

B: PROGRAMME DEVELOPMENT

087 *Kul Bhushan*: MY EXPERIENCE OF MASS BCG CAMPAIGN
Bull Dev Prev TB 1964, 9, 12-18.

"It was March 1949, BCG Campaign was just being born in India. My initiation into BCG vaccination work, also then took place. Training was given by experts of International Tuberculosis Campaign. I was not alone. There were others with me - doctors, health visitors, clerks and peons. Some were declared unfit. After training, each doctor was made in-charge of a team consisting of two health visitors, a clerk and a peon.

We were allotted different areas for work. Our field of activity included schools, factories, police force etc. We had to visit each place of work thrice: first for the 1 TU tuberculin test, second exactly three days later for reading of 1 TU test and giving 10 TU test and third for vaccination etc. after another interval of 3-4 days. **School Work:** BCG work in the school was very slow and the coverages low - the main reason consent from the parents. One year later an old head master (who had taught me) asked many a searching questions. He insisted on going through the literature. On our next meeting he asked me, 'Do you really want to vaccinate the children'? To an enthusiastic affirmative reply from me, he said 'Then, scrap the consent forms. They arouse unnecessary suspicion. I am convinced that the work you are engaged in is good'. I readily agreed and never used them again. Output of work improved. Soon the consent forms in my state were a thing of the past and gradually in other states too. **Thanks to the venerable old head master - an unknown, unsung, hero of BCG Mass Campaign launched:**

In 1951 we were asked whether BCG vaccination could be extended to general population groups in rural and urban areas. The strength of a team was raised to six technicians. Maps and census books were obtained, vehicles and more vaccination equipment were procured, more cards were printed, the district and tehsil administrations were contacted, the programme was chalked out and the mass BCG campaign was launched. **Changing Beliefs, Attitudes:** In a group of villages no work was possible.

We were at a loss to know the reason. At last we started to persuade a temperamental old woman in one of the villages. After some resistance she blurted out that a health worker had told them that some persons had become dumb and deaf after BCG vaccination. We contacted the person concerned. She had also heard about it from somebody. The information was not reliable.

After discussions she was convinced. She went to all those villages; she made speeches in favour of BCG vaccination; convinced the people and informed us about it. **Need for Publicity:** We soon realised the need for more publicity. Public

address equipment was hired, gramophone records were purchased. Later UNICEF provided the public address equipment, and cinema projectors were also supplied. The expenses were reduced. The publicity was thus built into the programme - for the first time in a health programme in India. The output further improved. As the publicity for BCG increased, the publicity against it also increased. BCG was given the name of 'Birth Control Germs', and likewise many other names. Any intercurrent disease, or an accidental occurrence short of bone fractures, was attributed to BCG. Quiet perseverance and investigations into complaints by the workers, helped BCG to go on, to make strides. **Hard Work:** Entire teams were engaged from early hours of the day till late in the night. The duties were divided. Planning was rationalised. The first BCG manual was born. The organisational, operational and technical pattern of Mass BCG Campaign was established. The strain was less. Till 1952, two tuberculin tests before vaccination remained in vogue. After some trials by World Health Organisation, single tuberculin test was introduced. Absentees occurring at one stage, at least, were avoided. People were spared one prick. Vaccinations increased. **BCG Conferences & Mass Campaign:** Periodical conferences of all State BCG Officers were held. Exchange of experiences, difficulties encountered and methods to solve them were discussed. Mass Campaigns by combined effort of teams from few selected states were arranged in some large cities. Everybody put in his best. Success was tremendous. BCG workers fraternised into a close-knit community. Some workers exchanged ideas by correspondence. All these efforts helped the Campaign.

Experiences in Assessment Team

In 1955, I joined the All India BCG Assessment Team. I saw dedicated workers - busy for 18 hours a day. I came across instances of nervous breakdowns due to overwork and due to frustration. I have known one who slept 16 hours a day and divided the remaining eight hours, judiciously into bits of two hours each between dressing, getting ready for the day's work, sipping tea, meeting friends and taking well earned rest and food! I cannot forget the technician whose woolen suits served as mobile refrigerator for the vaccine; those who walked eight to ten miles a day to cover houses in hilly areas testing small two-digit figures; the **silent workers** and the **boastful ones**. The thought of the officer who dared the drivers to lubricate the piston rings daily in their vehicles amuses one besides another who would not sanction casual leave to the staff on basis of telegrams, because they did not bear stamp mark of the station of their origin! It is a pleasure to recall some of ever smiling radiant faces and I shudder at the thought of those who would not smile for any consideration. All types of people go to make the world and also the BCG Campaign! I had to travel a lot, had the opportunity to see the campaigns in different states. Visits to some states were a thrilling experience.

Campaigns ran smoothly where they were organised in conformity with the manuals laid down by the Central BCG Organisation. It was a pleasure to see systematic coverage of areas, in some of the States. In a district 2 or 3 teams were posted. Teams divided the areas allotted to them into sectors and covered each sector starting from periphery. No area, no village was left. The testing and vaccination coverages were good. In a few other States I was disappointed to see teams transferred from one district to another, leaving vast areas uncovered. As if this was not enough, some easily accessible or less difficult areas were covered over and over again. **Towering successes were followed by great falls** where campaigns were built around personalities rather than on sound organisation. I learnt a lesson - not to be carried away by such fleeting shows. The unfortunate countrywide press controversy on BCG, raging then, did not effect working of a well organised campaign. **Impact of Administration on Work:** It was seen that where reasonable powers for day to day administration were delegated to team leaders the work went on with clockwise regularity. I was impressed by success of campaign in states where staff was satisfied, where relationship between officers and staff was more on human than on dry official levels, where deserving staff could hope for promotions coming their way and where they were paid well. I saw campaigns where staff was drawn from other public health or medical sections - **transferred to BCG as a punishment** for not doing well in their parent sections. They spread the contagion, spoiled the finer workers and made a mess of the campaign. **Technique of Field Work, Supervision:** Practice of making field staff work continuously for 24 days and compensating the Sundays and holidays by one free week in a month, in some states, facilitated the work and kept the **staff satisfied**. During the free week the vehicles were repaired, the supplies replenished, the payments were collected and the staff was enabled to look after the personal and family matters. Why should the work not be satisfactory? In other States for every holiday, the work was not possible for two days, the strain on vehicles was extensive, the breakdowns were frequent, supplies were not sent in time, the work was suspended, staff went on leave frequently, leave was naturally not granted easily and they **felt frustrated**; the results were obvious. I saw a few states where supervisors did not move out of their headquarters for months. Some of them were satisfied if supply lines were maintained. They did not realise that the field organisation had failed; timings of work were not kept and sterilisation was indifferent. They insisted on high outputs, quality of work being no consideration. But in States where supervision was frequent and regular and supervisors knew their job well, the standard of work was well maintained. The outputs were realistic. Problems of field work and difficulties of staff were understood and remedies found. The staff remained satisfied.

Supervision: to a few meant only checking the stock books,

attendance registers and others. Some restricted it to inspecting the concurrent technical and publicity performance in the field. Only very few included examination of procedures of advance desk and field planning, cleanliness of equipment, sterilisation, preservation of biologicals both at camp and field, advance publicity, public relations work done by team leaders and technicians, the working of transport and public address equipment etc. Years rolled by. Many old faces were missed. In some states untrained and unbriefed supervisory staff led to **overall deterioration** of the campaign. Generalisations are dangerous as in **some states matters improved with change of hands**. The campaign were **revitalised**. **Publicity Problem:** While in my native state of Punjab, I used to look at the states having full-fledged staff and organisation for publicity, with envy. But in some states it was a tragic situation. I felt that integrated publicity organisations in my state was a boon in disguise. In some of the have not states, every member of the team played the publicity game. Peons, drivers, technicians, clerks, team leaders and supervisors, all did their bit while in some states even with well provided publicity organisation such things did not happen. The work was the proof of desired effects of good publicity.

House-to-house Vaccination: In 1962, after the introduction of District Tuberculosis Programme (DTP), a house to house pattern of BCG Campaign was evolved. It offered new opportunities to revitalise the aging BCG Campaign. It promised comparatively stabler life to BCG Technicians. The intervention was timely as every one connected with BCG Campaign had realised its potential pitfalls. Human honesty and supervision did work for quite sometime. But, when the demand for the figures increased and the supervision decreased, fragile human honesty slowly gave way, with too obvious a result. In this short period I have seen that in states in which Mass BCG Campaign did not run well, the house-to-house campaign is also meeting similar fate. **Sound organisation and supervision are hallmarks for success of the BCG work** whatever be its pattern. I am hopeful that integration of BCG work with the DTP, may provide more efficient and frequent supervision. **Prevention will then go hand in hand with cure."**

KEY WORDS: MASS BCG CAMPAIGN, EXPERIENCE, MANAGEMENT.

088 V Govindaswamy & D Savic: INTERMITTENT TREATMENT WITH STREPTOMYCIN AND INH IN RURAL AREA
Proceed Natl TB & Chest Dis Workers Conf, Ahmedabad, 1965, 113-28.

There is a wide spread prejudice among the staff of health centres that patients invariably prefer injection and it was felt by many health workers that streptomycin containing

intermittent regimens would be more acceptable to rural patients. A study was carried out to find out the acceptability and applicability of an intermittent supervised drug regimen containing streptomycin 1 gm and INH 650 mgm once a week in a rural area as well as the regularity with which the rural folk took this treatment. Association between the observed regularity and factors like age, sex etc., was also analysed. 107 rural patients of tuberculosis, diagnosed at 5 taluk hospitals in Ananthapur district of Andhra Pradesh on the basis of sputum examination by direct smear and/or X-ray examination with the help of mobile X-rays, consented to treatment with intermittent regimen mentioned above. About half of them were new patients and the rest were old patients who were mostly regular on an earlier oral regimen. 94 of the above were available for analysis.

The regimen was found quite practicable in the sense that at no centre the study was interrupted or discontinued because of the inability of the health centre staff to give injection. If regularity is expressed as a proportion of patients who at any given time had taken the optimal amount of treatment (no. of injections), then 40 patients (42%) were found regular on the intermittent regimen, 36 patients were classified as lost and the remaining had 3 or less injections due and had not yet had the chance to become lost according to the definition adopted. Thus, the regularity of those accepting the regimen was quite low. There was very steep fall in regularity during the first 10 weeks of treatment, nearly a half of the total cases became irregular during the first 6 weeks. Beyond 4 months of treatment, patients who continued to attend centres regularly for treatment became negligible, thus pointing that injection was not a key variable in the treatment regularity of tuberculosis.

KEY WORDS: CASE HOLDING, PHIs, SUPERVISED INTERMITTENT REGIMEN, TREATMENT, CONTROL PROGRAMME.

089 GD Gothi, J O'Rourke & GVJ Baily: SOME OBSERVATIONS ON THE DRUG COMBINATION OF INH+THIACETAZONE UNDER THE CONDITIONS OF DISTRICT TUBERCULOSIS PROGRAMME
Indian J TB 1966, 14, 41-48.

A study was carried out to investigate the applicability of INH-Thiacetazone (TH) combination with special reference to acceptability and toxicity in Tumkur district. 150 patients from Tumkur town and some nearby villages were discovered during a mass case-finding programme. Of them, 127 including 43 sputum positives were given chemotherapy with 300 mgm INH and 150 mgm thiacetazone (TH), in a single tablet to be taken once a day. All but one patient had the treatment on an ambulatory basis. Results of treatment in respect of 103 patients are presented in

the paper.

The overall death rate was of the order of 15%. About twice the number of deaths occurred among the sputum positive patients than among the negative ones. About 40% of deaths occurred during the first quarter. In all, 23 patients developed side effects, in 18 of them thioacetazone had to be withdrawn. Serious side effects occurred among 5 (4%) patients.

These patients did not report to the treatment centre by themselves and could not have been detected, if home visits were not made, thus giving an erroneous impression about side effects with TH. The sputum conversion at the end of one year was of the order of 50% among all survivors. Among those who were drug sensitive and examined at one year, conversion rate was 63%. Favourable radiological response was seen in 74%.

Thus, though cheap and clinically effective, Thioacetazone in combination with INH was found to produce serious and significant side effects. Hence, vigilance by the treatment centres were thought to be necessary when the patients are on this regimen.

KEY WORDS: TH REGIMEN, ADVERSE REACTIONS, APPLICABILITY, ACCEPTABILITY, CASE HOLDING.

090 GD Gothi, James O'Rourke & GVJ Baily: DRUG TOXICITIES OBSERVED AMONGST THE PATIENTS TREATED WITH INH AND THIOACETAZONE UNDER THE CONDITIONS OF DISTRICT TUBERCULOSIS PROGRAMME Proceed 21st Natl TB & Chest Dis Workers Conf, Calcutta 1966, 368-73.

Application of a combined regimen of INH and Thioacetazone (TH) under conditions of District Tuberculosis Programme having become a distinct possibility, the study observed its applicability and toxicity. In all, 127 patients discovered during a mass case-finding investigation were treated in their homes with 300 mgm of INH and 150 mgm of thioacetazone in a single tablet once a day. Close supervision of patients, laboratory or clinical examination to elicit toxic/side effects were not practicable. During their initial motivation, patients were asked to report back in the event of occurrence of unpleasant symptoms. At subsequent drug collection, indirect questioning for side effects was done. An active search for toxicity was also made by the home visiting staff when they visited patients' homes for defaulter retrieval.

In all, 23 patients complained of possible side effects of thioacetazone, of which 5 were major and 18 of minor nature. Among the 5 patients, two had exfoliative dermatitis and three had generalised petechial haemorrhages. All were males above the age of 40 years. All recovered with withdrawal of drugs and

anti-histamines. The minor side effects were giddiness and vomiting. None died of thioacetazone toxicity. It is concluded that TH regimen can be used for mass application on account of therapeutic efficacy and low price but consequences of side effects must be borne in mind while using this drug combination under district programme conditions.

KEY WORDS: CONTROL PROGRAMME, ADVERSE REACTIONS, TH REGIMEN APPLICABILITY.

**091 G V J Baily, D Savic, G D Gothi, V B Naidu & S S Nair: POTENTIAL YIELD OF PULMONARY TUBERCULOSIS BY DIRECT MICROSCOPY OF SPUTUM IN A DISTRICT OF SOUTH INDIA
Bull WHO 1967, 37, 875-92 & Indian J TB 1968, 15, 130-46.**

In the formulation and evolution of a National Tuberculosis Programme some assumptions are made which require to be tested under the normal administrative set up with minimum interference by the investigating team. The objectives of the study were to understand some operational aspects of case-finding in the Peripheral Health Institutions (PHIs) in an integrated programme. First, what is the frequency of persons showing symptoms suggestive of pulmonary tuberculosis among the normal out-patients attendance (OPA), how many cases can be found by direct microscopy of sputum of those symptomatics, what will be the workload of TB case-finding at a PHI and, what proportion of symptomatics will be willing to and will actually attend the District TB Centre (DTC) when referred there for X-ray examination. The study was conducted in a district with a population of 1.5 million having one DTC and 55 PHIs. 15 PHIs were selected on the basis of stratified random sampling. At each PHI an National Tuberculosis Institute (NTI) investigator worked for a period of one month. All new out-patients were questioned for symptoms (non-suggestive and suggestive) and any patient with chest symptoms mainly cough for more than one week fever, chest pain and haemoptysis was subjected to a sputum examination and also referred for X-ray examination at the DTC.

It was found that 381 (2.5%) of the 14881 **total new out-patients** of all age groups complained of cough for 2 weeks and more. From these chest symptomatics, 11% were **new cases** of pulmonary tuberculosis. When the symptomatics were referred for X-ray examination, although 66% agreed to go for X-ray to DTC but only 16% (of the total referred) actually went for X-ray. Each PHI had to examine only one or two sputum specimens per working day. As the study was conducted in a representative sample of PHIs for a representative duration of time, the material permits the estimation of the potential yield of cases in a District TB Programme (DTP) during a period of time (say one year). It was estimated that about **45%** of the **total estimated prevalence cases** in a district can be diagnosed in a

DTP during a period of one year, if all PHIs function according to the programme recommendations. The workload due to tuberculosis case-finding is small and can be managed with the existing staff and case-finding by direct smear examination of sputum at the PHI has to be relied upon.

KEY WORDS: CASE FINDING, CHEST SYMPTOMATICS, PHI, POTENTIAL, WORK LOAD.

**092 LA Simeonov: METHODS OF HEALTH AND MEDICAL RESEARCH
Proceed 24th Natl TB & Chest Dis Workers Conf, Trivandrum, 1969,
315-18.**

The objective of any research is to establish the truth. According to the subject which is being studied here, the following three levels of sciences can be distinguished: (i) The physical sciences which have their objective as non-living in nature. They include Astronomy, Physics, Chemistry etc. Their application in health includes technology of drugs and tools of diagnosis and treatment. (ii) The biological sciences deal with living things including human beings. Medical science represent an application of these sciences to the protection of health and the cure from diseases. (iii) The social sciences which have human society as their objective include Sociology, History, Economics. **Their application to health problems is known as public health.**

All three levels of sciences are linked. Disciplines which are situated on a higher level deal with much more complicated systems than disciplines on a lower level. There is also a difference in the levels of sophistication of the different systems coming within the scope of the same group of sciences. Less sophisticated systems are included in the more sophisticated and represent their sub systems. For instance, **treatment is a sub system of the control of a communicable disease; sputum examination is a sub system of case finding etc.**

Research in health is being done on the basis of data collected by observation of real conditions or in experiments. The design of the experiment depends upon the complexity of the system under observation and on the possibility of observing one or more factors of the system (variables) after isolation or equalization of the other variables or in their full complexity. In the field of physical sciences and technology there are very good possibilities for isolation of all variables except those which are under study. This is done in the simple testing of urine for the content of INH, or in similar tests. In **medicine and biology it is impossible to isolate all variables without introducing bias;** therefore a control group is needed in which all other factors (which are not being studied) are equalized. This is being done in **controlled trials** - laboratory or clinical.

Epidemiologic observations are carried out with different tools; **clinical** (sputum or X-ray examination, tuberculin test); **sociological** (interview); **physical** (measurements), etc. They represent a method which is closer to real life, but they consider only one aspect (sub system) of a community health problem i.e., the trend of the disease - without taking care of all other factors which play a role in the determination of this trend, such as economic and cultural variables, behaviour, health services etc. The **highest level of research** at present represents the **systems analysis** (operations research). This method has as its objective the study of all variables (or "key variables" at least) which are involved in a public health problem. Such a problem is being simulated by a system of functions (model) and "optimized" (solved) by a computer. The use of mathematics is necessary for the application of these four research methods.

KEY WORDS: METHODS, MEDICAL RESEARCH, HEALTH RESEARCH, SYSTEMS ANALYSIS, OPERATIONS RESEARCH.

093 *GD Gothi, D Savic, GVJ Baily & GE Rupert Samuel*: CASES OF PULMONARY TUBERCULOSIS AMONG THE OUT-PATIENTS ATTENDING GENERAL HEALTH INSTITUTIONS IN AN INDIAN CITY
Bull WHO 1970, 43, 35-40.

A study was undertaken in Bangalore city, Karnataka, to find out whether people with chest symptoms, including tuberculosis patients, attend General Health Institutions or report directly to tuberculosis clinics. The objective was to investigate the proportion of persons with chest symptoms (cough, fever, pain in chest and haemoptysis) among out-patients attending the general city dispensaries, and the proportion of pulmonary tuberculosis cases among them. The findings of this study are based on examination of one day's attendance at each of the 19 general dispensaries of Bangalore city, consisting of 2,506 persons aged 10 years or more who had attended the dispensaries for the relief of any ailment. The investigation consisted of symptom questioning, examination of spot sputum sample and 70 mm chest photofluorogram. Sputum specimens were examined by direct smear and culture. Study intake period of 19 days was spread over three months.

The study showed that of the 2506 out patients, 1170 (47%) had visited dispensaries primarily for relief of chest symptoms. Of these, 31 (2%) had evidence of active or probably active pulmonary tuberculosis and 20 (0.8%) were sputum positive cases. It is concluded that even though there are special tuberculosis institutions in the city, a fair number of new and old tuberculosis patients contact general dispensaries. These dispensaries can therefore contribute considerably to

tuberculosis case-finding in the city.

KEY WORDS: CASE FINDING, URBAN HEALTH INSTITUTIONS, SELF REPORTING CHEST SYMPTOMS.

094 GD Gothi, D Savic, GVJ Baily, K Padmanabha Rao, SS Nair & GE Rupert Samuel: COLLECTION AND CONSUMPTION OF SELF-ADMINISTERED ANTI-TUBERCULOSIS DRUGS UNDER PROGRAMME CONDITION Indian J TB 1971, 18, 107-13.

This investigation was to find out the drug consumption among tuberculosis patients put on domiciliary self-administered chemotherapy, in terms of proportion of patients that make various levels of drug collections and proportion among them that consume drugs at different points of time during the course of treatment. In all, 816 tuberculosis patients aged 5 years and above residing in Bangalore city were admitted to the study.

They were randomly divided into 6 groups at the time of inclusion into the study, for examination of urine samples for the presence of INH and PAS. One surprise urine sample was collected from each patient at the pre-determined time after the drug collection. The samples of urine were collected from one group at first month, another at second month, third at fourth month, fourth at sixth month, fifth at ninth month and sixth at twelfth month of treatment. Urine samples were collected within 33 days of drug collection for the month because the drugs were supplied at a time for the said period. Urine specimens were examined for the presence of drugs or their metabolites. For INH, NM test & acetyl INH test and for PAS, ferriechloride and case test were performed. The drug collection was judged on the basis of treatment record and its consumption on the basis of results of urine examination.

Of the total patients included in the study, 54% made 10 or more drug collections over a period of 15 months. The initial radiological or bacteriological status or severity of disease did not influence the drug collection; however smaller proportion of old persons in both sexes collected the drugs for 10 months or more. Urine specimens of 71% of patients who had collected drugs were positive for INH on any one day. Bacteriological quiescence was obtained among the 82% INH sensitive patients who had made 10 or more collections. The above findings suggest that the **patients who collect drugs also consume with fair amount of regularity and achieve a high degree of bacteriological quiescence.**

KEY WORDS: SELF-ADMINISTERED REGIMEN, DRUG COLLECTION LEVEL, DRUG CONSUMPTION, CONTROL PROGRAMME, COMPLIANCE.

095 GVJ Baily, GE Rupert Samuel & DR Nagpaul: A CONCURRENT COMPARISON OF AN UNSUPERVISED SELF-ADMINISTERED DAILY REGIMEN AND A FULLY SUPERVISED TWICE WEEKLY REGIMEN OF CHEMOTHERAPY IN A ROUTINE OUT-PATIENT TREATMENT PROGRAMME
Indian J TB 1974, 21, 152-67.

The relative merits of a fully supervised twice weekly regimen of Streptomycin and INH (SHtW) and an unsupervised daily regimen of INH and Thioacetazone (TH) in routine programme conditions in an urban area are compared in terms of acceptability and response to treatment at one year. Of the 474 newly diagnosed sputum positive cases at Lady Willingdon TB Demonstration & Training Centre, Bangalore during 1968-69, 134 were allocated to SHtW regimen and 189 to TH regimen. All others who were unwilling to take the allocated regimen or were excretors of bacilli resistant to INH and or SM were analysed as a subsidiary group.

About 25% of the patients allocated to SHtW regimen expressed unwillingness to start treatment on account of unsuitability of working hours and or distance. Refusal to TH regimen was negligible (5%). As regards drug acceptability after start of treatment, while the duration of treatment taken was similar for both the regimens, the level of drug intake achieved by the SHtW patients was lower compared with TH patients i.e., 31.3% of the SHtW patients and 56.1% of TH patients took more than 80% of treatment. If concealed irregularity among TH patients is taken into consideration, it is likely that the drug intake among TH patients would be similar to the drug intake among SHtW patients. The acceptability was therefore almost similar among SHtW and TH patients. Very low level (28%) of treatment completion was achieved by SHtW patients. With TH regimen, 46% had made 10 or more monthly collections during 12 months. Among the SHtW patients there was greater irregularity in the later months which was not apparent among TH patients. However, the favourable response among patients on SHtW and on TH regimen was **68%** and **60%** respectively. **Deaths** among SHtW patients were **4%**, 13.5% among TH patients, the difference being statistically significant. The response was directly related to the level of drug collection or supervised consumption. The large proportion of the patients who stopped treatment prematurely, continued to remain positive with drug sensitive organisms, if initially they were so. In the subsidiary group there were **62 patients** who were excretors of **drug resistant** organisms. They were treated with drugs to which their organisms were resistant and nearly **30% of these patients** had **negative culture** at the end of one year.

It is concluded that (i) SHtW regimen was superior to TH as it prevented deaths and showed better bacteriological conversion among patients with level 3 & 4 of treatment and (ii) treatment organization is the most important factor in obtaining better

results in routine chemotherapy with available drug regimens.

KEY WORDS: TH REGIMEN, DAILY REGIMEN, SUPERVISED INTERMITTENT REGIMEN, ACCEPTABILITY, EFFICACY, CONTROL PROGRAMME.

096 MA Seetha, GE Rupert Samuel & VB Naidu: A STUDY OF SOME OPERATIONAL ASPECTS OF TREATMENT CARDS IN A DISTRICT TUBERCULOSIS PROGRAMME

Indian J TB 1976, 23, 90-97.

The paper presents some aspects of domiciliary management of tuberculosis patients in a District Tuberculosis Programme (DTP) viz., the interval between diagnosis and initiation of treatment, regularity in collection of drugs, role of motivation of patients for collection of drugs and pattern of defaulter retrieval actions by health institutions. The treatment cards of 3089 patients of pulmonary tuberculosis belonging to Bangalore DTP diagnosed during 1964 were analysed. The cohort of 2479 patients was divided into 3 groups according to the place of treatment, viz., (i) those treated at District Tuberculosis Centre (DTC) where better trained staff motivated tuberculosis patients & took defaulter actions (ii) the Urban Peripheral Health Institutions (UPHIs) where motivation and defaulter actions were taken by specialised staff and (iii) rural PHIs where non specialised general health workers along with general duties did motivation and took defaulter actions.

The study has shown that in the entire district about 94% of patients were put on treatment within 10 days of diagnosis. In rural PHIs, among 14.5% of patients the treatment was started after 10 days of diagnosis. For the 149 initial defaulter patients, actions were taken only for 39% of the patients, lowest being in rural PHIs (10.8%). The defaulter actions for 69% were taken in time, more promptly by DTC staff for DTC & UPHI i.e. 71.5%, whereas rural PHIs were poor in this respect and only 37.5% of the actions were taken on time. Sputum positive cases collected drugs more often than sputum negative and also more patients collected drugs on due dates at DTC in comparison with PHIs. Both the differences were statistically significant.

About **one third** of the **lost patients** came from those who made the first default. About 55-63% and 75-82% of this group defaulted by the second and third collections respectively. Defaulter actions were not taken by rural PHIs for 66.7 to 72.5% defaults, while DTC staff had not taken defaulter action for about 20% of defaulters and 67.8% of such actions were prompt in DTC, whereas it was only 19.3% in rural PHIs.

KEY WORDS: COHORT ANALYSIS, COMPLIANCE, CONTROL PROGRAMME, OPERATIONAL FACTORS.

097 Radha Narayan: LONG TERM SOCIOLOGICAL FOLLOW UP OF SYMPTOM RECURRENCE AND ACTION TAKEN BY TUBERCULOSIS PATIENTS
Indian J Prev & Soc Med 1978, 9, 85-91.

Case finding and treatment activities in the National Tuberculosis Programme (NTP) are mainly dependent on self reporting chest symptomatics. It was of main interest to find out that patients who report to the health institutions due to suffering remain symptom free later on or there is a recurrence of symptoms among sputum positive patients during 14 intervening years i.e., from 1961-1974. The follow up was carried out in 1974, in spite of such a long interval, information from 20.3% of the patients including dead was collected.

At the time of diagnosis in 1961 at LWC, 91.6% of patients had symptoms. During the total period from 1961 to the time of interview 7-16% had recurrence during each of the intervening years. Recall was possible because majority of them have taken action. But at the time of interview **29.7% reported to be having symptoms**, of them nearly half had symptoms for more than 6 months. It is likely that during preceding years also there might have been a higher percentage of symptoms but the recall was poor. Considering the total duration of symptoms, 52% had experienced symptoms for more than 6 months.

KEY WORDS: SYMPTOMS, RECALL, CONTROL PROGRAMME, FELT NEED, ACTION TAKING.

098 Aneja KS, Gothi GD and GE Rupert Samuel: CONTROLLED STUDY OF THE EFFECT OF SPECIFIC TREATMENT ON BACTERIOLOGICAL STATUS OF "SUSPECT CASES"
Indian J TB 1979, 26, 50-61.

The effect of specific anti TB drugs on patients having smear negative radiologically positive pulmonary tuberculosis (suspect cases), was studied in Lady Willingdon Tuberculosis Demonstration & Training Centre (LWTDTC), Bangalore during 1975 & 1976. The main objective was to know the proportion of suspect cases treated under the programme requiring the specific treatment with anti TB drugs. A total of 457 suspect cases were randomly allocated to one of the two regimens; 228 patients were treated with INH + Thioacetazone (TH) and 229 with calcium gluconate (Placebo) regimens, for one year. The placebo group allowed a concurrent comparison of status of suspect cases without any specific treatment. After the intake, sputum examination by direct smear, culture for M.tuberculosis and sensitivity for drugs as well as X-ray examinations were carried out at 0, 2nd, 4th, 6th, 9th and 12th month of treatment.

Among the 228 patients on TH, 103 (45.2%) were real suspect cases, 83 (36.4%) sputum positive and remaining 42 non tubercular. Similarly, out of the 229 patients on placebo regimen, 110 (48%) were real suspect cases, 61 (26.5%) sputum positive and 58 non tubercular. The effect of treatment was measured by observing the incidence of bacteriologically positive or radiologically active disease from among the **real suspect cases** of the two groups. At the end of the treatment period, **12.6% of TH group** and **29.7% of placebo group** were **broken down**, the difference being statistically significant. Further, an element of self healing was also observed, as about 40% of patients in placebo group showed either clearance of lesions or continuing regression which could be due to self healing or the lesion being non tubercular in nature. About 30% of the 457 patients at the start of the study were real cases of tuberculosis who under the programme were missed and 20% broke down with bacteriological positive or progress to radiologically active disease when treatment was not offered. Thus, nearly 50% of the suspect cases diagnosed in the programme required anti TB treatment and for those requiring treatment, perhaps TH is not sufficient, as 12.6% broke down in spite of treatment. It would be appropriate to treat suspect cases both from the clinical and epidemiological point of view after taking due precautions to remove non tubercular cases by doing repeat sputum examination.

KEY WORDS: CONTROL STUDY, SUSPECT CASE, TH REGIMEN, EFFICACY.

**099 MA Seetha, N Srikantaramu & Hardan Singh: ACCEPTABILITY OF BCG VACCINATION AMONG RURAL COMMUNITY
Indian J Prev & Soc Med 1980, 2, 57-63.**

A study on acceptability of BCG vaccination, through specialised technicians in a population of 8350 residing in 8 villages of Channapatna taluk of Bangalore district, was carried out by National Tuberculosis Institute. Of the 1106 households satisfactorily interviewed, 956 (86.4%) had at least one child eligible for vaccination. For the purpose of analysis they were classified into three groups. **Group I** consisted of 312 (32.6%) households in which all children were vaccinated, **Group II** 270 (28.2%) where none of the children were vaccinated and **Group III** 374 (39.2%) households where only some of their children were vaccinated. Overall vaccination coverage was 52.7% with a range of 33.9% to 79.3%.

The reasons for refusing vaccination were studied. The caste, occupation, education etc., of the household did not have any influence on the refusals. When analysed according to the knowledge and opinion about vaccination it was observed that 55.9% of the children were not vaccinated because of the lack of knowledge in the group where no child was vaccinated. Even when 42% had favourable opinion about vaccination, 52% of the

households did not vaccinate any of their children. The refusals were mainly due to (i) absence from the village on the day of vaccination, (ii) fear of prick. Among households where there was unfavourable opinion, all had refused due to fear. The reasons for accepting BCG vaccination were (i) the vaccination was done in the school and hence there was no option for the parents to accept or refuse, (ii) parents felt that the vaccination was good for children, (iii) parents knew that it would prevent TB.

KEY WORDS: BCG VACCINATION, ACCEPTABILITY, RURAL COMMUNITY.

100 *KS Aneja, MA Seetha, Hardan Singh & V Leela:* INFLUENCE OF INITIAL MOTIVATION ON TREATMENT OF TUBERCULOSIS PATIENTS
Indian J TB 1980, 27, 123-29.

The effect of initial motivation on pulmonary tuberculosis patients in terms of regularity of drug collection and pattern of default for three months was studied at Lady Willingdon Tuberculosis Demonstration & Training Centre (LWTDTC), by adopting three different schedules of motivation (i) motivation as per routine procedures of District Tuberculosis Programme (ii) issue of simple brief instructions only and (iii) motivation with reduced contents and with change in sequence of points. The patients without history of previous treatment were randomly allocated to these 3 groups. All the three groups were similar in respect of age and sex composition, sputum status, extent of disease, duration of symptoms, education level and the distance that the patient had to travel for collection of drugs. However, there were more housewives in Group II.

The findings of the investigations were: Of the 139 patients in **Group I, 49.6%**, of the 126 in **Group II, 46.7%** and of the 142 in **Group III, 47.2%**, had made all the three collections.

On the whole different schedules of motivation did not significantly affect the behaviour of the patients in making all the three monthly collections. However, patients in Group II with simple instructions were more regular and made less number of defaults. There was also a suggestion that sputum negative patients required more than mere instructions. The best response in such cases was in Group III, wherein motivation was neither very elaborate nor very brief and in which sequence of points was so arranged that stress on important points was laid early enough to remain within the recalling memory of the patients.

KEY WORDS: CONTROL PROGRAMME, TREATMENT COMPLETION, INITIAL MOTIVATION, SUSPECT CASE, CASE.

101 *MA Seetha, N Srikantaramu, KS Aneja & Hardan Singh:*

INFLUENCE OF MOTIVATION OF PATIENTS AND THEIR FAMILY MEMBERS ON
THE DRUG COLLECTION BY PATIENTS

Indian J TB 1981, 28, 182-90.

A controlled study was conducted at Lady Willingdon Tuberculosis Demonstration and Training Centre (LWTDTC), Bangalore among 250 patients randomly selected urban patients of pulmonary tuberculosis of whom 155 were in the '**motivation**' group and 95 were in the '**control**' group. In the motivation group, patients were interviewed by National Tuberculosis Institute health visitor and motivated by LWC staff; a month of drugs (TH) were given. Within 3 days of initiation of treatment they were motivated along with their household members during home visit by NTI staff every month for a period of three months. Control group patients were motivated at the clinic as per the programme guidelines.

In the motivation group, **59.9%** of patients had made all the three collections during the first three months compared to **27.8%** in the 'control' group. During the remaining months also the drug collection was 47% and 35.6% respectively. The drug collection pattern among the patients in the motivation group was found to be better than among the patients in control group who did not have the benefit of home visiting. Sputum conversion was also found accordingly better among the motivation group as compared to control group.

KEY WORDS: COMPLIANCE, FAMILY MOTIVATION, CONTROL PROGRAMME, TREATMENT COMPLETION.

102 KS Aneja & VV Krishna Murthy: INFLUENCE OF TRAINING VARIATION IN CASE-FINDING AT PERIPHERAL HEALTH INSTITUTIONS IN DISTRICT TUBERCULOSIS PROGRAMME

NTI Newsletter 1982, 19, 22-28.

An operational study to understand the influence of training of Peripheral Health Institution (PHI) Medical Officers (MOs) at District Tuberculosis Centre (DTC) in comparison to **on the job training** in their own PHIs in carrying out case-finding activity, was carried out in districts of Mysore, Mandya, Bellary and Hassan of Karnataka State in 1980-81. These districts are now being referred as **I, II, III and IV** respectively. From each district, 20 Microscopy Centres (MCs) were selected. All the selected MCs of the above four districts after stratified random allocation were divided into two groups, i.e., A & B. **The MOs of Group A** of each district were trained for 2 days in case finding activity at the respective DTCs by District Tuberculosis Officer and District Health Officer, while the **MOs of Group B** were given on the job training as per manual.

In all, 108 MOs: 52 in Group A and 56 in Group B were under study. The performance of each PHI was monitored in terms of

number of new Out-patient Attendance, selection of chest symptomatics for sputum examination and number of smear positive cases detected, for a period of 12 months after the training.

At the end of one year it was observed that there was a **boosting in case detection in districts I and III**, no effect in district II and negative effect in district IV. The efficiency in districts I and III was higher by methodology A. It was enhanced from 7.6% pre-training efficiency to 16.7% after training and in district III, 18% to 65.8%. The enhancement with methodology B was from 5.5% to 8.1% in district I and from 19.1% to 43.2% in district III. The average increase by amalgamating all the four districts was from 8.5% to 17.8% with methodology A and from 9.7% to 12.3% with methodology B. There was a suggestion of better improvement through methodology A, which, however, did not attain statistical significance.

In the districts under study, case finding was at a very low ebb. Systematic training by either of the two methodologies, did improve the activity in I and II i.e., in two of the four districts. In districts II and IV other variables might also have been at work e.g., training variables of knowledge, skill and communication abilities of DTOs who were trainers could have influenced the outcome.

KEY WORDS: CONTROL PROGRAMME, CASE FINDING, TRAINING METHODOLOGY, PHIs.

103 P Jagota: SHORT COURSE CHEMOTHERAPY OF TUBERCULOSIS - PROCEDURAL STRATEGIES IN DISTRICT TUBERCULOSIS PROGRAMME NTI Newsletter 1982, 19, 95-102.

In the wake of implementation of Short Course Chemotherapy (SCC) in the programme, some of the organizational aspects of SCC as observed in a clinical trial at the Lady Willingdon State TB Centre (LWSTC), Bangalore vis-a-vis to those recommended in the programme were evaluated. The efficacy of 3 SCC regimens of 3-5 months duration under clinical trial were studied among 381 patients. The efforts and the resources employed to achieve the results in the trial are compared with that of those recommended in the District TB Programme (DTP).

It is observed that there is a wide gap between the **clinical trial and the programme in organisational efforts and resources**. Although the trials cannot act as a model, if benefits associated with the SCC are to be availed, extra staff and transport for home visiting should be provided. The aspects of the organisation which need strengthening are motivation, timely defaulter action (preferably on the same day mainly as home visit) and efficient management of large number of patients attending the clinic for supervised drug administration, adverse

reaction etc., before recommending the use of SCC in the DTP.

KEY WORDS: SCC, CONTROL PROGRAMME, CLINICAL TRIAL, RESOURCES.

104 *KS Aneja & GE Rupert Samuel*: ORGANIZATIONAL EFFORT IN A CLINICAL TRIAL AND ITS RELEVANCE TO APPLICABILITY OF SHORT-COURSE CHEMOTHERAPY IN NATIONAL TUBERCULOSIS PROGRAMME
Indian J TB 1982, 29, 19-28.

The high rate of treatment completion and the regularity of drug intake achieved in clinical trials of Short Course Chemotherapy (SCC), could possibly be attributed to efficient organizational set-up, careful selection of cases and all-out effort to control defaulters. The organizational effort put forth to achieve the regularity is relevant to the applicability of SCC in the existing set-up of District Tuberculosis Centres (DTCs) under National Tuberculosis Programme (NTP). First 300 patients admitted to SCC trial to assess the efficacy of three drug regimens of 3/5 months duration under fully supervised conditions, carried out jointly by National Tuberculosis Research Centre, Madras and National Tuberculosis Institute (NTI), Bangalore, have been analysed for the purpose.

To keep up the regularity, 1/3rd of the patients required home visits - some of them repeatedly. If the actions of the same intensity of defaulter retrieval in the form of home visiting are envisaged to be taken in a DTC with the normal working pattern catering to 500 patients, 250 to 300 home visits will have to be made in a month. This may not be feasible in the existing set-up of NTP. A new strategy of defaulter retrieval actions for programme conditions may have to be devised. Further, selection of drug regimen which has the maximum potential of being given on self-administered basis may reduce the work-load to a considerable extent. Drug toxicity, side effects and the cost of drugs may not be major handicaps. However, the only way to understand various operational problems is to undertake scientific operational studies in actual working conditions of NTP.

KEY WORDS: SCC, APPLICABILITY, CLINICAL TRIAL, COMPLIANCE, CONTROL PROGRAMME.

105 *Radha Narayan, A Jones, S Prabhakar & N Srikantaramu*: A STUDY OF TUBERCULOSIS SERVICES AS A COMPONENT OF PRIMARY HEALTH CARE
Indian J TB 1983, 30, 69-73.

During last two decades, the health care delivery system has undergone several changes. The implementation of the concept of **Primary Health Care** and of the Multi Purpose Health

Workers (MPWs) Scheme can be utilised to improve both case finding and case holding activities of the District Tuberculosis Programme. A study was undertaken by National Tuberculosis Institute (NTI) to obtain a profile of work of MPWs, observe their work on time and motion analogy and to ascertain output of tuberculosis services and other works. The study was carried out in a contiguous area of 6 PHCs of a district. The work of 16 MPWs was observed by a Social Investigator of NTI who accompanied them during a day's work; one month period was selected as reference period. 160 MPWs were asked to give details of their activities through self administered questionnaire and records of the six PHCs were studied in terms of output of the services.

On an average a MPW travelled 15 kms, spent 4 hours in the village, visited 70 homes; Of them, 25% were locked. The time spent on different activities during home visits were 34% for minor ailments, 26% on malaria, 12% on family welfare and 11% on tuberculosis. Profile of activities carried out on a randomised day were, 77.5% did not perform any anti tuberculosis activities. Those who did anti tuberculosis work identified 4 symptomatics, prepared two smears and followed up 13 patients. The highest performance was with regard to Family Welfare (68%) and treatment of ailments (64%). As per the opinion of MPWs tuberculosis was 7th, 8th and 9th rank, malaria was 1st and 3rd and family welfare was 1st and 2nd. As per the actual output of work from the PHC records, anti malaria (70%) and minor treatment had the maximum performance and family welfare averaged, as only 35 of the eligible couples were registered. Findings suggest that tuberculosis was given lower priority in terms of all the three points i.e., actual performance, profile of work of MPW, actual day's work of MPW and diverse health activities among rural population. Integration of tuberculosis at periphery needs more important considerations.

KEY WORDS: CONTROL PROGRAMME, PRIMARY HEALTH CARE, HEALTH WORKER, INTEGRATION.

106 KS Aneja, P Chandrasekhar, MA Seetha, VC Shanmuganandan & GE Rupert Samuel: ACTIVE CASE FINDING IN TUBERCULOSIS AS A COMPONENT OF PRIMARY HEALTH CARE
Indian J TB 1984, 31, 65-73.

Feasibility of introducing limited **active case-finding** in tuberculosis involving **Multi-purpose Health Workers** (HWs) to supplement the existing methodology of detecting the cases through chest symptomatics attending Peripheral Health Institutions (PHIs) on their own, was studied earlier with encouraging results. The present study was undertaken to understand the existing working system of HWs and within that the priority areas of input which may lead to better case yield.

The study revealed that the population available at any beat schedule of HWs was about 42% of the eligible population of age 20 years and above. Only **60-75% of the field days were utilized for routine multi-purpose duties.** Of the total area, **25% to 40% remained uncovered.** The effective tuberculosis work was done only on **5% of the beat schedule days** and the work was not uniformly spread throughout the month. Even so, the contribution by HWs was **twice the number of cases diagnosed at PHIs** under study in one year. Had the HWs covered the entire area of their beat schedule, 80 against 26 cases would have been diagnosed. Moreover, there is possibility of detecting more cases among the elderly patients who normally do not attend their area health centres. However, the success depends upon meticulous supervision and regular flow of supplies.

KEY WORDS: HEALTH WORKER, PRIMARY HEALTH CARE, CONTROL PROGRAMME, CASE FINDING, RURAL COMMUNITY.

107 Tuberculosis Research Centre, Madras and National Tuberculosis Institute, Bangalore: A CONTROLLED CLINICAL TRIAL OF 3 AND 5 MONTH REGIMENS IN THE TREATMENT OF SPUTUM POSITIVE PULMONARY TUBERCULOSIS IN SOUTH INDIA
Ame Rev Respir Dis 1986, 134, 27-33.

A controlled clinical trial of the three Short Course Chemotherapy (SCC) regimens was carried out at the Lady Willingdon State Tuberculosis Centre, Bangalore and Tuberculosis Research Centre, Madras with the collaboration of National Tuberculosis Institute, Bangalore. The regimens were (1) R₃: (rifampicin, streptomycin, isoniazid and pyrazinamide daily for 3 months (3RSHZ); (2) R₅: same as regimen R₃, followed by streptomycin, isoniazid, pyrazinamide twice weekly for 2 months (3RSHZ/2S₂H₂Z₂); (3) Z₅: same as regimen R₅ but without rifampicin (3SHZ/2S₂H₂Z₂). Newly diagnosed tuberculosis patients who were aged 12 years or more had no history of previous treatment and two sputum cultures positive for M.tuberculosis were taken to the study and allocated at random to one of the above stated three regimens. The patients were given supervised chemotherapy as out patients. Sputum specimens were examined by fluorescent microscopy, culture by modified Petroff's method, tested for sensitivity to INH, rifampicin, streptomycin and ethambutol. The follow up was done by sputum smear and culture examination at the end of every month for 2 years. The distribution of various pre treatment characteristics like age, sex, and initial sensitivity status were similar in the three series. At the end of 3 months, of the 455 patients on R₃, and R₅ series, 96% with drug sensitive organism became culture negative and of 235 on Z₅ series 93% became culture negative. For R₅ and Z₅ series favourable response at the end of chemotherapy were 96%, 99% and

97% respectively. In all, 6 patients (3 R₃ & 3 Z₅) were classified as having unfavourable response. At the end of 24th month from the date of start of treatment, 20% of the 200 patients on R₃, 4% of 187 patients on R₅ and 13% of 199 patients on Z₅ had bacteriological relapse. The difference between R₃ and Z₅ series was highly significant. (p = 0.00001). The relapse rates in R₃ & Z₅ series were significantly higher than that in R₅. Of the 57 patients with initial drug resistance organisms in R₃ and R₅ series combined 4 had an unfavourable response to treatment compared with 13 of 26 in the Z₅ series (p = 0.0001). Of the 4 patients with an unfavourable response in R₃ and R₅ series combined, resistance to rifampicin emerged in 2 patients. Complaints of arthralgia were made by 45% of the R₃ and R₅ patients combined and 70% of Z₅ patients (p = 0.00001). However, chemotherapy was modified in only 5 and 12% respectively. Jaundice occurred in 7% of the R₃ and R₅ patients and 1% of the Z₅ patients (p = 0.0001).

KEY WORDS: SCC REGIMEN, DAILY REGIMEN, CLINICAL TRIAL, EFFICACY, ADVERSE REACTIONS.

108 *Sudha Xirasagar, P Jagota, N Parimala & K Chaudhuri*: A STUDY ON ADVERSE DRUG REACTIONS IN TWO REGIMENS OF SHORT COURSE CHEMOTHERAPY

NTI Newsletter 1989, 25, 51-60.

In a study of feasibility of treatment of smear positive patients with Short Course Chemotherapy (SCC) regimens under District TB Programme (DTP) conditions in a city, adverse drug reactions in terms of frequency of episodes, incidence in the cohort of patients, time of occurrence, major adverse reactions requiring modification of chemotherapy and or symptomatic treatment, were investigated.

Patients were allocated to one of the two 8 month SCC regimens i.e., Regimen 'A' 1 SHRZ/6TH, Regimen 'B' 2SHR/6TH. Overall incidence of adverse drug reaction in cohort of 265 patients was 37%, 9% of which were considered as major in nature. 34 episodes of such reactions resulted in modification of chemotherapy in 15 patients during intensive phase. Though gastro intestinal symptoms were predominant, cutaneous toxicity was the pre eminent cause of modification of regimen. No case of exfoliative dermatitis occurred. A total of 333 episodes of adverse drug reactions of minor nature occurred; 50% being gastro intestinal symptoms followed by cutaneous symptoms. More than 70% of all adverse drug reactions of intensive phase occurred in the first half of the period. There was no significant difference between the two regimens in the incidence of adverse drug reactions of either major or minor in nature.

SCC is being implemented in a phased manner in the DTP.

Before introducing SCC in large number of districts, it would be prudent to find out whether SCC would be acceptable to both doctor and patient in terms of adverse drug reactions.

It can, therefore, be concluded that adverse reactions may not be a major constraint for inclusion of SCC under DTP for treating sputum positive tuberculosis patients provided that additional resources and man power are allocated to the DTCs to manage patients in the centre and extend effective guidance to staff working in peripheral centres.

KEY WORDS: SCC REGIMEN, DAILY REGIMEN, ADVERSE REACTIONS, CONTROL PROGRAMME, FEASIBILITY.

**109 P Jagota, B Mahadev, BT Uke & KL Vasudeva Rao: STUDY OF CAMPS FOR EXAMINING SPUTUM OF CHEST SYMPTOMATICS ATTENDING OUTPATIENTS OF PERIPHERAL HEALTH INSTITUTIONS
Indian J TB 1989, 36, 27-30.**

A study was designed to evaluate the outcome of holding sputum camps. The chest symptomatics referred by Peripheral Health Institutions (PHIs) to the camp were compared in terms of proportion of chest symptomatics registered and number of cases found with routine case finding actually carried out in the PHIs of an average District Tuberculosis Programme (DTP) and any educative effect of camp on the PHI staff. The study was carried out in 15 PHIs with wide range of performances in case finding. A team consisting of Medical Officer (MO), Treatment Organiser and Laboratory Technician of National TB Institute conducted sputum camps by involving the local staff and MOs of PHIs. The MOs of PHIs registered all the eligible symptomatics from the daily outpatients for a period of one month before the due date of the camp. The sputum was collected, slides prepared and patients advised to come on the camp date. A total of 528 chest symptomatics who reported at the PHIs during camp month were registered. Of them, 380 patients' sputum smears were prepared and 25 were found positive. Of the 528 symptomatics referred to the camp, only 86 (16.3%) actually turned up and 4 (16%) were positive. Prior to the sputum camp, 54 smear positive cases were diagnosed by these centres in 6 months. In the subsequent 6 months, 112 cases were diagnosed.

The study clearly shows that the efficacy of case finding by the sputum camp method is very low in comparison with integrated case finding at PHIs. More than 80% of the cases were missed by the camp by way of loss due to referral on the camp day. However, there was significant increase in the total number of cases diagnosed during 6 months after the camp, in comparison to 6 months prior to camp, thus, indicating the educative effect of the camp on the PHI MOs. The integrated sustained case finding activity in the PHIs cannot be

substituted with the periodic case finding camps or holding of 'specialised clinics'.

KEY WORDS: CHEST SYMPTOMATICS, SPUTUM CAMP, PHIs, CASE FINDING, REFERRAL.

110 P Jagota, Sudha Xirasagar, N Parimala & K Chaudhuri: A STUDY OF OPERATIONAL FACTORS INFLUENCING THE APPLICABILITY OF TWO REGIMENS OF SHORT COURSE CHEMOTHERAPY UNDER CONDITIONS OF AN URBAN TUBERCULOSIS PROGRAMME
Indian J TB 1989, 36, 213-23.

An operational study of two regimens of Short Course Chemotherapy (SCC) to assess their efficacy under programme conditions, applicability and feasibility in District TB Programme (DTP) was undertaken in an urban TB centre. The two regimens studied were 1SHRZ/7TH and 2SHR/6TH. Their operational efficacy (efficiency) was found to be 87% and 92% respectively which had already been reported in an earlier paper. The various factors i.e., initial willingness, drug default, treatment completion pattern, adverse drug reactions and initial drug resistance with their potential harmful effects on the treatment outcome as well as work load and extra cost these regimens entail for DTP organisation are discussed in this paper.

Out of a total of 1822 smear positive patients diagnosed at the Lady Willingdon State TB Centre during intake period (Feb '84 to March '85), 1126 were residents of Bangalore City. Of these 695 (61.7%) were unwilling to attend the clinic daily for 2 months, 27 were unfit and one was excluded by mistake. Thus, 403 (38.3%) initially willing patients were classified either as 'core group' or 'Non-core group', according to the history of previous anti TB treatment (321 and 82 respectively). Of the 695 (77.6%) unwilling persons, majority were those who pleaded inability to attend daily for 2 months without specifying any particular reason. Refusal of SCC due to injections accounted for 12.8% and 9.5% wanted to take treatment elsewhere. Old age influenced willingness adversely.

Of the 321 patients in the core group, 56 were excluded due to missing more than 50% of intensive phase doses. Among the remaining patients, 61 (48%) out of 127 patients on Regimen A and 48 (34%) out of 138 on Regimen B, did not make a single default in the intensive phase. Of the total 910 defaults for which actions were taken, 640 (70%) were **retrieved by letter writing**, among the remaining 293 (72%) were **retrieved by home visiting**. Main reasons for default elicited during home visits were: going out of station (52.9%) followed by patients being busy with work (19.1%). Compensatory phase was availed by 156 of the 265 patients who missed one or more doses due to default in

the treatment. The pattern of treatment completion of 321 core group patients in the two regimens were similar i.e., in both the phases 65% for Regimen A and 63% for Regimen B. Incidence of minor adverse reactions was 28% and major toxic reactions were experienced by 8.4% of patients. Workload for treating 321 patients was due to supervised administration of drug - 45 patients per day. Letter writing to 3.1 per patients, home visiting 1.1 per patient and doctor's attention for adverse reaction 2 occasions per patient. This could be managed with the existing staff. The cost of Regimen A was Rs.220/- per patient and for Regimen B, 268/- per patient. Cost to patient for transportation was Rs.70/- and Rs.113/- for Regimen A and B respectively.

The major disturbing finding of the study was initial low acceptability of about 40% for SCC. The home visiting which was crucial in increasing the completion rate in this study is usually not available in most of the DTCs. Workload, adverse reactions etc. were not of any problem for implementation of SCC in the programme.

KEY WORDS: SCC, DAILY REGIMEN, OPERATIONAL FACTORS, APPLICABILITY, CONTROL PROGRAMME.

**111 P Jagota, TR Sreenivas, N Parimala & K Chaudhuri: THE FATE OF RESISTANT CASES TREATED WITH THREE DIFFERENT DRUG REGIMENS OF SHORT COURSE CHEMOTHERAPY UNDER PROGRAMME CONDITIONS
Indian J TB 1990, 37, 83-87.**

The fate of patients with isoniazid (H) resistant pulmonary tuberculosis, treated with 3 different Short Course Chemotherapy regimens (Regimen A - 1 SHRZ/7TH, Regimen B - 2SHR/6TH, Regimen C - 2EHR/4H₂R₂) was examined in two sequential studies. One hundred H resistant patients belonging to two groups - one without history of previous treatment (core group) and second with history of previous treatment 15 days (non-core group), were followed up at the end of 12th, 15th and 24th/36th month of chemotherapy. Bacteriological favourable response among patients in the core group at the end of chemotherapy with Regimen A, B and C were 65.2% of 23 patients, 50% of 18 patients, and 57.1% of 18 patients respectively. The response among patients in the non-core group were 27.3% with Regimen A and 52.6% with Regimen B.

At the end of 24/36th month of chemotherapy, 62.5% patients in the core group and 2 out of 7 in the non core group on regimen A and 68.7% patients on regimen C in the core group and 5 out of 15 in the core group and 41.7% in the non core group on regimen B were culture negative. The relapses were significantly high in regimen B & C in comparison with regimen A. Thus, of the total 100 patients, 99.3% were eligible for

examination (1 died during chemotherapy), 67 were examined and of them 37 (62.7%) were culture negative, 22 positive and 8 were dead. The development of drug resistance to rifampicin was directly related to the duration of its use.

KEY WORDS: SCC, DRUG RESISTANCE, EFFICACY, CONTROL PROGRAMME, FATE.

112 MA Seetha GE Rupert Samuel & N Parimala: IMPROVEMENT IN CASE FINDING IN DISTRICT TUBERCULOSIS PROGRAMME BY EXAMINING ADDITIONAL SPUTUM SPECIMENS
Indian J TB 1990, 37, 139-44.

A study was conducted to augment case finding in the programme by increasing case yield through repeated sputum examinations by collecting 2-3 samples on the same day. The study was conducted in nine Peripheral Health Institutions (PHIs) of Bangalore district. They were all Microscopy Centres and were drawn on the basis of random allocation. A Health Visitor (HV), Laboratory Technician and Laboratory Attendants of National TB Institute (NTI) were posted at the PHIs during the entire study period. After collection of first sputum sample from the eligible chest symptomatics, 2nd, 3rd or 4th samples were collected at an interval of half an hour from those whose first specimen was negative. Separate smears were prepared from all the specimens for examination at NTI. The duration of the study was nine months.

From among 4233 total new outpatients, 458 chest symptomatics were identified. Of them, 451 gave the first specimen, 416 the second specimen and 379 and 332 the 3rd and 4th specimen respectively. There were a total of 25 smear positive cases; 18 were detected by the first specimen, 3 were added by second and the remaining 4 by the 4th specimen. Of the 451 chest symptomatics, 185 were selected by the PHI Medical Officers (MOs) and 266 were picked up by the NTI HVs from the remaining outpatients. Of the 25 cases detected, 10 came from the chest symptomatics selected by the MOs and 15 came from those selected by the NTI HV. The study has shown the feasibility of collecting multiple specimens of sputum from each symptomatic on the same day. A loss of 60% cases was due to casual symptom questioning by the MOs. It was further observed that the intensity of the physical suffering has influenced the behaviour of patients towards action taking. The sputum positivity rate was 5.5%

KEY WORDS: CASE FINDING, CONTROL PROGRAMME, SPUTUM EXAMINATION.

113 TR Sreenivas, CV Shyamasundara, K Chaudhuri: IMPACT OF SHORT COURSE CHEMOTHERAPY ON THE OPERATIONAL EFFICIENCY OF NATIONAL

TUBERCULOSIS PROGRAMME
Indian J TB 1992, 39, 107-11.

Five districts in which short course chemotherapy (SCC) was introduced during 1987-88 (DTP-SCC) and an equal number of districts without an SCC programme (DTP-SR) but having comparable new sputum examinations performance (NSE) in 1986 were selected from the states of Gujarat and Tamilnadu. Data obtained by the monitoring cell of the National Tuberculosis Institute (NTI) for 15 consecutive quarters from the 1st quarter of 1986 were analysed. It was possible to study operational variables: NSE, number of pulmonary patients diagnosed (TBP) and number of bacillary cases detected (BCASE). While the figures of first six quarters were used to represent pre-SCC performance, those of the last six quarters depicted the post-SCC scenario. However, the trend analysis has been done using the whole data.

The growth rates of NSE, TBP and BCASE were 14.1%, 1.7% and 13.0% respectively for DTP-SCC compared with 17.0%, 5.3% and 29% for DTP-SR. Both the DTCs and PHIs in DTP-SR showed negative growth in BCASE, inspite of their efforts as evidenced by increase in NSE and TBP, the introduction of SCC led to an increase in BCASE for both DTC and PHIs. While the PHIs in DTP-SCC showed increased efficiency in all the aspects (NSE 24.4%, TBP 19%, BCASE 16.7%), DTCs showed decreased activity in NSE (-2.4) and TBP (-6.6%), indicating improvement at the periphery. Trend analysis corroborated the above findings.

KEY WORDS: SCC, IMPACT, OPERATIONAL EFFICACY, CONTROL PROGRAMME.

114 Sujatha Chandrasekaran, P Jagota, & K Chaudhuri: INITIAL DRUG RESISTANCE TO ANTI-TUBERCULOSIS DRUGS IN URBAN AND RURAL DISTRICT TUBERCULOSIS PROGRAMME
Indian J TB 1992, 39, 171-75.

The problem of drug resistance in tuberculosis is said to be on the increase in developing countries. This could adversely affect control measures. A knowledge of the prevalence and pattern of drug resistance would be of great help to the programme planners for purposes of monitoring and future planning. Hence, a survey on initial drug resistance to anti-TB drugs, as it occurs under programme conditions, was conducted in the urban situation of Bangalore and rural area of Kolar district. The proportion of Initial Drug Resistance (IDR) to anti tuberculosis drugs was estimated among new patients attending Bangalore (urban) and Kolar (rural) District Tuberculosis Programmes (DTPs). The sputum samples were collected from all newly diagnosed patients in this area and subjected for culture and drug sensitivity tests. It was observed that IDR to any drug was 34.9% (Isoniazid 32.87% and

Rifampicin 4.4%) among Kolar patients. Among Bangalore patients, IDR was 20.57% (Isoniazid 17.35% and Rifampicin 2.89%). Combined resistance to isoniazid and rifampicin was 1.36% in urban DTC and 3.42% in rural DTP. With the introduction of Short Course Chemotherapy in DTP, combined resistance to isoniazid and rifampicin assumes paramount importance and needs to be monitored continuously.

KEY WORDS: INITIAL DRUG RESISTANCE.

115 K Chaudhuri, P Jagota & N Parimala: RESULTS OF TREATMENT WITH A SHORT COURSE CHEMOTHERAPY REGIMEN USED UNDER FIELD CONDITIONS IN DISTRICT TUBERCULOSIS PROGRAMME
Indian J TB 1993, 40, 83-89.

The treatment results of an unsupervised Short Course Chemotherapy (SCC) regimen used under conditions of District Tuberculosis Programme (DTP) are presented. The District Tuberculosis Centre (DTC), Kolar and six of its Peripheral Health Institutions (PHIs) formed the study area. No extra efforts except ensuring of adequate availability of drugs at the participating centres were made to obtain patients' compliance.

In all, 584 smear positive tuberculosis patients were diagnosed during the study period but 28.3% of the patients could not be initiated on treatment with the chosen self-administered SCC regimen - 2EHRZ/6TH(EH).

Of the 382 put on treatment, only 33.2% completed over 75% drug collections in both intensive and continuation phases. The pattern of treatment compliance did not vary with the place of treatment, i.e. DTC or PHI. Irrespective of treatment compliance, nearly 72-77% of the patients attained smear negative status at the end of the period of treatment, there being no difference between PHI and DTC. However, deaths were higher in the PHI patients. This could be attributed to a significantly higher proportion of aged patients taking treatment at PHI than at DTC. Considering death as an unfavourable outcome, overall favourable response was 65.9%. Patients with drug sensitive bacilli had a higher rate of culture negativity (70%), as compared to those with drug resistant bacilli (48%). It was concluded that unsupervised SCC could give encouraging results in a DTP setting, provided adequate drug supply was ensured.

KEY WORDS: SCC, CONTROL PROGRAMME, OPERATIONAL EFFICACY.

116 National Tuberculosis Institute, Bangalore 1995, Second Edition: FUNCTIONS & RESPONSIBILITIES OF STATE TUBERCULOSIS CENTRES

The **main aim** of establishment of State TB Centre (STC) was to provide **training** to District TB Programme (DTP) key personnel to do **research, technical supervision, monitoring, assessment** and **coordination** and **assistance to DTPs** by constant guidance and feed back. In almost all large and medium size states, there is State Tuberculosis Demonstration & Training Centre (STDTC). These centres were envisaged at the very inception of the National Tuberculosis Programme (NTP) as the **superstructure at the state level**. The organisation of the centre is according to the functions of STC. It consists of DTP Demonstration Unit, Training, Bacteriology, Treatment Organisation, X-ray, Monitoring and Administrative Sections. The functions are: (i) to organise and conduct training courses mainly for DTP key personnel, short period courses for Peripheral Health Institution (PHI) workers and orientation programme for district and state level health administrators etc. (ii) to carry out the activities as per the DTO Manual in the urban and rural units of DTPs. The urban programme can be formulated according to the local variables, specially in mega cities. However, the guiding principle should be to enlist the participation of as many health institutions as possible. (iii) to provide laboratory services of Level-IV according to the nationwide network classification i.e., the centres carry out culture, sensitivity of mycobacterium tuberculosis besides smear examination for service, research purposes and also imparting training to personnel working in Level-III laboratories. (iv) to train the Treatment Organisers (TOs) of District Tuberculosis Centre (DTC) - the responsibility of Treatment Section. (v) to train X-ray Technician (XT) of DTC, guide and assist in proper functioning and maintenance of MMR units in the DTC is the responsibility of X-ray Section which is manned by experienced Sr XT. (vi) to collect information on case finding, treatment, staff position and equipment from DTP and carry out supervision and assessment of DTPs is the responsibility of Monitoring Section.

Training of DTP key personnel so far has been carried out solely by National Tuberculosis Institute, Bangalore. Now, the states should also take up the responsibility of training the DTP key personnel. The staff, building, equipments, vehicles and supplies provided in the existing STDTC would be adequate. If required, the additional staff, modification/extension of the building and replacement of equipment/vehicles should be made.

KEY WORDS: STC, ORGANISATION, FUNCTIONS.