* **Supervision and monitoring of the intervention clinics**

Regular weekly visits were made to every intervention clinic. The research nurse examined every tuberculosis patient clinic card for details of sputum monitoring, supporter attendances (these were copied onto clinic cards from the patients' cards), and clinic attendances with clinical details documented at each visit. Drug supplies were inspected, and patient management issues and problems were discussed with staff. The author visited each clinic every three months for the same purpose.

* **Follow-up of non-attending patients**

Clinic nurses were trained to identify any patient who missed a monthly clinic appointment within one or two days. Strategies for follow-up that involved clinic staff action were encouraged. Although emphasis was laid on the clinic staff taking responsibility for the follow-up, their lack of transport and their preoccupation with the daily load of sick patients at the clinic were limiting factors. It became clear that the back-up of researchers, was needed. Where necessary the research nurse went to patients' homes and to their supporters to discuss the problems.

* **Interest and cooperation of clinic nurses**

Most clinic nurses were interested in the new decentralised tuberculosis service, and keen to help their patients. They completed the cards carefully, and some made special efforts in tracing non-attenders. They were receptive to advice and support, and clearly pleased to have regular supportive and instructional visits, and to have colleagues with whom they could discuss their work. The full day training sessions held at a nearby hotel, away from the work situation, were especially popular.

* **Cooperation of hospital and community tuberculosis staff**

The key to the good treatment outcomes throughout the district, not confined to "treatment" clinics, was the cooperation and enthusiasm that developed among the senior nurses in the hospital tuberculosis ward and among the community tuberculosis team consisting of a nurse and two health educators. They all attended the training sessions, and set up regular meetings (monthly and more often as necessary) with the research team to discuss the control programme and issues arising. The ward sister fulfilled an important role in informing the researchers about discharged patients. Help was provided by the researchers in describing and reorganising the roles of the community tuberculosis staff, so that they performed more effectively and efficiently.

* **Support of laboratory staff**

The laboratory staff had not previously been informed or consulted about tuberculosis work. Once they were invited to training sessions, and quality control systems were set up through the research programme (with their cooperation), the turn-around time for specimens improved. Measuring quality of laboratory work did not form part of the study, but a quality control system set up by the South African Institute of Medical Research as a result of the research, had results which were said to be excellent.

* **Availability of drugs**

Anti-tuberculosis drugs were erratic in supply before the research project. Combinations drugs were unused and unknown. The pharmacist, with the help of the newly established provincial drug supply system, eventually responded to suggestions of the researchers and cooperated to ensure that all recommended drugs were available. Issues of supplies for up

to five months were given to the research nurse to take to "treatment" clinics to be stored for patients who attended there.

* **Interest and willingness of community supporters**

The social system in this district whereby many community members took responsibility for one another was an asset to the tuberculosis supporter system. With appropriate initiation from research and service health workers, a variety of lay-people became supporters, and successfully trod the path to cure or completion of treatment with many patients.

20.2.2 What were the constraints in the process?

There were a number of factors that constrained the process of decentralising tuberculosis services to district clinics. These could be classified as factors in the physical and social environment of this area, health services deficiencies, and research deficiencies and limitations.

* **Physical and social environmental factors**

Major constraints for the provision of all health care in this district are the long distances from where people live to the hospital and to clinics along bad, dangerous roads, and where public transport is expensive.

The researchers became aware of the social and cultural beliefs that were barriers to early health service attendance, both because the disease was stigmatised through local beliefs that the cause was unacceptable behaviour, and because traditional healers had to be consulted. Until different health care providers cooperate, patients will be torn, and will

present to clinics and hospitals with late stage tuberculosis.

* **District management deficiencies**

In the absence of a district health system, management was actually that of the hospital. The district suffered from a number of management deficiencies, many consequent on the previous system of "homelands", two of which, Lebowa and Gazankulu, had formed part of the previous area of the district. Any initiatives that communities or health workers might have shown had been stifled by this system, so that demotivated staff and absent resources were the norm. Exceptions existed of course, at management and implementation levels.

The newly established provincial government could not be expected to facilitate immediate changes in attitudes or behaviours. Health service management was hospital-based, and there was poor understanding and limited activity around community services, including clinic management. Resources and support for clinics were minimal. As with many government services, senior staff spent long hours travelling to and attending meetings called at short notice at head office, with resultant disruption of routines, tiredness and frustration.

The research initiative met opposition from such managers. This was not overt, but manifest in lack of active support for the new decentralised system, failure to ensure accountability of clinic staff for their actions in tuberculosis patient management and failure to be seen supporting the work, resulting in confused lines of authority for clinic staff. Organising training sessions (at no cost to the hospital) was difficult as managers would not commit themselves to allowing staff to attend, and failed to help with forward planning. Much time and energy was expended in diplomatic negotiations, and in trying

to understand the underlying issues.

The old Lebowa clinics, under Mapulaneng hospital, posed particular problems. Drug and vaccine supplies were irregular, empty shelves were the norm, staff felt and were incompetent as they had to send patients away. The causes were multiple, including poor ordering, theft at various levels en route to clinics, and "lack or money". Water supplies for clinics were inadequate, indeed frequently non-existent. Accommodation facilities for clinic staff were below standard.

* **Perceptions of researchers by district health workers**

Although it was not stated, the behaviours of managers and clinic staff, and experiences of academics working in the related University project, led the researchers to believe that they were perceived by some as temporary sojourners in the district working for academic recognition. Noone was impolite enough to state this, but it must had been part of the apparent demotivation that constrained full involvement. One had sympathy for health workers in difficult and constantly challenging situations, whose standards were being questioned, and who were being asked to do more in quantity and quality, without apparent personal satisfaction. This applied equally to senior district staff.

* **Researchers as service providers**

The researchers assumed the role of tuberculosis service providers for "treatment" clinics. This, although discussed and agreed upon before the project started, inevitably caused some problems. Staff of the "treatment" clinics became accountable to the researchers, without the visible support of the hospital community nursing managers. The researchers had tried, without success, to organise management presence at an introductory meeting

at each of the clinics involved.

Another issue was that tuberculosis services became "verticalised", with a specific team discussing only that disease and its management. This could have lost credibility for the comprehensive approach, and may have alienated the researchers from clinic staff who had a number of responsibilities apart from management tuberculosis.

* **Absence of districts and a functional district health system**

Productivity depends on clear work structures and lines of accountability. During the period of the study, the district system did not exist. In fact the three proposed districts of the Bushbuckridge sub-region were still non-functional in the first quarter of 1998! The hoped for changes in boundary lines of responsibility, described since 1994, did not occur, causing confusion and frustration of health staff, and contradicting the training on the district system that the researchers and others carried out. The delays were partly due to the need to ensure democratic decision-making by communities unused to involvement in local government. As a result of the non-district system, there was further demotivation of the clinic nurses, for whom this would have the greatest impact.

The (old) Mhala area clinics, many kilometers distant from Tintswalo hospital, remained the responsibility of that hospital's community health staff. They had neither staff capacity, time, nor vehicles to service these far areas, while assuming an increased load of work with responsibility for areas closer to the hospital (previously under Mapulaneng hospital). They had gained work load, but lost none. In fact it was surprising that the hospital-based community team managed to improve tuberculosis management, as they did. Referrals of patients who lived outside the proposed district was very difficult, as authorities responsible for other areas were far away, there was no means of

communication (senior staff were not even allowed to telephone other authorities from the hospital ward to enact referrals), and these other authorities were not clearly defined.

* **The limited role of clinics in tuberculosis patient management**

During the period of the study, any patient who attended a clinic, and in whom tuberculosis was suspected, was asked to go to Tintswalo hospital for diagnosis, and initiation of treatment, usually as an in-patient. Only on discharge was the patient referred back to the clinic for continuation of the course of treatment, to be referred back to the hospital again for final assessment and discharge from treatment. The clinic staff saw the patients only three, four or sometimes five times at monthly visits, with roles limited to clinical assessment, checking of supporter attendances (and copying the supporter's ticks from the patient card to the clinic card), and making the next appointment. Clinic staff had no contact with supporters. Without the research team, who did random visits to patients and supporters, non-attendances of patients at their daily supporter visits would not have been identified until the next monthly clinic visit. Patients who failed to attend for their monthly appointments would be identified within a few days of the failure by clinic staff, but in the absence of time and transport to trace those patients at home, clinic staff would be powerless to act, and would need to contact the district tuberculosis team for them to seek out such patients. Contact was dependent upon reliable communication systems from the clinics, the ability of the district team to access transport, and upon sufficient district staff assigned to tuberculosis work. Frequently all three of these factors were absent. The role of clinic staff was thus limited, and frustrating for professionals trained in a comprehensive patient approach.

* **Failure to monitor sputum bacteriology during and at the end of treatment**

Sputum tests during and at the end of treatment (2 and 5-6 months for new patients) were part of the research (and the national) policy, but were not done, despite the availability of the research nurse to transport the specimens. This was a combined deficiency of the researchers who failed to insist, and to remind clinic nurses about the timeous collection of specimens, and of the clinic nurses who did not accept responsibility for doing this. There was no help from management who should have insisted on the implementation of this policy.

* **No organised laboratory network**

Tuberculosis services, as with many other clinic-based services, are dependent on a rapid and reliable laboratory link. The absence of an organised system of delivery of sputum specimens to the district laboratory, and the return of results within 48 hours, has been noted as a major constraint in many parts of the world.[85] The absent district system, long distances, bad roads, the tuberculosis control programme with emphasis on bacteriological diagnosis only just emerging, and inadequate organisational and management skills meant that there was no network.

For "treatment" clinics, the researchers themselves provided the transport for specimens to the laboratory and results back, but during the last six months of the study, made strenuous attempts to get the service to organise the link. Suggestions were to utilise senior community nurses on supervisory visits, the hospital pharmacy team delivering drugs to clinics, ambulances transporting patients, or even local taxis. A system was never set up, since it was beyond the capacity of the researchers to establish this. The Tintswalo hospital laboratory was not part of the SAIMR network, so the improvements

taking place in other provinces, notably Gauteng and Mpumalanga (personal communications Drs. L Floyd and E Balt respectively), were not a feature of this area.

* **Inadequate organisation and management of the community supporter system**

The organisation of the supporter system was well managed at an individual level by the research nurse or the hospital community team. They selected an person acceptable to the patient, informed that person what was expected, and made occasional visits to monitor the process of daily attendance. However, the process was unsystematic, and without community consultation. The considerable resources within the community could be better accessed and utilized if volunteers within villages were formally recruited and trained, so that they formed a team, ready for the task of supporting tuberculosis patients as needed. They could play a part in general health promotion, including the Extended Programme of Immunisation, nutrition, home-based management of diarrhoeal disease, family spacing, tuberculosis and other disease case-finding, and environmental control.

The system whereby patients attended clinics to fetch their tablets, and took these to their supporters, was illogical, and must have seemed so to patients. It would have been better for drugs to be taken to supporters, or for them to collect these at the clinic. These aspects needed further discussion and trials to formulate a district supporter plan.

A further important issue was the lack of any incentive for supporters. This would not necessarily be monetary, but could take the form of certificates presented at an annual function, transport allowances, or badges to denote membership of supporter groups. The strength of the community "care group" movement that contributed significantly to the control of trachoma in northern South Africa, was the authority and status given to members.[405]

* **Poor provincial government commitment**

District management and commitment, even had these been present and adequate, would have been very difficult without provincial government commitment to a national tuberculosis policy, and appropriate allocation of resources, including provincial management and training staff. Only towards the end of the project in mid-1996, were provincial tuberculosis co-ordinator/manager and trainer posts filled.

* **Non-involvement of hospital medical staff**

Although tuberculosis case management, community control and the research project were presented and discussed at at least three formal doctors' meetings at Tintswalo hospital, doctors did not award the disease priority status, and remained distant from the community-based system. Patients were often started on treatment without microscopy confirmation of diagnoses, sometimes with incorrect drugs, and occasionally discharged without notification or referral to the tuberculosis ward for notification and registration. Both clinical diagnosis and death certification (as discussed in chapter 17) sometimes incorrectly included tuberculosis when it was unproven or unlikely. It may well have been missed occasionally when it was present.

20.2.3 How can the improvements be sustained and further improvement achieved?

An operational model for the analysis of tuberculosis control programmes has been described.[406] The model states 8 steps: motivation (of patients to present to health facilities), selection (of suspect cases for smear microscopy), examination (of smears in the laboratory), sensitivity (of smears), prescription (of correct treatment), treatment

(patient obtains correct treatment), regularity (adherence) and effectiveness (probability of cure).

This model for good tuberculosis control and management requires efficient and effective actions of health workers at a number of levels. District, provincial and national management commitment and support means training of staff, and the provision of the infrastructure required for diagnosis and treatment, as well as those resources required for efficient follow-up of non-adherent patients, and for routine supervision of clinic staff.

The roles of district health workers need clear definition. An effective tuberculosis programme presupposes the existence of a functioning district health system, the acceptance of the priority status of tuberculosis at all levels of the health service, good district service management, which includes well managed and well motivated health personnel. The suggested roles of different levels of health staff are described hereunder.

The district clinic nurse

A clinic nurse has many duties in the provision of primary care to the people served by a district clinic. Regarding tuberculosis, which is best integrated within these duties, the nurse must be able to:

+ decide which patients have suspected tuberculosis
+ confirm the diagnosis, using the laboratory network
+ treat patients with confirmed disease
+ organise clinic drug supplies
+ refer patients with clinical problems or those who require hospitalisation
+ contact the appropriate person (district co-ordinator or hospital clinicians) for

clinic-based management problems

+ record all processes and outcomes on the relevant tuberculosis programme forms

+ follow-up patients who have adherence problems during treatment, or call on the district tuberculosis coordinator to help with this

The clinic should be organised according to the needs and comfort of the patients and the staff. It is well described that patients respond well to a relationship with the care provider. It is thus best for the same nurse to see the same tuberculosis patients for the duration of their treatment, as far as can be organised. It may be useful to have a tuberculosis patient day once a week, or alternatively to structure visits any day of the week.

For a district with a population of up to 250 000 people, with rates of tuberculosis of 200-300 per 100 000 population (double that measured over the last 5 years in the Tintswalo district, and allowing for the rise with the HIV epidemic), there would be 500-750 patients per year, or 250-375 at any one time. The Tintswalo study showed that 28% of patients lived close to the hospital, leaving 72% who would require treatment at one of the 12 district clinics. Assuming equal distribution of patients attending the clinics, between 15 and 20 could be on treatment at each. At clinics in more densely populated villages, this number could be 30. If each attended monthly on one specific day, there would be about five to eight patients per clinic day. This number would seem manageable, even in the context of clinics delivering comprehensive services. If the rise in incidence is more than double that in the early 1990s, and if case-finding rates improve, numbers will be higher, which is a good reason to ensure an efficient system now.

The district communicable disease coordinator

This district-based health worker should have responsibility for all communicable diseases in a district, including malaria, meningitis, typhoid fever, diarrhoeal disease, haemorrhagic fevers, tuberculosis and many others. The job includes a knowledge of the district population, its distribution, health problems, and the health services. The role of this person is to:

+ train health staff about tuberculosis and its management
+ train tuberculosis patient supporters and organise appropriate incentives
+ visit all clinics in a district on a regular basis to teach and to supervise clinic staff
+ respond to calls for help in tracing non-attending patients
+ monitor laboratory and drug supply systems, and report problems to district management

Once the tuberculosis control programme was functioning well, with all clinic staff trained, the routine visits of one or sometimes two clinics per day could be completed in a few hours, so that all district clinics would be visited once in two weeks. This would leave time for training, and for tracing non-attenders at their homes.

Given the responsibilities for other communicable diseases, and outbreak investigations, the task may be too much for one person. An additional district staff member, at the level of a health educator, or nurse should assist. Both would require transport, always a limiting factor in the past. However, an efficient programme with cure rates exceeding 80%, would make the use of adequate staff and transport resources cost effective, particularly if other, less common communicable diseases and good surveillance and outbreak response systems are simultaneously managed in the district.

District management:

District management has to take responsibility for the provision of the infrastructure, upon which a tuberculosis control programme depends. Clinic staff and the district communicable disease coordinator need to be consulted and to report problems, but district management should plan and organise the systems for:

* Laboratory network
* Drug supplies
* Vehicles
* Stationery
* Staff management

An efficient and reliable **laboratory network** between clinics and district laboratory is essential. In many urban areas, a daily collection service from clinics has been arranged, with results faxed back within 24 hours.(Gauteng province, personal experience) In rural districts such a service may be less easy to implement. For those new patients not sick enough to be referred for admission to hospital, and who are to be diagnosed at clinics, bacteriological results should be available within one or two days, so that treatment can start as soon as possible. This requires transport of specimens for which innovative ways of reaching the laboratory must be devised. They may include using health workers on supervisory visits, delivering drug supplies, or fetching patients in ambulances. It may necessitate specific communication with the district tuberculosis team, or the use of local taxis. Whatever the means, it has to be reliable. There is no reason why fax machines could not be installed and functional in every clinic for the results. The costs of organising a laboratory network would be balanced by savings in the short and long terms.

Another district management responsibility is the regular and timeous **delivery of drugs for tuberculosis**, as well as essential drugs for primary care use, to every clinic. Tuberculosis drugs were not available on shelves of "treatment" clinics in this study, for reasons described by hospital management as related to rules about dispensing drugs. These were not logical to researchers, and should be overcome without difficulty. The supply for each patient attending "treatment" clinics had to be hand-delivered by the research team.

Vehicles for the district communicable disease coordinator and assistant must be available for routine visits to clinics and supporters, for collecting specimens if required, and for tracing non-attending patients. The problem with sharing vehicles with other services is non-availability in times of need. Again a functioning control programme will cost far less that one which does not promote cure.

The provision and delivery of all **stationery** required for the tuberculosis control programme is the responsibility of district management. Without attention to this seemingly small detail, the ability to monitor and evaluate the programme is lost, and staff become demotivated and confused.

The descriptions of roles and responsibilities above assumes a comprehensive role for clinic staff to manage tuberculosis, different from their limited role during this study. The increased responsibility for correctly diagnosing and treating tuberculosis, and the ability to evaluate progress of each patient should provide greater incentives to clinic nurses. Given the public health impact of this disease, the responsibility is large, but

should not be overwhelming for professionals required to manage a number of life threatening, as well as routine problems which include dehydrated infants, complicated birth deliveries, ordering of drugs and equipment, and responding to community needs and demands.

Adaptations would have to be made for those patients requiring hospitalisation for clinical or risk of interruption reasons, and for those on re-treatment regimens, for whom daily streptomycin injections are needed, either in hospital or from district clinics.

The logistics and the infrastructure described above require good planning, organisation and budgeting by district management.

Staff motivation and factors that demotivate are complex, although in many rural primary health care environments, problems are not difficult to identify. Herzberg's motivation-hygiene theory, based on a study of 200 professionals, proposes that motivators (achievement, recognition, work, responsibility and advancement) lead to satisfaction at work.[407] For maximum satisfaction, and thus productivity, from clinic nurses, attention needs to be paid to their "job-enrichment" factors. They certainly have work and responsibility, but little recognition and sense of achievement because of the remoteness of their posts, and the lack of management presence to acknowledge the challenges and difficulties of their jobs. Herzberg's "hygiene" factors, which he found to be most frequently quoted causes of dissatisfaction, are those related to the context of work. Named problems were with company policy and administration (management), technical supervision, salary and relationships with supervisor. Researchers studying nurses working at Agincourt Health Centre, one of the health facilities in Bushbuckridge, under Tintswalo

hospital management, found that the absence of close supervision and effective management impacted negatively on their morale, exacerbating feelings of isolation.[408] The work context of clinic nurses does not always meet the needs of Maslow's hierarchy theory.[409] Some basic physiological needs may be covered, but acceptable accommodation, and adequate water and sanitation are often absent. Many clinic buildings in the Tintswalo district were in a poor state, certainly not conducive to high standards of productivity. Safety and security are often not assured, nor, at the next level of need, is a need to belong to a group catered for. The isolation and loneliness of professional life in far distant clinics, away from relatives and friends, without means of transport and often without any form of communication, can be profound. The higher needs of Maslow include the motivational factors of Herzberg already mentioned - status recognition and self-fulfilment.

The World Health Organisation have stated that "if health personnel are to provide a caring service, it is necessary for the public health services to show that it too cares".[410] Much is lacking in both the physical and social environment, and in the professional management of nurses assigned to work in rural clinics of Bushbuckridge, and in many other areas, both rural and urban.

20.2.4 How can the community and patient perspectives be incorporated into planning and implementing tuberculosis services?

This study identified some consistent beliefs about the origin of tuberculosis among local communities. Health workers confined to facilities, especially if they do not come from the community they serve, are in danger of missing important information that impacts on the management of diseases. They all have a responsibility to consult community groups

and leaders, and traditional healers, and to work with and through local beliefs and customs in order to provide an acceptable effective service. Traditional healers should be educated about the medical treatment of tuberculosis, and persuaded to refer their clients to clinics or hospitals for concurrent medical management. Continuing attempts to de-stigmatise the disease through community-based education would facilitate early patient presentation and treatment adherence.

CHAPTER 21

RECOMMENDATIONS FOR GOOD, SUSTAINED TUBERCULOSIS CONTROL

The findings of this study prompt a number of recommendations. In keeping with the principles of integrating all primary care activities, some are general health service recommendations, others relate specifically to tuberculosis. Many would be generalisable to other districts in South Africa, and perhaps to other developing countries.

GENERAL HEALTH SERVICE RECOMMENDATIONS

Commitment to tuberculosis control as a priority for health services

A functioning district health system

Incentives and support for health workers

Task definitions and protocols for management of common health problems

Communication systems

Supervisory visits

Management of material resources - drugs, equipment, water and buildings

The need for good management is a recurring theme in this thesis.

* A prerequisite in the context of tuberculosis is commitment by management to the priority status of this disease, recognition that the incidence will increase, that the disease is preventable by cost-effective means, and that tuberculosis care is best integrated within a district primary care network.
* The creation of a functional district health system is fundamental to all health care

delivery.

Staff and material resources need good management.

* Staff management starts with recruitment of appropriately trained and experienced health personnel. Much has been debated around issues of incentives for doctors who work in remote areas, but little attention has been given to salary supplementation, opportunities for promotion, extra leave and other forms of recognition for the onerous duties that nurses perform in rural primary care settings. Staff rotations should be considered, balancing the desire to give clinic nurses a break from work in remote areas with the need for some permanency and continuity of care. It certainly seems disadvantageous to leave a nurse at the same clinic for years on end.

* Tasks to be performed should be clearly defined, with protocols, training and retraining on the management of common important health problems (including tuberculosis). This aspect is important too for staff at other levels in the district, including district communicable disease coordinators and district management. Protocols on how to manage common health problems and their complications must be available, together with resources for implementation. Essential components are equipment, telephones, fax machines, and ambulances as well as available consultation services with technical guidance.

* There must be open communication channels between all clinics, the district communicable disease coordinator, the district headquarters and the hospital, to use routinely for common health problems and their complications.

* Regular supervisory and monitoring visits by district managers, notably the communicable disease coordinator and the community health nursing manager, are

essential to motivate staff, to address their problems, and to check that work is being performed according to set standards.

* Clinics cannot function without drugs, vaccines, equipment, constant water supplies and buildings in reasonable repair. Functioning systems for procurement and distribution of drugs and equipment have to be in place, with delegated responsibilities for their maintenance.

SPECIFIC TUBERCULOSIS SERVICE RECOMMENDATIONS

Train all health workers in tuberculosis management

Decentralise tuberculosis care to district clinics

Organise laboratory network for diagnosis and monitoring

Organise community supporters

Provide district support for community outreach functions

Keep standardised records at clinic level, to be collated at district level

Transfer patients efficiently from one district to another

Within the context provided by good general management, there are specific recommendations for tuberculosis management emanating from this study.

* All health workers, including nurses, doctors, managers, laboratory workers and pharmacists, must be trained in the management of tuberculosis. Education at tertiary and other levels for all health workers must include management of patients with tuberculosis, as well as the principles of the national and international control programmes. Continuing education with on-site training is an essential component to maintain standards and interest. Manuals must be produced, and

courses coordinated and standardised at the national tuberculosis directorate, with extra resources supplied as necessary to provinces unable to supply the needs.

* Tuberculosis can be and should be managed at district clinics by nurses trained in how to diagnosis and treat the disease. There is no reason why they should not have responsibility, with supervision and appropriate advice for problems, for managing suspects, making a definite diagnosis and initiating and continuing treatment. Simplification of treatment regimens currently recommended by the South African tuberculosis control programme has been suggested by many experts.

* Systems of transport and communication between all clinics and the district laboratory is essential for a functioning tuberculosis programme. Innovative ways and systems must be developed to supply drugs and other requisites, and to collect specimens, all of which will benefit the delivery of comprehensive health care.

* All patients should have supporters. Community members make excellent supporters, but need training incentives, monitoring and evaluation.

* Backup support for recruiting community supporters, and for following up non-adherent patients will always be needed. To provide transport at each clinic for clinic staff to do this themselves is probably not cost-effective. At district level it would be, if the staff responsible for tuberculosis was also responsible for other communicable diseases, surveillance systems and outbreak responses.

* Completion of the various cards, register and regular reports could also be done by clinic nurses, who will find the reports easier and more acceptable when some modifications are made, and with continuing training. The district communicable disease coordinator should monitor the correct completion of all forms, and collate those of all clinics into a district report.

* Transfer of patients who are leaving the district should be facilitated by encouraging those with intended movements to discuss where they are going. Transfers to other services must be formalised with appropriate documentation and direct communication to the receiving health services. Work should proceed on implementing a national computerised register of all patients with tuberculosis, which will facilitate transfers as well as record details of current and previous treatment of all patients.

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APPENDIX A: TABLES

A1 TREATMENT OUTCOMES AND SEX - NEW SMEAR POSITIVE PATIENTS (1992-94)

SEX	COMPLETED	INTERRUPTED	DIED	TOTAL
Female	42 (66%)	16 (25%)	6 (9%)	64 (31%)
Male	97 (68%)	36 (25%)	10 (7%)	143 (69%)
Total	139 (67%)	52 (25%)	16 (8%)	207 (100%

A2 TREATMENT OUTCOMES AND AGE GROUPS - NEW SMEAR POSITIVE CASES (1992-94)

AGE GROUP in yrs	COMPLETED	INTERRUPTED	DIED	TOTAL
0-14	3 (60%)	1 (20%)	1 (20%)	5 (2%)
15-29	40 (66%)	17 (28%)	4 (7%)	61 (29%)
30-59	75 (70%)	25 (23%)	7 (7%)	107 (52%)
60 +	21 (62%)	9 (26%)	4 (12%)	34 (16%)
Total	164 (79%)	65 (31%)	19 (9%)	207 * (100%)

* excludes 3 transferred cases

A3 TREATMENT OUTCOMES AND DISTANCE FROM TINTSWALO HOSPITAL, NEW SMEAR POSITIVE PATIENTS (1992-94)

DISTANCE in kms	COMPLETED	INTERRUPTED	DIED	TOTAL
0-9	49 (65%)	21 (28%)	5 (7%)	75 36%
10-25	62 (76%)	15 (18%)	5 (6%)	82 40%
26-49	19 (61%)	7 (23%)	5 (16%)	31 15%
50 +	8 (44%)	9 (50%)	1 (6%)	18 9%
TOTAL	138 (67%)	52 (25%)	16 (8%)	206 100%

A4 DISTANCE FROM TINTSWALO HOSPITAL AND AGE GROUPS (1994-96)

AGEGROUP (years)	DISTANCE CATEGORIES (kms)				TOTAL
	0 -9	10-25	26-49	50+	
0-14	17 (37%) 12%	9 (20%) 8%	19 (41%) 15%	1 (2%) 4%	46 11%
15-29	27 (30%) 19%	26 (29%) 22%	32 (36%) 25%	4 (4%) 15%	89 21%
30-59	84 (37%) 58%	68 (30%) 58%	61 (27%) 48%	17 (7%) 63%	230 56%
60+	16 (33%) 11%	14 (29%) 12%	14 (29%) 11%	5 (10%) 19%	49 12%
Total	144 (35%)	117 (28%)	126 (30%)	27 (7%)	414

A5 DISTANCE FROM TINTSWALO HOSPITAL AND SEX (1994-96)

DISTANCE (kms)	FEMALE	MALE	TOTAL
0-9	38 (26%) 31%	106 (74%) 36%	144 (100%)
10-25	34 (29%) 28%	83 (71%) 28%	117 (100%)
26-49	45 (36%) 37%	81 (64%) 28%	126 (100%)
50+	5 (19%) 4%	22 (81%) 8%	27 (100%)
TOTAL	122 (29%) 100%	292 (71%) 100%	414 (100%)

A6 DISTANCE FROM TINTSWALO AND PATIENT CATEGORY (1994-96)

DISTANCE (kms)	NEW PATIENTS	RE-TREATMENT PATIENTS	TOTAL
0-9	129 (90%) 37%	15 (10%) 24%	144 (100%)
10-25	92 (79%) 26%	25 (21%) 40%	117 (100%)
26-49	104 (83%) 30%	22 (17%) 35%	126 (100%)
50 +	26 (96%) 7%	1 (4%) 2%	27 (100%)
TOTAL	351 (85%) 100%	63 (15%) 101%	414

A7 AGES AND TREATMENT GROUPS

Age Group	TREATMENT GROUP				TOTAL
	Treatment Clinic	Control Clinic	Hospital	Outside District	
0-14	16 (35%) 12%	12 (26%) 16%	10 (22%) 8%	8 (17%) 9%	46 (11%)
15-29	22 (26%) 17%	19 (21%) 25%	26 (29%) 22%	22 (25%) 25%	89 (21%)
30-59	79 (34%) 60%	36 (16%) 48%	70 (30%) 58%	45 (20%) 52%	230 (56%)
60+	15 (31%) 11%	8 (16%) 11%	14 (29%) 12%	12 (24%) 14%	49 (12%)
TOTAL	132 32%	75 18%	120 29%	87 21%	414 100%

A8 SEX AND TREATMENT GROUPS

Sex	TREATMENT GROUP				TOTAL
	Treatment Clinic	Control Clinic	Hospital	Outside District	
FEMALE	37 (30%) 28%	21 (17%) 28%	34 (28%) 28%	30 (25%) 34%	122 (100%) 29%
MALE	95 (33%) 72%	54 (18%) 72%	86 (29%) 72%	57 (20%) 66%	292 (100%) 71%
TOTAL	132 (32%) 100%	75 (18%) 100%	120 (29%) 100%	87 (21%) 100%	414 (100%) 100%

A9 AGES AND TREATMENT SUPPORTERS

AGEGROUPS (years)	SUPPORTED		NOT SUPPORTED		TOTAL	
	n	%	n	%	n	%
0-14	41	13	4	6	45	12
15-59	238	75	58	81	296	76
60+	37	12	10	14	47	12
Total	316	100	72	101	388 *	100

* excludes patients transferred out, and those who died before supporters could be organised

A10 SEX AND TREATMENT SUPPORTERS

SEX	SUPPORTED		NOT SUPPORTED		TOTAL	
	n	%	n	%	n	%
Female	95	30	20	28	115	30
Male	221	70	52	72	273	70
Total	316	100	72	100	388 *	100

* excludes patients transferred out, and those who died before supporters could be organised

A11 NEW AND RETREATMENT PATIENTS AND SUPPORTERS

	NEW PATIENTS	**RETREATMENT PATIENTS**	**TOTAL**
NO SUPPORTER	62 (81%) 23%	15 (19%) 26%	77 23%
SUPPORTED	213 (84%) 77%	42 (16%) 74%	255 77%
	275 (83%)	57 (17%)	332 * 100%

* pulmonary disease patients

A12 TREATMENT GROUPS AND SUPPORTER CATEGORIES

Supported	Treatment Clinic		Control Clinic		Hospital		Outside District		Total	%
	n	%	n	%	n	%	n	%		
SHOP	43	35	28	43	41	45	11	30	123	39
FAMILY	36	29	20	31	33	36	16	43	105	33
CLINIC	24	19	6	9	1	1	6	16	37	12
NEIGHB	12	10	4	6	6	7	4	11	26	8
TEACHER	4	3	2	3	2	2			8	3
WORK	2	2	3	5	1	1			6	2
CHURCH	1	1	1	2	4	4			6	2
CHW	1	1	-	-	-	-			1	
INDUNA	1	1	1	2	1	1			3	1
HOSP	-	-	-	-	2	2			2	1
TOTAL	124	100	65	100	91	99	37	100	317	101

A13 TREATMENT OUTCOMES OF NEW SMEAR POSITIVE PATIENTS FOR 1992-94, CATEGORISED ACCORDING TO INTERVENTION STUDY GROUPS

PLACE FOR TREATMENT	COMPLETED	INTERRUPTED	DIED	TOTAL
INTERVEN-TION CLINICS IN DISTRICT	45 (74%)	11 (18%)	5 (8%)	61 (100%) (38% of in-district pats.)
CONTROL CLINICS IN DISTRICT	34 (67%)	12 (24%)	5 (10%)	51 (100%) (32% of in-district pats.)
TINTSWALO HOSPITAL DISTRICT PATIENTS	33 (69%)	14 (29%)	1 (2%)	48 (100%) (30% of in-district pats)
TOTAL IN DISTRICT	112 (70%)	37 (23%)	11 (7%)	160 (100%) (78% of all pats.)
TINTSWALO HOSPITAL OUTSIDE DISTRICT 10-25 kms	11 (85%)	2 (15%)	0 (0%)	13 (100%)
TINTSWALO HOSPITAL OUTSIDE DISTRICT 26-49 kms	7 (47%)	4 (27%)	4 (27%)	15 (100%)
TINTSWALO HOSPITAL OUTSIDE DISTRICT 50+ kms	8 (44%)	9 (50%)	1 (6%)	18 (100%)
TOTAL OUTSIDE DISTRICT	26 (57%)	15 (33%)	5 (11%)	46 (100%) (22% of all pats.)
GRAND TOTAL	138 (67%)	52 (25%)	16 (8%)	206 * (100%)

* excludes 3 transfers and 1 patient with missing data

A14 TREATMENT OUTCOMES AND SEX - ALL PATIENTS (1994-96)

SEX	CURED AND COMPLETED	INTERRUPTED	FAILED	DIED	TOTAL
FEMALE	94 (79%)	15 (13%)	2 (2%)	8 (7%)	119
MALE	208 (73%)	47 (17%)	14 (5%)	15 (5%)	284
TOTAL	302 (75%)	62 (15%)	16 (4%)	23 (6%)	403 *

A15 TREATMENT OUTCOMES AND SEX - NEW SMEAR POSITIVE PATIENTS (1994-96)

SEX	CURED AND COMPLETED	INTERRUPTED	FAILED	DIED	TOTAL
FEMALE	39 (85%)	4 (9%)	2 (4%)	1 (2%)	46 (26%)
MALE	96 (72%)	22 (17%)	7 (5%)	8 (6%)	133 (74%)
TOTAL	135 (75%)	26 (15%)	9 (5%)	9 (5%)	179 * (100%)

* excludes 4 new smear positive patients transferred out

A16 OUTCOMES AND AGE GROUPS - NEW SMEAR POSITIVE PATIENTS (1994-96)

AGE GROUP in years	CURED AND COMPLETED	INTERRUPTED	DIED	FAILED	TOTAL
0-14	3 (75%)	1 (25%)	0	0	4 (2%)
15-29	41 (91%)	4 (9%)	0	1 (2%)	45 (25%)
30-59	79 (70%)	20 (18%)	8 (7%)	6 (5%)	113 (63%)
60+	12 (71%)	2 (12%)	1 (18%)	2 (12%)	17 (10%)
TOTAL	135 (75%)	26 (15%)	9 (10%)	9 (5%)	179 (100%)

A17 TREATMENT OUTCOMES AND HOSPITAL ADMISSIONS (1994-96)

HOSPITAL ADMISSION	COMPLETED & CURED	INTERRUPTED	DIED	FAILED	TOTAL
N0	35 (73%)	10 (21%)	1 (2%)	2 (4%)	48 (13%)
YES	267 (79%)	49 (15%)	7 (2%)	13 (4%)	336 (88%)
TOTAL	302 (79%)	59 (15%)	8 (2%)	15 (4%)	384 * (100%)

* excludes 11 transferred and 19 for whom admission information not available (of these, 15 died, 1 failed, 3 interrupted)

A18 TREATMENT OUTCOMES AND DURATION OF STAY IN HOSPITAL, ONE WEEK AND MORE (1994-96)

DAYS IN HOSPITAL	COMPLETED & CURED	INTERRUPTED	DIED	FAILED	TOTAL
1-6	17 (71%)	5 (21%)	1 (4%)	1 (4%)	24 (7%)
7+	250 (80%)	44 (14%)	6 (2%)	12 (4%)	312 (93%)
TOTAL	267(79%)	49 (15%)	7 (2%)	13 (4%)	336 (100%)

A19 TREATMENT OUTCOMES AND DURATION OF STAY IN HOSPITAL, ONE MONTH AND MORE (1994-96)

DAYS IN HOSPITAL	COMPLETED & CURED	INTERRUPTED	DIED	FAILED	TOTAL
1-27	157 (77%)	34 (17%)	6 (3%)	7 (3%)	204 (63%)
28+	110 (83%)	15 (11%)	2 (2%)	5 (4%)	132 (37%)
TOTAL	267 (79%)	49 (15%)	8 (2%)	12 (4%)	336 (100%)

A20 TREATMENT OUTCOMES AND TREATMENT SUPPORT, NEW SMEAR POSITIVE CASES (1994-96)

SUPPORT	COMPLETED	INTERRUPTED	DIED	FAILED	TOTAL
YES	120 (84%)	15 (10%)	1 (1%)	7 (5%)	143 (84%)
NO	15 (54%)	11 (39%)	0	2 (7%)	28 (16%)
TOTAL	135 (79%)	26 (15%)	1 (1%)	9 (5%)	171 * (100%)

* excludes 5 transfers and 8 deaths

TABLE 21: COMPARISON OF PATIENTS WHO HAD 3, 2, 1 AND NO INTERVIEWS

VARIABLE		All 3 inter-views n=185		Two inter-views n=103		One inter-view n=17		No inter-view n=22	
		n	%	n	%	n	%	n	%
AGE (years)	<15	19	10	15	15	1	6	3	14
	15-59	146	79	76	74	12	71	18	82
	60+	20	11	12	12	4	24	1	5
SEX	Male	129	70	77	75	12	71	17	77
	Female	56	30	26	25	5	29	5	23
DISTANCE (kms)	0-9	92	50	52	51	10	59	12	55
	10-25	70	38	37	36	5	29	6	27
	26-49	23	12	14	14	2	12	4	18
TREAT-MENT OUTCOMES	Cure/ Compl.	163	88	84	82	3	18	3	14
	Interr	9	5	10	10	6	35	10	46
	Transf	2	1	2	2	3	18	1	5
	Died	0	0	5	5	5	29	8	36
	Failed	11	6	2	2	0	0	0	0

A22 SEX AND EDUCATIONAL STATUS

SEX	HIGHEST EDUCATION ACHIEVED			
	Informal	Primary	Secondary	Total
FEMALE	37 (43%) (28%)	24 (28%) (29%)	25 (29%) (29%)	86 (100%) (28%)
MALE	96 (44%) (72%)	59 (27%) (71%)	62 (29%) (71%)	217 (100%) (72%)
TOTAL	133 (44%)	83 (100%) (27%)	87 (29%)	303 (100%) (100%)

A23 PERCENTAGE AGREEMENT FOR SAMPLE OF FIRST AND REPEAT INTERVIEWS

VARIABLE		% AGREEMENT
INTERVIEW 1:		
Address		88
Treatment place		100
Facility first attended		75
Attended:	clinic	75
	trad healer	100
	faith healer	100
	hospital	100
Treatment:	frequency	75
	duration	100
Problems anticipated		88
Belief in cause (open question)		38*
Belief:	spread	88
	inadequate treatment	75
	mines	88
	poor nutrition	63*
	alcohol	100
	smoking	100
	food quality	75
Previous TB		88
Family TB now/previous		100/88
Type of work		57*
Education		67*
Post-school education		83
Household size		50*
No. under 15 yrs		33*
No. under 5 yrs		17*
No earning		83
Old age pensioners		67*
Disability pensioners		100
No. sick		83
INTERVIEW 2		
Supporter presence / who		100/73
Transport to hospital clinic		55*
Satisfaction with hospital/clinic		100

VARIABLE	% AGREEMENT
INTERVIEW 2 contd.	
Time to reach supporter	27
Post-hospital consult:	
trad healer	73
faith healer	100
another hospital	100
another clinic	91
private dr.	100
INTERVIEW 3	
Attending supporter	67*
Problems attending supporter	100
Cost	100
CLINIC PATIENTS	
Place attended	100
Time to reach	0*
Transport	50*
Cost	0*
Waiting time	0*
Staff care	100
Preference	100
HOSPITAL PATIENTS	
Transport	90
Cost	67*
Waiting time	0*
Staff care	100
Problems	44*
Preference	67*
GENERAL	92
Difficult treatment	93
Side effects	54*
Staff kind	69*
Trad healer role	93

* < 70% agreement

TABLE 24 SUMMARY OF BIVARIATE ANALYSIS OF TREATMENT OUTCOMES AND VARIABLES n=296

VARIABLE	OUTCOME		p	OUTCOME	p
	Cured / Compl.	Interrup / Failed/Died		Interrup/ Failed	
Education: n=296					
Informal	111	21		14	
Formal	137	27	0.89	24	0.36
Informal & primary	177	35		25	
Secondary	71	13	0.82	13	0.48
Below std 9 & 10	32	4		4	
Std 9 or 10	216	44	0.37	34	0.68
Age (years): n=319					
0-5	16	4		4	
6+	237	62	0.93	44	0.39
0-15	33	5		5	
16+	220	61	0.22	43	0.61
0-29	89	11		11	
30+	164	55	0.004	37	0.09
0-59	226	56		41	
60+	27	10	0.31	7	0.43
15-29	56	6		6	
30+	164	55	0.009	37	0.6
15-59	193	51		36	
60+	27	10	0.40	7	0.47
Sex: n=319					
Female	78	13		6	
Male	175	53	0.074	42	0.009
Work: n=319					
Unemployed	90	24		14	
Employed	163	42	0.90	34	0.39
Manual	120	29		22	
Other employed	43	13	0.55	12	0.29
Skilled/semi-skilled	43	13		12	
Manual	120	29	0.55	22	0.29

VARIABLE	OUTCOME		p	OUTCOME	p
	Cured / Compl.	Interrup / Failed/Died		Interrup/ Failed	
Time to reach supporter: n=319					
0 (same home)	81	9		9	
Rest (>0 mins)	172	57	0.003	57	0.06
Stated problems with treatment access: n=282					
Yes	28	12	0.0006	10	
No	217	25		22	0.005
How patients reached treatment source:					
Those nearest hospital (hospital treatment): n=101					
Walk	27	7			
Other	58	9	0.35		
Those on hospital treatment (Control treatment) n=64					
Walk	1	1			
Other	56	6	0.20		
Those on clinic treatment: n=117					
Walk	57	7			
Other	46	7			
CLINIC PATIENTS: n=74					
Time to reach clinic:					
< 30 mins	50	6			
30+ mins	15	3			
Cost to reach:					
0 - R3	61	8			
> R3	4	1			
0	37	2			
>0 (R1+)	28	7			
How reached:					
Walk	37	2			
Other	28	7			
Waiting time:					
<30 mins	51	14			
30+ mins	8	1			
Problems experienced					
Yes	6	59			
No	2	7			

VARIABLE	OUTCOME		p	OUTCOME	p
	Cured / Compl.	Interrup / Failed/Died		Interrup/ Failed	
HOSPITAL PATIENTS: n=112					
Time to reach:					
<30 mins	58	5			
30+ mins	43	6	0.32		
Cost to reach:					
0 - R3	72	7			
>R3	29	4	0.41		
0	29	4			
>0 (R1+)	72	7	0.41		
How reached: n=113					
Walk	30	4			
Other	72	7	0.54		
Waiting time:					
<30 mins	18	1			
30+ mins	83	10	0.40		
Problems experienced:					
Yes	28	2			
No	74	9	0.39		

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)
Ref: R14/48 (Registry)

CLEARANCE CERTIFICATE PROTOCOL NUMBER M940103

PROJECT	Record review of TB patients admitted to Tintswalo Hospital
INVESTIGATORS	Dr M E Edgintor
DEPARTMENT	Community Health
DATE CONSIDERED	940128

DECISION OF THE COMMITTEE

Approved unconditionally

DATE 940204 CHAIRMAN .....
(Professor P E Cleaton-Jones)

* Guidelines for written "informed consent" attached where applicable.

==========

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10001, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

DATE..Nov.1993.....SIGNATURE.. .....

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG B2

Division of the Deputy Registrar (Research)

COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)
Ref: R14/49 Edginton

CLEARANCE CERTIFICATE PROTOCOL NUMBER M 940806

PROJECT	Study to evaluate a striptest to detect the drug INH and its metabolites in urine of patients taking INH orally
INVESTIGATORS	Dr M E Edginton
DEPARTMENT	Community Health, Medical School
DATE CONSIDERED	940826

DECISION OF THE COMMITTEE *

Approved unconditionally

DATE 940830

CHAIRMAN. .....(Professor P E Cleaton-Jones)

* Guidelines for written "informed consent" attached where applicable.

c c Supervisor: Dr M E Edginton
Dept of Community Health, Medical School

Works2\other\heclear\ 940806

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10001, 10th Floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

DATE.....1/9/94.....SIGNATURE .....

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)
Ref: R14/49 (Registry)

CLEARANCE CERTIFICATE PROTOCOL NUMBER M940203

PROJECT	Tuberculosis in the Eastern Transvaal: a study in management
INVESTIGATORS	Dr M E Edginton
DEPARTMENT	Community Health
DATE CONSIDERED	940225

DECISION OF THE COMMITTEE

Approved with the attached condition

DATE 940302 CHAIRMAN .....
(Professor P E Cleaton-Jones)

* Guidelines for written "informed consent" attached where applicable.

==========

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10001, 10th Floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

DATE 8/3/94 SIGNATURE .....

QUESTIONNAIRE FOR DATA ENTRY INTO EPIINFO

name _____ tb reg no. ##/ ###
age in years ## sex <A> address _____ nearest clinic _____
date treatment started <dd/mm/yy> treatment regime #
source of patient <A> if H state which _____ patient category <A>
diagnostic criteria <A > internat. code ###
sputum exam. pretreatmnt. 8 weeks 6 months

	result	date	result	date	result	date
smear	<A>	<dd/mm/yy>	<A>	<dd/mm/yy>	<A>	<dd/mm/yy>
culture	<A>	<dd/mm/yy>	<A>	<dd/mm/yy>	<A>	<dd/mm/yy>
resistance	<A>		<A>		<A>	

date of discharge from hospital <dd/mm/yy>
post-discharge treatment place _____
if supervised, who supervises _____, who organised _____
how did patient reach clinic _____
FOR CLINIC TREATMENT PATIENTS date first seen at clinic <dd/mm/yy>
subsequent clinic visits no. days supervsd trtmnt during mnth

scheduled	actual	
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##

any hospital visits <dd/mm/yy> why _____
<dd/mm/yy> _____
<dd/mm/yy> _____
<dd/mm/yy> _____
final hospital visit for discharge <dd/mm/yy>
FOR HOSPITAL TREATMENT PATIENTS dates of attendance

scheduled	actual	days of supervision
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##
<dd/mm/yy>	<dd/mm/yy>	##

readmission for tb admission date <dd/mm/yy> discharge date <dd/mm/yy>
outcome <A> TRF # date <dd/mm/yy> HIV <A>
interview 1 <dd/mm/yy>
2 scheduled <dd/mm/yy>
actual <dd/mm/yy>
3 scheduled <dd/mm/yy >
actual <dd/mm/yy >

remarks _____
_____
_____
_____

REPORT OF PATIENT ATTENDANCES AND SPUTA RESULTS

DATE: _____

PATIENT'S NAME: _____ TB NUMBER: 9__/_____

CLINIC (name) OR HOSPITAL PATIENT: _____

DATE TREATMENT STARTED: _____

DATE DISCHARGED FROM HOSPITAL: _____

PATIENT TAKEN TO CLINIC BY: _____

DATE FIRST SEEN AT CLINIC: _____

SUPPORTER: _____

SUPPORTER ORGANISED BY: _____

ATTENDANCES:

SCHEDULED	ACTUAL	DOCTOR (D) PILLS (P)	CLINIC (C) HOSPITAL (H)	DAYS OF SUPPORT

SPUTUM TESTING:

INITIAL DATE	RESULT	2 MONTHS DATE	RESULTS

5-6 MONTHS DATE	RESULT

FINAL DISCHARGE: _____ _____

URINE TEST DATA SHEET

NAME	TB NUMBER	ADDRESS	PLACE URINE COLLECTED	DATE OF COLLECTION	TIME OF COLLECTION	COLOUR	TEST RESULTS	COMMENTS

TINTSWALO TUBERCULOSIS PROGRAMME
DATA SHEET FOR INTERRUPTER CASE CONTROL STUDY

INTERUPPTER OR CONTROL

BASIC INFORMATION FROM RECORDS: (MEE to enter from records)

TB NUMBER...../9.. NAME.....

AGE..... GENDER M/F HIV P/N SOURCE..... CATEGORY.....

TB CODE..... SMEAR P/N CULTURE P/N

ADDRESS (name of village).....
FIRST ADMISSION/READMISSION F/R
If READMISSION, for first admission:

TB NO...../9.. DATE..... OUTCOME.....
FAMILY SIZE ..... POSITION OF THIS PATIENT IN FAMILY .....
Days in hospital TB ward .....
TB TREATMENT PLACE (clinic name/Tintswalo) .....

Supporter Category .....
Supporter attendance per month .....
Outcome:
Cure S
Complet.C1(monthly) C2(monthlyx1st 2m) C3(2-3monthly) C4
Interrupter I1 (incompl.1st 2m.) I2(complet.1st 2 m.only)
I3(never seen postdisc)
RHT from hospital..... RHT
Failed to return after passout FR

Other.....

ACCESS - INFORMATION ON TREATMENT PLACE: (MEE to ask CS/SN/HEds)
What is the best way to get from patient's home to the treatment

place .....
If best way is by taxi/bus,
How much does it cost to get from patient's home to that place

R.....
How long does it usually take .....
Are taxis/buses regular Y/N

If best way is walking,
How long does it take to walk (one way home to treatment place)

.....

INFORMATION FROM REPORT OF CONNIE/SELLITA/PHILLIP/SOLLY:
ANY PROBLEMS IDENTIFIED BY STAFF AS:

DISTANCE TO TREATMENT PLACE	Y/N
NO MONEY	Y/N
ATTITUDE/BEHAVIOUR OF STAFF AT TR. PLACE (fr.pt)	Y/N
ALCOHOL	Y/N
PATIENT AWAY AT WORK	Y/N
PATIENT CANNOT BE TRACED	Y/N

Other (say what) .....

.....

.....

INFORMATION FROM PATIENT INTERVIEW

First place attended for treatment before T C/TH/FH/AnotherH/GP/Other

Belief re TB (open) .....

Family TB NOW/PREVIOUS

Work type .....

Education (highest level) .....

Household size .....

Under 15.....Under 5 ..... OAPen ..... Disab.Pen .....

Household income R.....

Knowledge re treatment G/B

Treatment Place same as records Y/N

Supporter same as records Y/N

Clinic access by Walk/Taxi/Bus/Other.....

Clinic transport cost R .....

Clinic wait time .....minutes

Clinic staff problem Y/N

Other clinic problems Y/N what.....

Hospital access by Walk/Taxi/Bus/Other.....

cost R.....

wait time .....minutes

staff problem Y/N

other problems Y/N what.....

General statements (ring only if problem)

Pills difficult to take

Pills make sick

Nurses not good

Traditional healer essential

A2 Where did you go <u>first</u> when you got sick with this TB?

☐ 39

Tintswalo hospital	Other hospital	Clinic	Traditional healer
Faith healer	Private doctor	Other - say where	

TUBERCULOSIS KNOWLEDGE

K1 Please tell me about the treatment you must take for your TB:

For how long must you take the treatment?

_____

How often should you take the treatment? ☐ 40

_____

K2 Where will you go regularly to fetch your TB treatment after you are discharged from hospital? ☐ 41

_____

K3 Do you think you will have any problems in getting to the place where you will get your treatment? ☐ 42

Yes	No

K4 If yes, please explain _____ ☐ 43

_____

K5 Are there questions you would like to ask about your TB treatment ☐ 44

_____

_____

_____

(Interviewer: if you cannot answer the questions, ask someone qualified to do so)

TUBERCULOSIS CAUSE

C1 Why do you believe you got TB? ☐☐ 45

_____

_____

_____

TINTSWALO DISTRICT TUBERCULOSIS PROGRAMME

Interview for all patients who live in the Tintswalo district before their discharge from hospital

Card No. [1] 1

Name of Patient: _____

TB Registration No. _____ [9][ ][ ][ ][ ] 2

Date of Admission [ ][ ][ ][ ][9][ ] 7

Date of interview [ ][ ][ ][ ][9][ ] 13

Date of discharge [ ][ ][ ][ ][9][ ] 19

Place of Interview: _____ [ ] 25

Address: Name of village/town _____ [ ][ ] 26

Exact address with landmarks: _____

_____

_____

Place for follow up treatment _____ [ ][ ] 26

Interviewer: Check records and/or ask ward sister where this patient is to receive follow-up treatment and write it here.

TUBERCULOSIS ACTION

A1 Please tell me about places you went to when you got sick with TB, before you came to hospital. Have you been to a:

clinic	Yes / No	30
say where _____		31
traditional healer	Yes / No	32
faith healer	Yes / No	33
hospital other than this one	Yes / No	34
say which _____		35
private doctor	Yes / No	36
other place/person	Yes / No	37
say where/who _____		38

C2 Do you think people get tuberculosis from:-

1	Bewitchment Neglect of ancestors	Yes	No	Don't know	47
2	Disobeying rules when family member dies	Yes	No	Don't know	48
3	Sexually transmitted disease	Yes	No	Don't know	49
4	Spread from people with TB Germs	Yes	No	Don't know	50
5	TB inadequately treated in the past	Yes	No	Don't know	51
6	Work in mines or dusty conditions	Yes	No	Don't know	52
7	Poor nutrition or diet	Yes	No	Don't know	53
8	Alcohol	Yes	No	Don't know	54
9	Smoking cigarettes	Yes	No	Don't know	55
10	Food or water contamination	Yes	No	Don't know	56
11	Other	Yes	No	Don't know	57

PREVIOUS TUBERCULOSIS

P1 Have you ever had TB before this time? ☐ 58

Yes | No

If yes,

P2 What year was this 19____ ☐☐ 59

P3 Where did you have treatment ☐ 61

_____

P4 For how long were you treated (in months)____ ☐☐ 62

FAMILY TB

F1 Is anyone in your family on treatment for TB now ☐ 64

Yes | No

F2 Has anyone in your family been on treatment in the past ☐ 65

Yes | No

WORK OUTSIDE THE HOME

W1 When did you last work for money? (write month and year)_____ | | | 9 | | 66

W2 For how many years have you worked for money in your life?
(Interviewer: write down all the different jobs and add up the total time worked)

_____

_____

_____

Total Time _____ | | 70

W3 What is the main kind of work you have done?
(Interviewer ask for the job the person has had for the longest) _____ | | 72

_____

_____

Card No. | 2 | 1

TB Registration No. | 9 | | | | | 2

EDUCATION

E1 What is the highest school standard that you passed eg Nil, SubA, SubB, Std1 - 10 _____ | | 7

E2 Did you have any education or training after you left school

Yes	No

| | 9

E3 If yes, what was this _____ | | 10

HOUSEHOLD INFORMATION

Tell me about the people in your household. (Tick appropriate squares)

	First name	Relationship to you	Year of birth	Age	Earning money	Old Age pension	Disability Pension	Sick now for 2 wks or more
1		yourself						Yes
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								

Subject's age ☐☐ 12
Total No. ☐☐ 14
Under 15 years ☐ 16
Under 5 years ☐ 17
Earning ☐ 18
Old age pension ☐ 19
Disability pension ☐ 20
Sick (other than patient) ☐ 21

How much money comes into your household each month (in Rands) _____ ☐☐☐☐ 22

Thank you for answering my questions.

TINTSWALO DISTRICT TUBERCULOSIS PROGRAMME

PATIENT INTERVIEW AT 8 WEEKS AFTER TREATMENT ONSET

Card No [3] 1

Name of Patient: _____

TB Registration No. _____ [9 | | | | |] 2

Date of interview: [| | | | 9 |] 7

Place of interview: _____ ☐ 13

If patient is under 15 years of age, name of mother or person interviewed on behalf of child: ☐ 14

_____

Are you currently taking treatment for TB? ☐ 15

Yes	No

If no:
Please explain why not ☐ 16

_____

If yes:
How often do you take your pills? _____ ☐ 17

Does someone supervise your treatment i.e. give you your pills? ☐ 18

Yes	No

If yes:
Who is your supervisor? ☐ 19

Name: _____

Position or relationship: _____

How long does it take you to go to your supervisor (in minutes) _____

Please explain _____ ☐☐ 20

When you go for a check up and to get more pills do you go to the ☐ 22

Hospital	Clinic

How do you get to the clinic or hospital? _____ ☐ 23

_____

Do you have any problems getting to the clinic/hospital to fetch your pills?

Yes	No

24

If yes, please tell me about these problems.

25

What do you feel the pills do for you?

26

Why do you feel this?

27

For how many months must you take the pills? _____ 28
(from start to finish)
Are you satisfied with the service you are getting at the clinic/hospital? 30
(Interviewer delete whichever is not applicable)

Yes	No

If no, please tell me about the problems. 31

Have you been to see any of the following since you were discharged from hospital?

Traditional healer	Yes	No
Faith healer	Yes	No
Another Hospital	Yes	No
Another clinic	Yes	No
A private doctor	Yes	No
Any other healer or service say which: _____	Yes	No

32
33
34
35
36
37

Do you have any questions about your sickness or things you would like to discuss? 38

(Interviewer if you cannot answer the questions, ask someone who can to see this patient.)

Thank you for answering these questions.

INTERVIEW SCHEDULE FOR TB PATIENTS WHO HAVE COMPLETED THEIR TREATMENT

Interview to take place at Tintswalo hospital at the time of final discharge

Interviewer: Introduce yourself, and explain that the patient has the right to refuse to answer questions, and that answers will be kept confidential.

Card No. [4] 1

Name of patient: _____

TB registration number [9][ ][ ][ ][ ] 2

Date of interview [ ][ ][ ][ ][9][ ] 7

Place of interview _____ [ ] 13

Patient's address: (name of village or place)

_____ [ ][ ] 14

Which is your nearest clinic (ask patient this)?

_____ [ ][ ] 16

SUPPORTER FOR TREATMENT

Have you been going daily to a supporter to get your treatment? Yes / No [ ] 18

If yes, who was that supporter?
[shop/ induna/ family member/ clinic nurse]

Say exactly who it was? _____ [ ][ ] 19

Did you have any problems getting to your supporter every day? Yes / No [ ] 21

If yes, please tell me about your problems.

_____ [ ] 22

Did it cost you money to go to your supporter every day? Yes / No

If yes, how much did it cost? (Rands and cents) _____ [ ][ ][ ] 23

WHERE HAVE YOU BEEN ATTENDING EVERY MONTH TO SEE A DOCTOR OR NURSE TO FETCH MORE PILLS? [ ] 26

_____

IF YOU HAD TREATMENT AT A CLINIC:

Which clinic did you go to? _____ 27

How long did it take you to get there? _____ 29
(In minutes)

How did you get there? _____ 32

How much money did you have to pay to get there?

(in Rands and Cents) _____ 33

How long did you have to wait at the clinic before you were seen by the nurse (in minutes)? _____ 37

Did the clinic staff look after you well? Yes | No

If no, please explain _____ 39

Please explain any problems you had in getting your treatment at the clinic?

_____

_____ 40

Would you have preferred to go to hospital for your treatment rather than to the clinic Yes | No 41

Whether person said yes or no, ask:-

Please explain why you have said this

_____

_____ 42

IF YOU HAD TREATMENT AT TINTSWALO HOSPITAL:

How long did it take you to get there? (in minutes)____ ☐☐☐ 43

How did you get there? _____ ☐ 46

How much money did you have to pay to get there? (in Rands and Cents) _____ ☐☐☐☐ 47

How long did you spend at the hospital (from the time you got to the ward until you left to go home)? (in minutes) _____ ☐☐☐ 51

Did the hospital staff look after you well?

Yes	No

☐ 54

If no, please explain _____ ☐ 55

Please explain any problems you had in getting your treatment at the hospital?

If yes, explain the problems _____

_____ ☐ 56

Would you have preferred to go to your nearest clinic for your treatment rather than to the hospital?

Yes	No

☐ 57

Please explain why you have said this (whether yes or no)

_____

_____ ☐ 58

GENERAL COMMENTS:

If one of your friends or a neighbour got TB, and he asked you about TB, what would you tell that person about the treatment for TB?

_____

_____

_____ ☐ 59

Would you tell him that TB pills are difficult to take?

Yes	No

☐ 60

Would you tell him that the pills sometimes make you feel sick?

Yes	No

☐ 61

Would you say the nurses at the clinic or hospital were good/kind/helpful?

Yes	No

☐ 62

Would you tell him he should go to a traditional healer?

Yes	No

☐ 63

Would you tell them anything else about TB or TB treatment?

_____

_____

_____ ☐ 64

Do you feel that your TB is now cured?

Yes	No

☐ 65

If no, please explain why not _____

_____ ☐ 66

Have you got a job earning money since you were treated for TB?

Yes	No

☐ 67

Interviewer:

Note yes or no here if this person came from Mozambique, and if possible about how long ago (in years). Do not ask the person directly.

Yes	No

☐ 68

How many years ago did he/she come _____? ☐☐ 69

Thank the patient for answering your questions.

REPORT ON PATIENT NOT FOUND WHEN LOOKED FOR AT HOME

FIRST VISIT/SECOND VISIT/THIRD VISIT (ring the one that applies)
Do not make more than 3 visits to try to find a patient

Name of patient..... TB no ...../9..

Did you find patient's home? Yes/No

Who was at the home? .....

If someone at patient's home, did they know the patient ? Yes/No

If they know patient, where did they say he/she was ? .....

.....

Does he ever come home? Yes/No

If yes, when will he next come home? .....

Is he/she well? Yes/No

Is he/she taking TB treatment? Yes/No

If yes, where does he get the pills? .....

If no-one was found at patient's home

Did neighbours or people nearby know the patient? Yes/No

If yes, did they know where he/she is? Yes/No

If yes, where did they say patient is .....

If patient is said to be somewhere else in the Tintswalo or the old Mhala district (even if outside our study area), look for the patient there and interview. If he is said to be beyond the Tintswalo or old Mhala area, don't look further.