases. The majority of patients are detected after they have presented themselves at ordinary State Health services.

b) Contact Tracing

Contact tracing which has been shown to be an effective method of case finding, plays a relatively small role, contributing only 5% to the total number of cases. The reason for this becomes clear when one realises that only 21% of known cases of TB in the study had more than 2/3 of their contacts screened. This varied

greatly from clinic to clinic.

c) Notification

Notification is also an important feature of TB control, as it allows the authorities to monitor the number of cases in each area. Only 63% of the cases in the study had clear records of notification having been done.

CONCLUSIONS

The aim of this study was to see how TB policy was being implemented in different areas of South Africa. It was found that certain aspects were not being correctly implemented. These are:

- 1) bacteriological diagnosis
- 2) use of standardised treatment regimes
- 3) community-based supervision of all TB therapy
- 4) contact tracing.

It was also found that compliance was poor.

No objective reasons for these findings were established. However, in a previous study, health authorities in each area were asked their subjective opinions on the problems of implementing TB policy. These included:

- 1) problems of medical infrastructure such as lack of staff and funds and problems of access to laboratory facilities;
- 2) problems of general infrastructure such as transport, unemployment and poverty. These were particularly important in the Ciskei;
- 3) patient-associated problems such as non-compliance.

It would seem important if TB is to be controlled in South Africa that further research be conducted to establish the reasons for and solutions to the failure to implement certain aspects of TB policy. Local evaluative research undertaken at clinics is also important since standards vary greatly from clinic to clinic. To facilitate such research, better standards of record keeping are required. The development of a national standardised TB record to be used by all clinics would be a first step in this direction. During field work for this study, it was found that records varied from blank sheets of paper to well-structured report cards.

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TABLE I. NATIONAL TB CONTROL PROGRAMME(3)

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The control measures of the Department of Health and Welfare, in order of priority, are:

1. Tuberculosis Health Education.

This is aimed at involving the community in

- a) supervised ambulatory treatment.
- b) case finding.
- c) improvement of socio-economic conditions.

2. Supervised Therapy.

i.e. supervised, short course, ambulatory treatment with full community involvement and participation.

3. Case finding.

- a) active (i.e. authorities seek out cases)

Mass miniature X-ray and tuberculin campaigns are recommended only in selected cases. Bacteriological screening is recommended in remote areas.

- b) passive (i.e. the patient seeks treatment)

This is considered the most important method of case finding.

4. BCG vaccination.

All children must be immunized before 6 months of age.

Table II.

Method of Diagnosis by area% age of adult patients given

Method of diagnosis	AREA				TOTAL
	Hospitals	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	
Bacteriologically confirmed	74	43	68	22	53
X-ray only	25	56	32	44	37
No record	1	1	0	34	10

Table IIIMethod of diagnosis by area% age of child patients given

Method of diagnosis	Hospitals	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	TOTAL
X-ray and Tuberculin test Grade 3-4	39	18	54	29	33
X-ray and Tuberculin test Grade 1-2	11	30	23	0	15
X-ray and Tuberculin test Grade 0	13	18	0	0	10
X-ray only	31	27	15	18	26
Tuberculin test only	0	0	8	14	4
No record	4	3	0	36	10

Table IVAdult Treatment Regimes Being Used by Area% age of adult patients given

Regime	AREA				ALL AREAS
	Hospitals	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	
Rifampicin-containing	99	93	67	13	70
Schedule 3 (INH, PZA, Strep and Ethambutol)	0	0	0	12	3
Other	1	7	33	74	27

Table V.

Treatment Regimes being used for Children by Area% of child patients given

	AREA				TOTAL
	Hospitals	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	
2-drug therapy (1° complex)	9	12	36	56	23
4-drug therapy (full TB Rx)	83	78	43	11	63
Other	7	9	21	33	15

Table VIDuration of Treatment by Area% of all patients given

Duration	AREA				TOTAL
	Hospital	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	
6 months or less	94%	64%	47%	37%	67%
more than 6 months	6%	36%	53%	63%	33%

Table VII

Percentage of adult patients receiving daily supervised therapy for each regime by^c area

Total number of patients receiving each regime shown in brackets

Regime	AREA				TOTAL
	Hospital	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	
Rifampicin-containing	100 (144)	95 (62)	70 (26)	85 (13)	95 (245)
Schedule 3	0 (0)	0 (0)	0 (0)	5 (12)	50 (12)
Other	100	50 (4)	0 (13)	3 (74)	5 (92)
TOTAL	100 (145)	92 (66)	46 (39)	18	67

Table VIII

Percentage of children receiving supervised therapy for each regime by area

Total number of patients receiving each regime shown in brackets

Regime	AREA				TOTAL
	Hospitals	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	
2-drug therapy (1° complex)	100 (5)	25 (4)	0 (5)	0 (15)	21 (29)
3-drug therapy (full TB Rx)	100 (35)	93 (28)	100 (6)	33 (3)	94 (72)
Other	100 (4)	0 (3)	0 (3)	0 (9)	21 (19)
TOTAL	100 (44)	77 (35)	43 (14)	4 (27)	65 (120)

Table IXCompliance rates by area for all patients(percentages given)

Compliance	AREA				TOTAL
	Hospitals	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	
25% or less	0	4	7	20	8
26-49%	0	8	14	18	9
50-74%	0	11	21	28	13
75% or more	100	50	44	25	60
no record	0	27	14	10	10

Table X

Method of referral of cases by area per hospital or clinic given

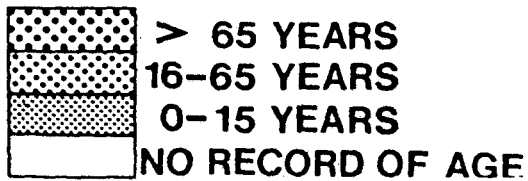
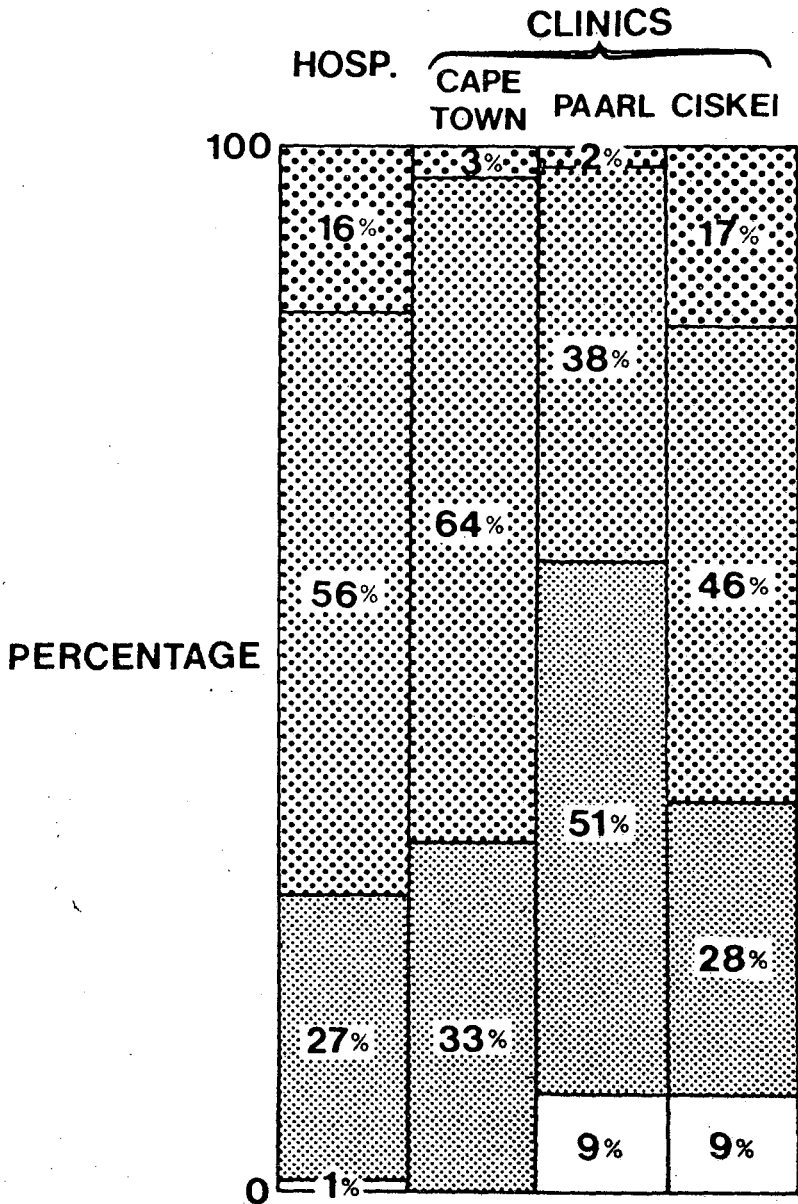
Percentages of patients

Method of Referral	AREA				TOTAL
	Hospitals	Cape Town Clinics	Paarl Clinics	Ciskei Clinics	
Contact	1	12	15	2	5
X-ray screening	2	0	12	0	2
Tuberculin screening	0	0	6	0	1
General Practitioner	2	12	13	5	6
Non-TB hospital	73	53	40	23	55
TB hospital	1	8	2	65	16
TB clinic	22	12	10	4	15

Table XI

% of cases in which contacts were both recorded and screened by
TB health service

TB Health Service	% of patients with 2/3 or more contacts recorded and screened
<u>Cape Town</u>	
Hospital	Records not available
Clinic 1	22
Clinic 2	4
<u>Paarl</u>	
Hospital	19
Clinic 1	79
Clinic 2	44
<u>Ciskei</u>	
<u>Peddie District</u>	
Hospital	40
Clinic 1	44
Clinic 2	0
<u>Mdantsane District</u>	
Hospital	Records not available
Clinic 1	0
Clinic 2	0
<u>Hewu District</u>	
Clinic 1	29
Clinic 2	17
TOTAL	21



These papers constitute the preliminary findings of the Second Carnegie Inquiry into Poverty and Development in Southern Africa, and were prepared for presentation at a Conference at the University of Cape Town from 13-19 April, 1984.

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Quoting (in context) from these preliminary papers with due acknowledgement is of course allowed, but for permission to reprint any material, or for further information about the Inquiry, please write to:

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