

INCIDENCE OF T. B. IN A TRIBAL VILLAGE - A CASE STUDY

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GOVERNMENT OF ANDHRA PRADESH

HYDERABAD

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RESEARCH PAPER - V

INCIDENCE OF T.B. IN A TRIBAL VILLAGE - A CASE STUDY

I.POLAVARAM VILLAGE, RAMPACHODAVARAM T.D. BLOCK

EAST GODAVARI DISTRICT, A.P.

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## I N T R O D U C T I O N

Tuberculosis is as much a social problem as a medical problem. Unless society itself takes a lead in solving the problem, doctors would not be able to go it alone, however effective and extensive might be their programme and policies. (Dr. P.S. Parma)

Tuberculosis is one of the chronic and dangerous wasting diseases. It occurs in all parts of the world, among all racial, age and sex groups, and can be carried wherever man may go. In spite of the great progress that has been made in diagnosis and treatment, it is still a major health problem.

T.B. existed and was recognised from very ancient times. In ancient India it was recognised as 'Kshaya roga' i.e., wasting disease. In 1882, Robert Koch discovered 'Tuberculosis bacillus' and firmly established the fact that the disease was the result of infection.

Tuberculosis is a destructive disease that may involve any part of the body, the most frequent

form being the pulmonary T.B. i.e., T.B. of the lungs. There are three strains, the human, bovine & avian. The bovine strain is mainly an invader of the cattle, but it is equally pathogenic for man, and produces T.B., especially in the bones and joints.

The disease thrives on insanitary conditions and malnutrition and is spread mainly through the carelessness of the T.B. infected person, who does not take care to cover his cough or sneeze and who unwittingly ejects the droplets with T.B. germs into the air. Using the articles of the patient is another source of transmission. T.B. of the alimentary tract is transmitted through contaminated milk.

Most of the persons attacked by Primary T.B. will recover through the resistance of the body and develop immunity, but in a few unfortunate cases the germs win the battle and the patient develops other secondary symptoms like fatigue, loss of appetite and weight, cough, fever and haemoptysis or spitting of blood.

The disease can be diagnosed early by the examination of the sputum, X-ray examination of the chest and tuberculin test.

T.B. can be treated successfully by rest, with improved and balanced diet, hygienic surroundings and fresh air and drugs. In severe cases removal of the affected organs by surgery is necessary. Streptomycin, P.A.S. and Isoniazide are very effective drugs. They have to be administered continuously for a period of one year. If the treatment is discontinued the germs become resistant to the drugs and pose and threat. If the patient is properly educated about the nature of the disease and the use of medicines, the treatment may be given at the patients' residence itself.

Inspite of the best sanitary conditions available in highly developed countries, the disease still poses a problem. For example in U.S.A. according to 1951 census about 50% of the population were affected by adulthood. In developing countries the incidence is still higher and medical surveys have revealed that no area of the world is free from the disease, although its incidence fluctuates from place to place depending on socio-economic conditions and sanitation. The loss in man power, and potential years of creative activity from T.B. is greater than any other disease, because it tends to strike early in life and run a lengthy chronic course. To-day a number of countries have

succeeded by planned and sustained efforts, in reducing T.B. mortality and morbidity rate and are trying to eradicate it completely in the near future. This is possible only when the people are properly educated and made to co-operate with the health authorities.

The Government of India is also making all out efforts to fight T.B. in the population. A mass B.C.G. Vaccination and National Sample T.B. Survey were introduced since 1951 and 1955 respectively. But due to poor economic conditions, chronic malnutrition and lack of knowledge of the mode of transmission among the masses, T.B. is even to-day the deadliest disease and killer No.1 in India. \*About 1.5% of the population have T.B. and 0.4% have sputum positive cases. There are about 7 to 8 million T.B. patients, of whom nearly 2 million are infectious. The disease is equally prevalent in urban and rural areas and the mortality rate is 80 to 100 per 100,000 population per year. The peak of prevalence in males rises with the age, where as in

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\* National Tuberculosis Programme of India - Vademecum - Government of India, Ministry of Health, 1968.

females the peak of prevalence is highest at thirty five and then falls.

Because of their long isolation from the mainstream, the tribal populations were free from this disease till recently. But due to the recent opening of tribal tracts with roads and markets, there was large scale infiltration of plainsmen into the agency areas, and the tribals quickly contacted infectious diseases like T.B., V.D. etc. The progression is very rapid as these isolated populations lacked resistance due to the absence of the disease previously in their communities. The mortality rate is also very high. Their habitation in congested, ill ventilated, and crowded houses, ill balanced diet, lack of facilities for the segregation of the affected, ignorance about preventive measures and belief in supernatural agencies for cure; are some of the reasons for the high susceptibility to T.B.

According to the Report of the Commission for Scheduled Castes and Scheduled Tribes (1960); tuberculosis is now very common among the tribes of Madhya Pradesh, Bihar and certain areas of Bengal and Assam. About 10 to 15% of the patients attending hospitals for T.B. treatment were tribals. As the tribal visits the hospital only in advanced stages,

the reported cases are few compared to the actual incidence, and the danger of spreading the disease is very high. T.B. was said to be on the increase in many tribal areas.

The tribal people of Andhra Pradesh agency are no exception to the disease. Besides they also suffer from yaws, leprosy and malaria. Thanks to the N.L.E.P., the tribals were freed from the havoc of malaria. Mass B.C.G. vaccination was also introduced in the Agency areas, but in practice, it is very difficult to take these services to the remote tribal areas. It was reported that there was high incidence of T.B. in Godavari Agency. But so far no systematic health survey has been made in these areas. In order to verify the prevalence of T.B. and the impact of B.C.G. vaccination on tribal populations, a need exists for the extensive and systematic survey of finding cases and the methods of treatment they are following, with a view to help the Government to chalk out programmes for the eradication of T.B. in tribal areas. The present study is an attempt in this direction to conduct probing test as a Pilot Project so as to prepare the ground for comprehensive studies by Public Health and Medical Research Organisations in the hitherto neglected tribal areas.



OBJECTIVES, SCOPE AND METHODOLOGY

The main aim of this study is a quick appraisal of the nature and incidence of T.B. in a tribal village having outside contacts.

The objectives are:

- (1) To find out the incidence of T.B. in the selected village.
- (2) To assess the communicable aspects of T.B. in the context of prevailing sanitation and preventive measures.
- (3) To study the attitude of the tribals towards the modern techniques and diagnosis vis-a-vis their traditional mode of treatment.
- (4) To assess the impact of B.C.G., Vaccination programme on the population of the sample village.
- (5) To find out the familial history of the T.B. patients.

As this survey is intended for quick appraisal of the incidence of T.B., it was decided to select one tribal village, which came under the influence of modern development agencies viz., the T.D. Blocks.

Methodology:

The house hold is taken as the unit of the Survey.

Two schedules, one for the village and the other for the household were prepared. The location of the village, geographical and topographical features,

ethnic composition, sources of drinking water, communications, sanitation, common diseases, medical facilities available for the village, T.B. eradication programme etc., were covered by the village schedule. The household schedule covered information regarding dwellings, ventilation, personal hygiene, dietary habits, smoking, attitude towards modern and traditional medicine and attitude towards the isolation of the patient, and case histories of the detected patients in the household. Data regarding the nature of preventive and curative measures taken up in the village to combat T.B., and other communicable diseases was collected from the Medical Officer, Primary Health Centre, Indukurupets. All the households were interviewed and Physical check up was done by the Medical Officer, Indukurupets and detected cases were taken up for conducting case studies with a view to establish causes of the disease, nature of treatment taken and required. Pedigrees of suspected T.B. patients are drawn for finding out the familial history.

The field work was undertaken during the months of September and October, 1971.

Limitations of the Survey:

The cases of this survey are diagnosed only by physical examination with Stethoscope, which cannot

be relied upon to detect cases in the initial stage of attack. If sputum test and screening by X-ray, are applied more cases may be found.

THE VILLAGE AND THE INCIDENCE OF T.B.

Irlapalli Polavaram village of Rampachodavaram T.D. Block, in East Godavari District was selected for the study. The density of population in Rampachodavaram independent sub-taluk is 69 per sq. mile, compared to the average density of 624 persons per Sq. mile in the district according to 1961 census. The area was isolated from the plains till two roads were constructed; one connecting Rajahmundry to Maredimilli, and another from Rampachodavaram to Devipatnam. The developmental activities of the T.D. Block of this area with headquarters at Rampachodavaram and the opening of the roads have broken the isolates and brought the tribals into contact with non-tribals. Further, a weekly shandy at Rampachodavaram is also the meeting ground of the tribals with plains men, where they exchange the minor forest produce with their daily necessities like salt, tobacco etc.

The village Irlapalli Polavaram is situated in hillocks at a distance of 8 Kms. from Rampachodavaram. The total population is 382 of which 318 are tribals.

All the tribals of the village belong to Koya Dora tribe. Except the school teacher and the N.M.E.P. surveillance worker the other non-tribals are artisans, who supply the necessary implements to Koya Doras.

The people are sturdy, medium statured with straight to wavy hair, and brown to copper brown colour. The houses are rectangular or square in type with thatched roofs and bamboo fencing. The families are mostly nuclear. The preferred types of marriages are cross-cousin and uncle-niece. Spouses are usually selected within a radius of 10 Kms.

The principal occupation of the Koya Doras is agriculture, both podu and settled. There are no agricultural labourers in the village, but a few work occasionally with the contractors. The usual crops raised in the fields are Jowar, Ragi, and Paddy. The yield is not sufficient for the tribe to sustain throughout the year. Hence they supplement their food with roots, tubers, leaves and by fishing and hunting in the forest. The staple food varies from season to season depending on the availability. Though there is no taboo, many people do not take milk. They drink liquor distilled from Mahua (Ippa) flowers and toddy regularly. Smoking is very common among both sexes.

The caste panchayat controls the affairs of the community. The villagers have immense faith in village gods and goddesses and any illness or epidemics are usually attribute to the wrath of either angered gods or goddesses or black magic. A village Goddess by name Bapanamma is worshiped in this village for protecting the villagers from epidemics.

The Government Hospital, Kempachodavaram, (8 Kms.) the P.H.C. at Indukurupeta (29 Kms.) and Government Dispensary at Devipatnam (32 Kms.) are the three modern medical centres available for the benefit of the <sup>Village</sup> ~~Black~~ people. Due to lack of proper conveyance and the long distance to be covered, combined with their traditional belief in gods and goddesses and the hold of quacks, the tribals visit the hospitals only as a last resort by which time the disease almost reaches an incurable stage. These hospitals have no facilities for either detecting or treating the T.B. cases. They refer the suspected cases to the General Hospital, Kakinada, or to the Headquarters Hospital, Rajahmundry, which are at a distance of 85 and 51 Kms. respectively.

The Primary Health Centre at Indukurupeta and its sub-centre at Musurumilli looks after the public health programmes of this village. The P.H.C. staff Chlorinate the two wells in the village twice every month

and carry on vaccination for small-pox and immunization for cholera. The health visitors and auxillary nurse-cum-midwives of the P.H.C. periodically visit the village and educate the people about sanitation and public health. They also send the maternity cases to the P.H.C. in addition to canvassing family planning programmes.

The streets and houses are cleaned regularly by villagers themselves. However, the sanitary conditions of the village are far from satisfactory. There is no drainage and the surroundings are always damp. Pigs and goats are left to roam freely in the village.

A Surveillance Worker of the N.M.E.P. posted in this village reports all cases of fever and sends the blood smears to the N.M.E.P., Unit laboratory to detect cases of Malaria. He also supplies Chloroquine to the sufferers. There are no cases of malaria for the last three years in the village.

T.B. is one of the major afflictions in this village. Out of a total population of 382 persons 14 were affected with T.B. The 14 affected patients belong to the age groups of 21 to 60. The persons below the age of 10 and above 60 years are considered non-susceptible. This leaves 247 susceptible population

of which 14 are affected (13 Koya Dora + 1 Vadrangi (Carpenter)). The percentage of the affected to the susceptible population is 5.66 and to the total population is 3.66.

The sex ratio reveals that there are 1053 females for 1000 males. Out of 186 males, 11 are affected and out of 196 females 3 are affected, their percentages being 5.91 and 1.53 respectively. This shows that the males are more susceptible to this disease compared to females.

The percentage of tribal males affected with T.B. is 6.45 compared to 3.22 of the other male population. Whereas no non-tribal female was affected, 1.84 percent of tribal females are affected.

Apart from the non-susceptible age groups of 0-10 and above 60 the age group 11-20 is also free from the disease in both the sexes. In the age group 21-30, 7.5 percent of the males are affected compared to 4.76 per cent of the females. In the age groups 31-40 and 41-50 no female was affected, whereas 14.81 and 5.00 percent of the males in the two groups respectively are affected. In the age group 51-60 a high proportion of males i.e., 3 out of 6 (50%) are affected compared to 1 out of 5 females (20%). This shows that there is a



gradual increase in the incidence of the disease among the males as the age advances, but in the case of females it is erratic. The highest incidence in both the sexes is in the age group 51-60. This may be due to the fact that the population of this age group is less resistant due to old age.

There are 31 households having a separate kitchen and 48 households without a separate kitchen. Out of 31 households from the former group 3 households have affected persons (9.67%) compared to 8 households out of 48 ~~having~~ (16.66%) from the latter group. The incidence of the disease is more in households without a separate kitchen as they lack sufficient accommodation and arrangements for exit of smoke.

There are 36 households with good ventilation of which 4 households have affected persons (11.11%) and there are 43 households with poor ventilation of which 7 households have affected persons (16.27%). The percentage of affected is less in households with good ventilation.

The surroundings are neat and clean in 48 households, of which 6 households have affected persons (12.50%). There are 31 households with unclean surroundings of which 5 households have affected persons (16.12%).

This shows that households with unclean surroundings have a high percentage of incidence.

Out of 57 nuclear families, 5 families have affected persons, making a percentage of 8.77 compared to 22 joint families out of which 6 have affected persons making a percentage of 27.27%. The incidence is very high in joint families, where the members live in crowded houses and where the chances of exposure to infection is high.

The people of this village prefer to select, their mates from the near relatives like uncle's daughter, or aunt's daughter (cross-cousin marriages). Generally they select their mates within a radius of 5-10 K.M. The percentage of consanguineous marriages to the total marriages is 75.79. The incidence of T.B. in families constituted of consanguineous marriages is 15.27 percent, (11 out of 72) compared to 8.69 percent in families constituted of affinal marriages (2 out of 23). Continued inbreeding results in progeny with poor resistance to diseases. This might be the reason for the high incidence among families constituted of consanguineous marriages.

The principal occupation in the village is agriculture. Except children, old and infirm people,

all the others take active part in agricultural operations. Of the 14 affected people 13 are agriculturists and 1 is a non-tribal carpenter.

There are 276 earning members and 106 non-earning dependents in the population. All the affected are earning members. The percentage of the affected persons to the earning members is 5.07. This high incidence among the earning members results in decreased income and poor nutrition, which still aggravates the disease in the affected families.

The bulk of the population is illiterate. Among 318 tribal population only 36 are educated, their percentage being 12.33 and most of them are only capable of reading and writing in Telugu. But in the total population the percentage of the literates is 17.01. This is due to the fact that there are non-tribal employees like school teachers and N.M.E.P. worker, whose family members are all educated. Out of the 317 illiterates 13 (4.10%) are affected with T.B., compared to 1 out of 65 (1.53%) literates. This shows that lack of education in the majority of the population is the main reason for ~~the high rate of prevalence~~ ~~prevalence~~, and their indifference towards preventive measures.

Nearly 50 percent of the population is habituated to smoking. All the 14 affected are smokers and no non-smoker is affected. The habit of smoking is equally prevalent in both the sexes. Out of 88 male smokers 11 are affected compared to 3 out of 99 female smokers. Smoking, which affects the lungs and weakens their resistance is one of the reasons for high susceptibility.

The people of this village generally prefer traditional medicine. Though the Government Hospital at Rampachodavaram is only 8 K.Ms., the members of 14 households have never visited the hospital, 79 households have reported only one visit and 20 households two visits during the last one year. Lack of education, fear to visit new places and the continued hold of the quack doctors are coming in the way of their utilising the services of this hospital.

All the villagers are vaccinated for small-pox in the year 1971.

Though there was a mass B.C.G. Vaccination campaign in this district, this village is not yet covered.

During the last one year 3 people are reported dead due to T.B. The mortality rate is 1214 per 1,00,000 susceptible population for the last year.

The prevalence rate of 5.66 percent of the susceptible population is very high compared \*1.5 percent of All India average and \*\*2.08% of Andhra Pradesh villages.

The mortality rate of 1214 per 1,00,000. susceptible population in this village is roughly 12 times higher than the all India average T.B. mortality rate of \*80-100 per 1,00,000 population.

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\* National Tuberculosis Programme of India - Vade-mecum - Ministry of Health, Government of India - 1968.

\*\* Souvenir :- IVth Andhra Pradesh T.B. and Chest Diseases Conference, Hyderabad, 1969.





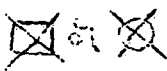
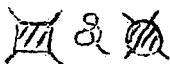
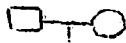
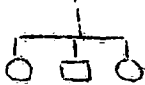
C A S E S T U D I E S

The case studies of the 14 affected persons (13 tribal + 1 non-tribal) are given in the following pages, to present a clear picture of the nature of symptoms, treatment undergone, attitude towards modern and traditional medicine and the type of food they are taking. Living conditions and smoking habit are also presented in all the cases. The case studies will be highly useful for assessing the various aspects of T.B. in the village surveyed.

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Detection of T.B. cases was made with the courtesy of the Medical Officer, (F.P.) Primary Health Centre, Indukurupeta, East Godavari District.

EXPLANATION OF SYMBOLS IN PEDIGREES

-  = Male  
 = Affected male  
 = Female  
 = Affected female  
 = Male or Female (died due to causes other than T.B.)  
 = Male or Female (died due to T.B.)  
 = Parents  
 = Children  
I II III = Roman figures on the left side of the pedigree indicate generations.

Name of the patient: Bandam Bapanna Dora  
Age: 45  
Occupation : Agriculture  
Nature of illness : Pulmonary T.B.  
Tribe : Koye Dora.

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He is suffering from night fever, cough and haemoptysis for the last three years. He is having bilateral pulmonary tuberculosis.

He consulted a qualified doctor, when he first felt the symptoms of the disease and was admitted to the Government General Hospital, Kakinada as an inpatient. X-ray of the chest was taken in the hospital and he was given streptomycin, I.N.H. & P.A.S. tablets for about 3 months. He was relieved with advice to take domiciliary treatment. He felt better after treatment and took medicines prescribed for about one month at home and discontinued and now he is suffering with cough and night fever. This is a case of negligence. Lack of follow up action made the whole treatment a waste.



The patient is living in an extended family with his son, daughter-in-law and grand children. The surroundings of the house are clean, but not well ventilated. Patient is habituated to smoking, and mixes freely with members of his household. Due to lack of segregation his son also has developed pulmonary T.B. The whole family needs medical check up and treatment..

CASE NO.2

Name of the Patient	:	Bandam Ramanna Dora
Age	:	25 years
Occupation	:	Agriculturist
Nature of illness	:	Pulmonary T.B.
Tribe	:	Koya Dora

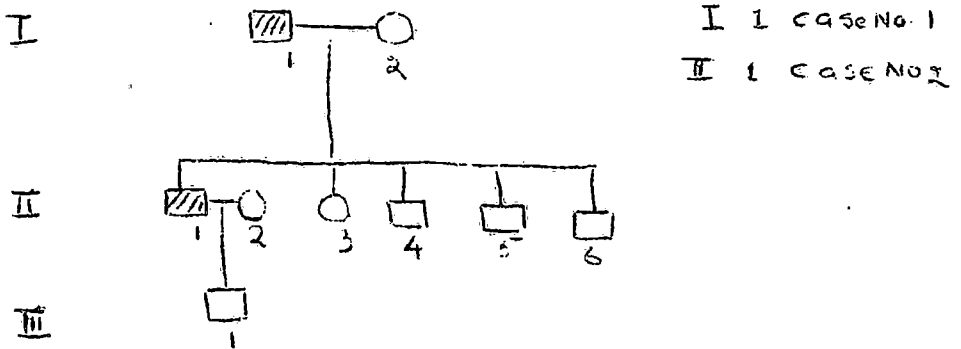
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The Patient, the son of Bapanna Dora (Case No.1) was suffering from cough, night fever and haemoptysis for the last  $2\frac{1}{2}$  years. The physical examination of the patient showed that he was suffering from pulmonary T.B. with a cavity, lymph glands are not affected.

At the first symptoms of T.B. he visited the Government Hospital at Rempachodavaram for the treatment

of fever. The Doctor diagnosed T.B. and referred him to Government General Hospital, Kakinada, where he was admitted as an inpatient and was given treatment with streptomycin injections, I.N.H. & P.A.S. tablets for about 3 months and was relieved from the hospital with an advice to continue domiciliary treatment for about 9 months. He used the medicines for 9 months and felt better. Still he is getting fever and cough. This might be due to his living in close association with his father in the same house. He was vaccinated but never heard about B.C.G., and feels that it is not essential to isolate the patient from his family members. He is not taking any care about spitting and freely moves with members of his family.

Pedigree No 1



Name of the Patient : Kangala Errapu Dora  
Age : 60 years.  
Occupation : Agriculture/Sarpanch Village Panchayat.  
Nature of illness : Suspected T.B. of lungs and bones  
Tribe : Koya Dora.

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He is suffering from weakness and tingling for sometime. Lungs, Lymphnodes, skin and bones were normal. But because of his close association with his daughter suffering from T.B., he cannot be definitely excluded as not having T.B., unless it is confirmed by X-ray and tuberculin tests.

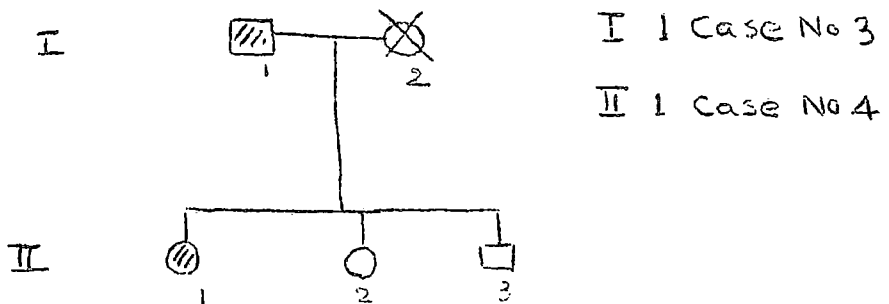
He took treatment from an h.h.p. doctor at Gokavaram for about one month, who gave him injections and tablets. The treatment satisfied him as he got relieved of his complaints. But now he is getting night fever and cough.

The Patient is a well to do man and is the Sarpanch of the gram Panchayat. His family of 4 members dwell in a well ventilated house consisting of two verandahs and separate kitchen without chimney. The surroundings are neat and clean. He takes bath daily

and changes clothes once in three days. He smokes cigars but will not exchange lighted cigars with others. He takes good food consisting of potatoes, yams, colocasia, Amaranth leaves, cannabis, rice, jowar etc. He also consumes mutton once in a week and curd, buttermilk and ghee for about 6 months in the year.

Inspite of his being the Sarpanch of the village and having contacts with the Samithi Officials, he feels that the traditional medicine is better as it is within the reach of the common man. Like the other patients he also felt that the Government Hospital is far away and is difficult to visit due to lack of transport facilities. He visited the Government Hospital at Rampachodavaram twice for the treatment of flu. He feels that it is not necessary to isolate the T.B. Patient.

### Pedigree No. 2



Name of the Patient : Kangala Peda Bulli  
Age : 30 years  
Occupation : Agriculturist  
Nature of illness : T.B.  
Tribe : Koya Dora

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She was suffering from night fever, anorexia and weakness for the last three years. On physical examination it was found that the apex of the right lung was affected.

At the first symptoms of illness she consulted an R.M.P. doctor at Gokavaram, who gave her some injections and tablets for  $1\frac{1}{2}$  years. In spite of the long course of treatment her complaints were not relieved.

The Patient is habituated to smoking and spits indiscriminately, and never heard of B.C.G. She is living in the same house along with her father Errapu Dora, who is also suspected to be suffering with T.B. The other members of the family are healthy.

Name of the Patient : Kangala Mutyalamma.  
Age : 56 years  
Occupation : Agriculture  
Nature of illness : Tuberculosis  
Tribe : Koya Dora

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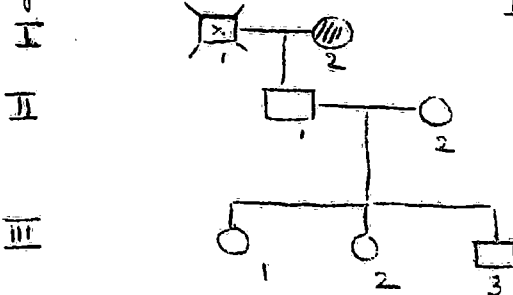
She was suffering from cough, hæmoptysis, fever and weakness for the last 3 years. On physical examination it was found that the cervical lymphnodes were enlarged and matted. Bilateral fibrosis of the lungs and pains of the joints are due to arthritis.

She has not consulted either the indigenous or the modern medical practitioner so far, due to poverty and was using locally available barks and leaves, which gave her no relief.

The patient is an earning member of a family of six. She lives in a one roomed, well ventilated thatched house and cooks and sleeps with her family members in the same room. The dietary habits are the same as that of the other members of the village. She takes milk occasionally and meat once in a week. Though the patient has not consulted any doctor so far for treatment of T.B., she feels that traditional

medicine is cheap and within the reach. She visited the Government hospital at Rampachodavaram once for testing of her eyes. She feels that it is neither necessary to isolate the patient nor consume special food for recovery.

Pedigree No. 3



I 2 Case No 5

CASE NO. 6

Name of the patient : Kangala Ramanna Dora  
Age : 40 years.  
Occupation : Agriculture  
Nature of illness : Pulmonary Tuberculosis.  
Tribe : Koya Dora

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He was suffering from cough, fever, haemoptysis and chest pain since the last 2 years. On physical examination it was found that he was suffering from bilateral pulmonary tuberculosis.

At the first symptoms of the disease, the consulted the qualified doctor at Government Hospital, Rampachodavaram, who referred him to Government General

Hospital, Kakinada, where he was admitted as an in-patient. After taking X-ray of the chest and other tests, he was given streptomycin, I.N.H. & P.A.S. for about 2 months and was later relieved with an advice to continue domiciliary treatment for one year, which he did. The patient says that he was only half satisfied as some of his ailments still continue. The close proximity of his wife, who was also affected with T.B., may be the cause of his continued ailment.

The patient is the earning head of a family of 5 members and lives in a well ventilated thatched house with a separate kitchen. He takes bath daily and changes dress once in three days and was a habitual smoker of cigar but will not exchange lighted cigars with others. He eats rice, jowar, gantelu, bamalu, potatoes and leafy vegetables throughout the year and takes mutton and eggs once in a week and ~~xxxx~~ milk daily. He mixes freely with the members of his family and is not in favour of isolation, uses no special method for spitting and takes meal and water from the same vessels and glasses which the other members of his family use. He complains that the Government Hospital is far away and prefers traditional medicines as they are cheap and within in the reach.



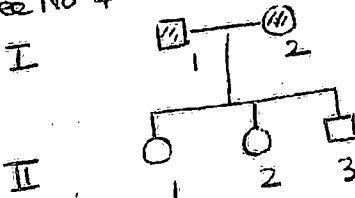
CASE NO.7

Name of the patient : Kangala Bapanamma  
 Age : 30 years.  
 Occupation : Agriculture  
 Nature of illness : Suspected T.B.  
 Tribe : Koya Dora

The patient is the wife of Kangala Ramanna Dora/ (Case No.6). She complains of weakness for sometime. On physical examination it is suspected that the right apex of her lung was affected. She has not used any medicines so far.

Except that she does not smoke the other habits are as those of her husband (Case No.6)

Pedigree No 4



I - 1 case No 6  
 I - 2 case No 7

CASE NO.8

Name of the patient : Bandam Chellanna Dora  
 Age : 36 years  
 Occupation : Agriculture  
 Nature of illness : Pulmonary & Bone T.B.  
 Tribe : Koya Dora

For the last two years he was suffering from

dry cough, night fever and anorexia. On physical examination it was found that he was suffering from Pulmonary T.B. with cavitation and also T.B. of knee joints.

At the first symptoms of his illness, he visited the Primary Health Centre at Indukurupeta, where, the Medical Officer referred him to the Government General Hospital, Kakinada, after thorough examination. He was admitted as an inpatient and was given treatment with streptomycin, I.N.H. & P.A.S. for about 3 months. After relieving from the Hospital, he continued the medicines for about 6 months. He was satisfied with the treatment, but complains that he is again getting cough and night fever.

The patient is the earning member of a family of 2. He lives in a thatched kitchen cum living room without proper ventilation and the surroundings are not clean. The cattle-shed is by the side of the house. He takes bath daily and changes clothes once in 3 days. Eats rice, jowar, Samalu, tubers and leaves throughout the year. Mutton is taken once in a week and milk is taken daily. He never heard of B.C.G. and spits indiscriminately. He is against isolation and sleeps in the same room with his wife.

He prefers traditional medicine as it is

cheap and easily available. Regarding modern medicine, the patient feels that the hospital is far away from his village and the staff there will not care to the needs of poor patients.

Pedigree No 5

I 1 Case No. 8



CASE NO. 9

Name of the patient	:	Bandam Butchanna Dora
Age	:	40 years.
Occupation	:	Agriculture
Nature of illness	:	Pulmonary T.B.
Tribe	:	Koya Dora

The patient has a history of weakness, night fever and haemoptysis for the last 3 years. On physical examination it was found that his lungs have fibrosis and the cervical nodes were also affected.

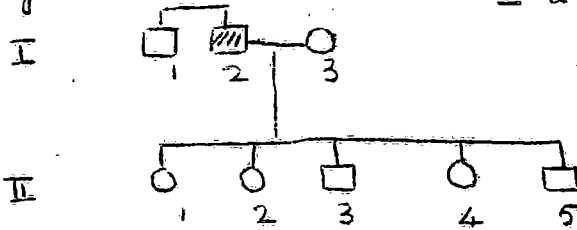
The patient consulted the Medical Officer, Primary Health Centre, Indukurupeta, who referred him to the Government General Hospital, Kakinda, where he was admitted as an inpatient. He was given treatment with streptomycin I.N.H. & P.A.S. for 3 months, after X-ray examination of his chest. He continued domiciliary

treatment for another 6 months. The patient said he was half satisfied as only part of his complaints were relieved with the treatment.

The patient is the head of a family of 8 and lives in a thatched ill ventilated kitchen cum living house, and the surroundings are not clean. He takes bath daily and changes clothes once in every 4 days. He eats rice, Gantelu, Jowar and Sama.

Pedigree No 6

I 2 case No. 9



CASE NO.10

Name of the Patient	: Kurasam Bapanna Dora
Age	: 60 years
Occupation	: Agriculture
Nature of illness	: Tuberculosis
Tribe	: Koya Dora

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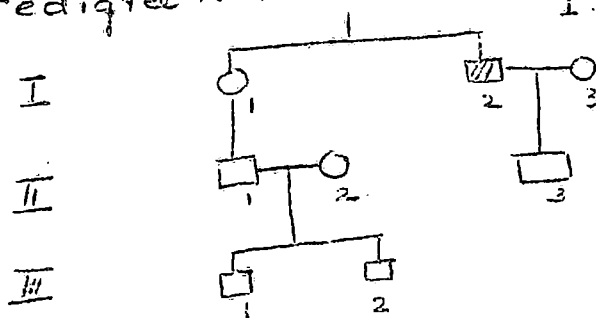
The patient is suffering from cough, night fever, Anorexia and indigestion for the last 3 years. This is suspected to be a chronic T.B. case. By physical check up it was found that both the lungs were affected and there was bilateral fibrosis.

At the first symptoms of the disease he consulted a quack doctor as he is within his reach and as the treatment offered is cheap. He took the indigenous treatment for three years and now he feels that his ailments are aggravated after taking traditional medicines. He was vaccinated for small-pox but never heard about B.C.G. He could not visit the Government Hospital as he feels that the hospital is far away and the treatment is expensive.

The patient is the head of a family of 7 members and is living in a rectangular thatched house without a separate kitchen, and without proper ventilation. He changes clothes once in five days and smokes cigars but will not exchange the lighted cigars with other members of the family. He was habituated to eat rice, Jowar, Gantelu and takes mutton or eggs once in a week. He does not take milk.

Fedique No 7

I. 2 case No 10



He spits in the surroundings of the house indiscriminately and sleeps in the same room along with the members of his family. The patient is against isolation as he feels that the affection of his household members is necessary for his recovery and <sup>says</sup> ~~also~~ that no special foods are required for the T.B. patient.

CASE NO.11

Name of the patient	:	Kangala Venkateswarlu
Age	:	31 years
Occupation	:	Agriculture
Nature of illness	:	Tuberculosis.
Tribe	:	Koya Dora

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Suffering from cough, night fever, anorexia, and weakness for the last 3 years. On physical examination, he was suspected to be suffering with Pulmonary tuberculosis and the left lung had fibrosis.

The patient is the earning head of a family of 4. He habituated to eat rice, jowar, gantelu and sama. He also takes milk and curds daily and takes mutton once in a week.

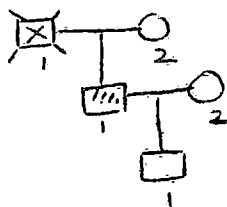
At the first symptoms of the disease he took some household medicines like bark, roots etc., and later

consulted a quack doctor at Gokavaram, spent Rs.200/- and took some injections, tablets, and mixtures. He was not satisfied with the treatment, and his condition became worse after this treatment. Still he is suffering with cough and night fever. He has not consulted any qualified doctor, as he cannot afford to go far away from his home and bear the expenses. The patient feels that the Government Hospital is far away and that he may not get good treatment there.

The patient is living in a one roomed house cum kitchen, without proper ventilation and sleeps in the same house along with his family members. He indiscriminately spits in the surroundings of the house ~~and~~ and uses the same ~~glass~~ for drinking with his family members. He was vaccinated but never heard of B.C.G. He thinks that it is not necessary to isolate T.B. patient and no special food is required.

Pedigree No 8

I  
II  
III



II. 1 case No 11

His family history reveals that none other than the patient was affected with T.B.

Name of the patient. : Kanjam Chinnalu Dora.  
Age : 60 years  
Occupation : Agriculture  
Nature of illness : Pulmonary and bone T.B.  
Tribe : Koya Dora

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The patient is suffering from joint pains, chest pains, cough and fever for the last 3 years. On physical examination it was found that he had extensive bilateral inflammation of the lungs. Joints were also affected with T.B. and there is Arthritis of knee.

At the first symptoms of T.B. he consulted a quack doctor, but after realising that he was having T.B., he consulted the qualified doctor. He took treatment at Rajahmundry and Gokavaram for about 1 year spending a sum of Rs.300/-, but was not satisfied with the treatment as he felt that there was no improvement in his condition.

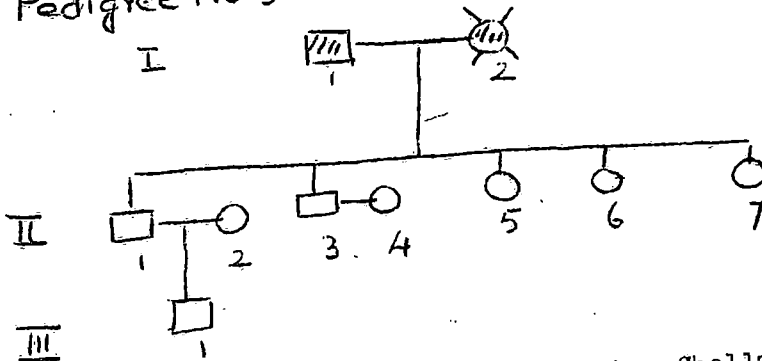
His house has two rooms and a separate kitchen. His sons and their wives with children sleep in the rooms and the patient sleeps in the verandah. He prefers to use traditional medicines as they are handy and cheap and resort to modern medicine only



as a second choice if it is found that his ailments are not curable by indigenous medicines. He complained that the Government Hospital is far away and the hospital people give medicines without caring to hear his complaints. He smokes cigars, spits in the surroundings of the house; and mixes freely with the members of his family. The patient is against isolation as he feels that only his family members can take good care of him.

Pedigree No 9

I. 1 Case No 12



CASE NO. 13

Name of the patient : Kurasam China Chellanna Dora  
 Age : 30 years.  
 Occupation : Agriculture  
 Nature of illness : T.B.  
 Tribe : Koya Dora

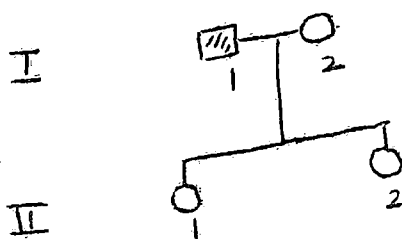
The patient is suffering from cough, night fever, anorexia and haemoptysis for the last 3 years. On physical examination it was found that the lungs and cervical nodes were affected with T.B.

At the first symptoms of T.B., he consulted the Medical Officer, Government Hospital, Rampachodavaram, who referred the case to the General Hospital, Kakinada. He was admitted as an inpatient in the hospital where X-ray of the chest was taken and given Streptomycin injections, I.N.H. & P.A.S. tablets for about  $2\frac{1}{2}$  months. He used the same medicines at home for about 9 months. He was satisfied with the treatment, as he was completely relieved of his ailments. But again he is getting cough and night fever.

He is living with his wife and children under one roof. The house is a thatched one, not well ventilated and the surroundings are not clean. He is habituated to smoking but will not exchange cigars. He is against isolation and special food for T.B. patients.

*Pedigree No 10*

*I. L Case No 13*



Name of the patient : Annupojju Venkata Ratnam  
Age : 28 years  
Occupation : Carpenter (non-tribal)  
Nature of illness : T.B.

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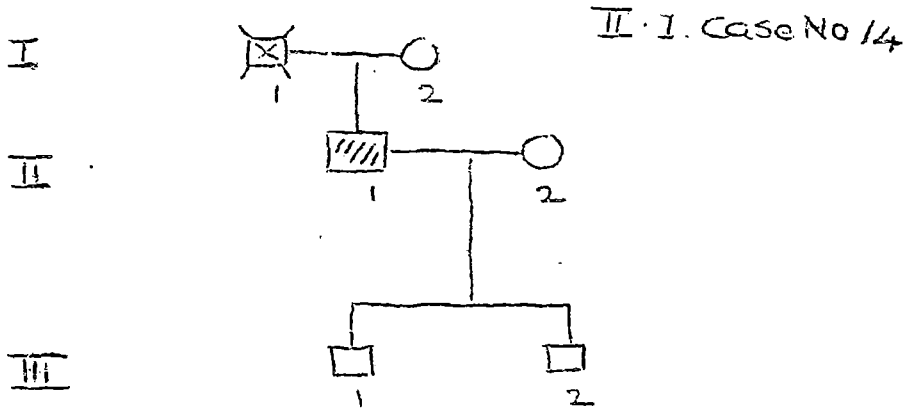
The patient is suffering from cough and weakness for the last two years. On physical examination it was found that both the lungs were affected with T.B. (Apices of both lungs)

At the first symptoms of T.B. he consulted a quack doctor and is still undergoing treatment under him. He got temporary relief after taking this treatment but was not satisfied. As and when he gets cough and cold he uses the traditional household remedies. He never visited the hospital for modern treatment.

He is living along with his mother, wife and a child under one roof, in a thatched ill ventilated house, and the surroundings are not clean. He was habituated to smoke cigars but will not exchange lighted cigars with others, but spits in the surroundings of the house, without taking any care to cover his mouth. His food habits are the same as that of the other cases.

The other members of his family are normal in health.

Pedigree No 11



SUMMARY AND RECOMMENDATIONS

Prevalence rate of T.B.

Out of a total population of 382, there are 135 persons below the age of 10 and above 60 years considered to be non-susceptible to T.B. Consequently 247 people constitute the susceptible population falling in the age groups of 10 to 60 and the affected in the village come under these age groups, constituting 5.66% to the susceptible population. This is roughly  $2\frac{1}{2}$  times the Andhra Pradesh average villages incidence of 2.08 percent and 3 times the all India average prevalence rate of 1.5 percent.

Incidence among males and females

The percentage of affected males (5.91) is roughly 4 times that of the affected females (1.53). Among the males the percentage of affected tribals (6.45) is twice that of affected non-tribals (1.56) but among the females all the affected are tribals (1.84) and no non-tribal is affected. The sex-wise incidence fairly compares with the general incidence among the plains population.

Incidence in various age groups.

Besides the non-susceptible age groups of 0-10, and above 60 years, the age group 11-20 is also free from this disease in the population. In other age-groups among the males, the incidence of the disease shows a gradual rise as the age advances, except in the age group 41-50, where there was a sudden slump followed by peak prevalence age group of 50-60, in which the prevalence rate is as high as 50%. The incidence among the female age groups shows its erratic nature. It was nil in the usual susceptible age groups of 11-20, 31-40 and 41-50 and it is only confined to 21-30 and 51-60 age groups, the maximum being in 51-60. However relatively speaking though 51-60 is the peak incidence age group for females also, it is even less than half of the percentage of incidence among males. In general the percentage of the affected females is 1/4th of that of the males, even though their number is larger than that of the males.

Incidence of T.B. and Household sanitation

Households with separate kitchen, good ventilation, and clean surroundings have a low percentage of the affected compared to households without separate kitchen, poor ventilation and unclean

surroundings. This shows that the disease is more prevalent in households without proper sanitary conditions.

#### Incidence of T.B. and Family Types

The percentage of the affected in extended or joint families (27.27) is 3 times that of the nuclear families (8.77). The probability of exposure to infection is more among families with larger number of members which is a characteristic feature of joint families than families with a few members as the case with nuclear families.

#### Incidence among families constituted of consanguineous and non-consanguineous marriages.

The incidence of T.B. is slightly higher among families constituted of consanguineous marriages compared to families constituted of non-consanguineous marriages. This may be due to close inbreeding among relatives, in the case of families constituted of consanguineous marriages, who are less resistant or the concentration of non-resistant genotypes among them.

#### Incidence of T.B. among earners and non-earners

All the affected persons are earning members. When earning members are to be hospitalised, their family income decreases sharply, which results in their families consuming inadequate quantities of ill-balanced diets.

This malnutrition further increases the susceptibility of their family members.

Incidence of T.B. among Literates and Illiterates

The incidence among illiterates (4.10) is nearly 3 times higher than that of the literates (1.53). This shows that education plays a very important role in, personal hygiene and preventive measures.

Incidence of T.B. among smokers and non-smokers

All the affected are smokers, no non-smoker is affected. This shows that smoking increases the susceptibility to the disease, by weakening the lungs and consequently making the smokers more prone to infection.

Mortality rate

The T.B. mortality rate of this village is 12 times the all India Mortality rate of 80 - 100 per 1,00,000 population.

B.C.G. Vaccination

Though the District is under mass B.C.G. vaccination programme, this village is not yet covered. Perhaps this is one of the reasons for the high incidence.



Attitude of the tribals towards modern medicine:

The tribals are still shy to visit hospitals in far off places. Most of them expressed the view that the staff in the Government Hospitals, will not pay any attention towards them. This feeling has developed among the tribal patients, due to the ethno-centric attitude of some hospital staff, who pay scant attention towards tribals and the fear complex among the tribals towards new people. Consequently the tribal patients are not availing the medical facilities provided by the Government and are falling a prey to the quack doctors. The continued hold of fatalistic mentality, great belief in <sup>black</sup> ~~black~~ magic and super natural powers and lack of knowledge of the highly communicable nature of T.B., are responsible for their apathy towards isolation.

The survey has shown that the incidence is high in households without proper sanitation, good ventilation and separate kitchen. Due to the long rooted belief that the smoke from the hearth protects the roof material from white ants the tribals are against chimneys or smoke less Chulla. As most of them are poor and cannot afford warm clothes during winter, they construct their houses without windows to keep them warm during the cold season. The consequent

pollution of air and poor ventilation make them more susceptible to T.B. The tribals may be encouraged and helped to construct their houses with good ventilation and separate kitchen. The recently established Housing Corporation for Scheduled Castes and Scheduled Tribes can play a positive role by evolving suitable house designs in tune with the local land scape and locally available materials giving local architecture its due place while extending financial and technical assistance.

Most of the patients and their family members are against isolation of the affected as kinship plays a dominant role in their economic, social and religious activities. Especially this association is expressed more during periods of crisis like disease, death and social and economic disasters. They feel it a sin to abandon a person in periods of suffering. The reciprocal obligations of Kinship and corporate village life coupled with their ignorance of the communicable nature of T.B., its health hazards to neighbours, besides ingrained fatalistic bent of mind are mainly responsible for their apathy towards isolation even in highly communicable diseases.

The tribals possess minimum of material

equipment for both personal and household uses. The members of the poor tribal family cannot afford to have more pairs of clothes and separate utensils for eating and drinking. They wash their clothes only once or twice in a week. Often the same clothes and utensils are used by other members of the family. While eating, drinking and smoking, the near relatives, especially parents and their tender offspring and their siblings freely partake food, drink and smoke from the same plate, glass and cigar respectively without any idea of contamination from the saliva. Further indiscriminate spitting in and around the house by all the family members enhances chances of polluting food, water and air with infectious germs. Such practices offer vast scope for spreading the disease to other family members also especially among tribals as most of their hutments are single roomed and the same room is used for cooking, sleeping and living purposes.

Their insufficient and illbalanced diets during a considerable part of the year is another causative factor for lack of natural resistance to disease. They waste a considerable part of their income on smoking and drinking denying themselves nutritious food. Though there is no taboo on the

consumption of milk most of the tribals do not consume milk as they believe that it is sinful to deprive the calf its share of milk. Vast seasonal variations in diet and malnutrition for a major part of the year make the tribals less resistant to diseases like T.B.

Since the appearance of the first symptoms of disease, the ignorant tribal patient tries various cures starting from simple household herbal remedies to quack doctors while simultaneously seeking protection and cure from the evils of black magic and angered supernatural powers with the help of witch doctors and priests. Both the quack and witch doctors take advantage of the ignorance and timidity of the tribal patient and prevent him from taking advantage of modern medicine and visit new places for treatment, by making tall claims of curing even those diseases considered incurable by the best modern doctors and promising treatment at a nominal cost in his native village. He prevents the tribal patients from going to modern doctors, by spreading false fears against the efficacy of modern medicine. In the process the innocent patient reaches an incurable stage and the quack and witch doctors escape by attributing the worsening of the illness to the wrath of some ghost or god or to the inability of the patient to properly follow the instructions in performing the magico-religious rites.

The unflinching faith of the tribals in the efficacy of magico-religious practices in the prevention and cure of diseases attributed to the wrath of supernatural powers saps out his already meagre financial resources which could have been usefully diverted for the purchase of the necessary medicines and proper diet. Valuable time is also lost in the process and the tribal seeks modern medical aid as a last resort.

The hold of superstitious and well established unhealthy practices cannot be wiped out over night. However, concerted efforts should be made to minimise the hold of these superstitious and unhealthy practices through persistent propaganda and persuasion of the tribal on the advantages of taking modern medicine at the earliest sign of the disease. Health education is the pre-requisite to make the tribals understand the nature, mode of transmission, and treatment of T.B. The Health Educators, V.L.Ws. and the Sanitary Inspectors in the tribal areas should arrange film shows and talks to inform the tribals about sanitation and preventive measures. Occasions like fairs and shandies where the tribals congregate in large numbers should be utilized for the purpose. Informal talks with tribal leaders and house to house campaign by the health

educators on the need for isolation of the T.B. patients. use of separate vessels for drinking and spitting, giving nutritious food, etc. will be very useful. The tribals should be discouraged from wasting money on black-magic and quack doctors by impressing upon them, that T.B. is a disease that cannot be cured by household remedies and quack doctors. As nutritious food improves the health of the population and increases their resistance to diseases, efforts should be made to evolve cheap and delicious nutritious food with local ingredients keeping an eye on the tastes and delicacies of tribals and popularise them among tribals through extension education.

The Primary Health Centres in the surveyed area are not well equipped and adequately supplied with necessary drugs for the treatment of T.B. cases. Equipment necessary for conducting necessary operations is also lacking. Hence the tribals have to travel long distances, incurring considerable expenses to get modern medical treatment at the Headquarters Hospital. As most of the tribal patients are still shy to visit new places and too poor to afford any expenses; even those patients who were convinced by the Health Workers to visit the P.H.C. often return disappointed, unable to visit the far off hospitals, foregoing their daily wages. This situation comes in the way of attracting the

tribal patients who feel that they cannot get good attention from the P.H.Cs'. Hence the P.H.C's., in the tribal areas may be adequately supplied with drugs and equipment for treating T.B. cases. Separate T.B. wards with arrangements to supply medicines and diet free of cost may be provided in the P.H.Cs' to enable the patients to get proper treatment in their own area.

Due to the machinations of quack doctors and the inhospitable hospitals coupled with ignorance and poverty, patients are discontinuing treatment after some time, making the germ resistant. Hence efforts should be made to supply medicines at the door step for the follow up treatment. The doctors of the mobile medical units should be made responsible both for the initial diagnosis and follow up treatment. The Health visitors may also be made responsible to periodically check whether the patients are taking the drugs regularly. The visits may be utilised for health education also, with a view to change the attitude of the tribals towards modern medicine. When it is necessary for a tribal patient to visit the hospital far away from his home allowance towards transport and daily expenses may be considered by the Tribal Welfare Department or by voluntary agencies.

To facilitate early detection of T.B., all people suffering with lowgrade fever, pain in the chest or spitting of blood should be convinced either by the Village Level Worker or the Health Educator to report to the nearest hospital for check up.

Though there is a mass B.C.G. programme in the District the surveyed village was not yet covered. In view of the high incidence of T.B. a simultaneous programme of B.C.G., along with small-pox vaccination for all the tribals may be taken up by the P.H.C. Similar to small-pox vaccination B.C.G. may also be made compulsory to all the new born tribal children.

The mobile medical units are to be equipped with X-ray equipment to screen the persons on the spot, detect and refer the cases to P.H.C. or the local Headquarters Hospitals. Where the villages are not Zeepeable, mobile teams on bullock carts may check the sputum on the spot with the help of a microscope and advise necessary treatment.

The survey has shown a very high rate of incidence of T.B. compared to the All India average. The tribal areas are isolated for a long time from modern contacts and are free from T.B. in the past. They may therefore be considered as virgin lands



for T.B. and consequently non-resistant to T.B. Besides poor sanitation, poor diet and ignorance are responsible for the high incidence and mortality. These conditions are identical in other tribal areas also. Hence it may be assumed that the tribals as a whole have a high susceptibility to T.B. As the disease is found to attack in the most productive part of tribal life i.e., 21-40, the loss in potential manpower and creative activity is considerable. Hence a concerted drive may be necessary to educate the tribals about social hygiene with special emphasis on the preventive and curative methods of combating T.B.

The socio-cultural practices coupled with poor civic amenities in tribal areas are obviously a cause for the rapid spread of this highly infectious disease. Therefore a comprehensive T.B. eradication programme has to be planned to arrest the further spread of the disease and afford relief and proper treatment to the afflicted.

ANNEXURE-I

TABLE 1.1

INCIDENCE OF T.B. ACCORDING TO SEX AMONG TRIBAL AND  
NON-TRIBAL POPULATION

	Male			Female			Total		
	No.	Aff.	%	No.	Aff.	%	No.	Aff.	%
Tribal	155	10	6.45	163	3	1.84	318	13	4.08
Non-Tribal	31	1	3.22	33	-	-	64	1	1.56
Total	186	11	5.91	196	3	1.53	382	14	3.66

Sex ratio among tribals : 1 : 1.05

Sex ratio in the total population : 1 : 1.05

TABLE - 1.2

INCIDENCE OF T.B. IN VARIOUS AGE-GROUPS

Age-groups	Males			Females		
	No.	Affected with TB	%	No.	Affected with TB	%
0-10	68	Nil	Nil	66	Nil	Nil
11-20	24	Nil	Nil	38	Nil	Nil
21-30	40	3	7.5	42	2	4.76
31-40	27	4	14.81	32	Nil	Nil
41-50	20	1	5.00	13	Nil	Nil
51-60	6	3	50.00	5	1	20.00
61-70	1	Nil	Nil	Nil	Nil	Nil
Total	186	11	5.91	196	3	1.53

TABLE No.2

INCIDENCE OF T.B. AND HOUSEHOLD SANITATION

Type of Household	No.	Aff.	%	Type of Household	No.	Aff.	%
With separate Kitchen.	31	3	9.67	Without separate kitchen	48	8	16.66
Well ventilated.	36	4	11.11	Poorly ventilated.	43	7	16.27
Clean surroundings	48	6	12.50	Unclean surroundings	31	5	16.12

TABLE NO.3

INCIDENCE OF T.B. AND FAMILY TYPES

Type of family	No.	Aff.	%	Type of family.	No.	Aff.	%
Nuclear families	57	5	8.77	Joint families	22	6	27.27
Families constituted of non-consanguineous marriages	23	2	8.69	Families constituted of consanguineous marriages.	72	11	15.27

TABLE NO.4

INCIDENCE OF T.B. AMONG EARNERS AND NON-EARNERS

	No.	Aff.	%
Earning members	276	14	5.07
Non-earning members	106	Nil	Nil

TABLE NO.5

INCIDENCE OF T.B. AMONG LITERATES AND ILLITERATES

	No.	Aff.	%
Literates	65	1	1.53
Illiterates	317	13	4.10

TABLE NO.6

INCIDENCE OF T.B. AMONG SMOKERS AND NON-SMOKERS

	Males			Females			Total		
	No.	Aff	%	No.	Aff	%	No.	Aff	%
Smokers	88	11	12.50	99	3	3.03	187	14	7.49
Non-smokers	98	Nil	Nil	97	Nil	Nil	195	Nil	Nil

TABLE NO.7

ATTITUDE OF THE PEOPLE TOWARDS MODERN MEDICINE

Total No. of households.	Once visited the hospital	%	Twice visited the hospital.	%	Not visited the hospital	%
79	45	56.96	20	25.31	14	17.72

TABLE NO.8.1

T.B. MORTALITY IN THE VILLAGE DURING 1970-71

Population		Deaths	Mortality rate per 1,00,000 susceptible population.
Total	Susceptible		
382	247	3	1214

TABLE NO.8.2

COMPARISION OF MORBIDITY AND MORTALITY RATES

	All India Average	Andhra Pradesh villages	I.Polavaram village
Prevalence rate	1.5%	2.08	5.66
Mortality rate per 1,00,000 population	80-100	N.A.	1214



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