The Challenge of TB Control by DOTS

Implementation of DOTS Strategy at the roof of the world

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1. Background Information

Chitral is situated in the extreme north of Pakistan. It is bordered by Afghanistan in the West and North. Gilgit is on the East and district Dir on the South. Total population of the district is 3 20 000. 98% of the district is covered by mountains. The only approach to the district is from Dir side. It is only up to Boni, which covers only two tehsils Chitral and Darosh. There is no metal road to 4 tehsils-Garam Chishma, Mulkho, Turkho and Mastooj. Shandoor pass is the highest polo ground in the world, situated at the junction of Chitral and Gilgit. Roof of the world is the famous name of the pass.

2. Administrative Organization

The district is divided in 2 sub divisions – Chitral and Mastooj. Each sub division is further sub divided in to 3 tehsils. 6 is the total number of tehsils in the district. As it is not possible to cover the whole district by one laboratory, so all the centers with a laboratory will function as a diagnostic center. There are 4 hospitals and 3 RHCs in the district. All these 7 centers will be utilized as diagnostic centers. Beside to the diagnostic activities, these centers will also carry out treatment activities for the concerned catchment population. There is no laboratory in two tehsils (Mulkho and Turkho). Some of the BHUs in Mulkho tehsil have been attached with CH Booni, while for the rest of Mulkho tehsil and the whole Turkho tehsil, a central BHU (Nishko) has been given the task of a diagnostic center. One medical technician has been trained on direct microscopy for this purpose. The total diagnostic centers are 8 while total treatment centers are 34. Beside to the above mentioned 8 centers, the other treatment centers are 19 Basic Health Units (BHU), 4 Civil dispensaries (CD) and 3 Mother and Child Health (MCH) centers. 27 centers will be controlled by Department of Health (DOH) and the rest 7 centers, by Agha Khan Health Services (AKHS). The over all incharge of TB activities at the district level is District Tuberculosis Officer (DTO). Administratively the DTO is under the control of District Health Officer (DHO). The DTO will be responsible for the close liaison among all the involved organizations and the concerned authorities. He will also supervise all the diagnostic and treatment activities. The DHO will be responsible for the solution of the problems at the local level. The WHO National TB Programe Manager NWFP will be responsible at the provincial level. For the details of 8 diagnostic and 26 attached treatment centers, see Table 1.

Table 1: Diagnostic and Treatment centers in 6 tehsils of district Chitral. NWFP, Pakistan

Tehsil	Diagnostic & Treatment Centers (No)			Treatment Centers (No)		
	CH	RHC	BHU	BHU	CD	MCH
Chitral	1	2	0	4	0	1
Drosh	1	0	0	4	0	1
Garam Chashma	1	0	0	1	0	1
Mastooj	1	1	0	4	3	0
Mulkho	0	0	1	4	0	0
Turkho	0	0		2	1	0
Total	4	3	1	19	4	3

3. Directly Observed Treatment, Short Course (DOTS)

The planning for the Implementation of DOTS strategy started in July 1998. A complete survey of the district was conducted by the WHO National TB Programe Manager NWFP and a representative of

WHO National TB Programme Manager, NWFP, Pakistan.

ICD, in the beginning. Each and every health facility was visited either by vehicle or by foot. The WHO National TB Programe Manager NWFP along with the ICD team and DTO visited Chitral 3 times in the 3 quarter 1998 for the conduction of training courses and preliminary arrangements. The requirements for the DOTS Implementation were observed. All the deficiencies and short comings were sorted out. In the following three more visits, all the short comings were removed.

3.1: Establishment of a proper network

DOTS strategy is based on the integrated approach of primary health care delivery system. Five key elements is the base for the success of the programme. Government commitment, Case detection through predominantly passive case finding, Shortcourse chemotherapy to at least PTB + cases, Procurement of laboratory material and drugs and arrangements for supervision, monitoring and evaluation is the policy package of the programme. Training of the medical officers, paramedics and laboratory assistants is another important task which should be fulfilled before starting the programme. A complete network of diagnostic and treatment centers be established in such a way that each and every village must be covered by the DOTS Strategy. As all the hospitals and Rural Health Centers (RHCs) have a laboratory, so these will function as a diagnostic centers for the surrounding Basic Health Units (BHUs). Few dispensaries and MCH centers are also included in the far-flung areas, where there is no BHU.

For the government commitment, meetings were held with the local health authorities. District Health Officer (DHO), District Coordinator of the Prime Minister Programme for Primary Health Care and Family Planning, DTO and incharge of Agha Khan Health Services (AKHS) programme were requested for a coordination meeting. The issue of DOTS implementation was discussed in detail. Every body agreed to utilize the services of Lady Health Workers (LHWs) in areas where they are available. The LHWs will be given one day orientation training course. An urdu version booklet has already been prepared by ICD and the WHO National TB Programe Manager NWFP. The AKHS will be responsible for the implementation in 7 treatment centers. AKHS has a good network of village health workers through out the district. These health workers will also utilize the same booklets, to carry out the task. The AKHS workers will be accountable to the programme. Family members will be the 3rd option for the task. In this regard health education and mass awareness were considered mandatory. See table 2, for the network.

Table 2: Diagnostic and Treatment network for the DOTS implementation in Chitral.

S. #	Facility	Location	Task of the Center	Population	Control by
1	**DHQH**	**Chitral**	**Diagnostic & Treatment**	**30 000**	**DOH**
1.1	BHU	Broze	Treatment Center	8 000	DOH
1.2	BHU	Shoghoor	Treatment Center	7 000	DOH
1.3	MCH	Susoom	Treatment Center	5 000	AKHS
2	**CH**	**Drosh**	**Diagnostic & Treatment**	**25 000**	**DOH**
2.1	BHU	Arendu	Treatment Center	5 000	DOH
2.2	BHU	Ashrate	Treatment Center	5 000	DOH
2.3	BHU	Nagar	Treatment Center	5 000	DOH
2.4	BHU	Tar(Shishicoh)	Treatment Center	5 000	DOH
2.5	MCH	Madak Lasht	Treatment Center	5 000	AKHS
3	**CH**	**Garam Chashma**	**Diagnostic & Treatment**	**15 000**	**DOH**
3.1	BHU	Gobore	Treatment Center	6 000	DOH
3.2	MCH	Arkari	Treatment Center	4 000	AKHS
4	**CH**	**Booni**	**Diagnostic & Treatment**	**20 000**	**DOH**
4.1	BHU	Reshun	Treatment Center	7 000	DOH
4.2	BHU	Koshte	Treatment Center	6 000	DOH
4.3	BHU	Drassan	Treatment Center	8 000	DOH
4.4	BHU	Sonoghoor	Treatment Center	9 000	DOH
5	**RHC**	**Mastooj**	**Diagnostic & Treatment**	**10 000**	**DOH**
5.1	BHU	Breep	Treatment Center	8 000	DOH
5.2	CD	Miragram no.2	Treatment Center	5 000	DOH
5.2	BHU	Lasper	Treatment Center	6 000	AKHS
5.4	CD	Sust Yarkhon	Treatment Center	6 000	AKHS
5.5	CD	Bang	Treatment Center	5 000	AKHS
6	**RHC**	**Ayun**	**Diagnostic & Treatment**	**10 000**	**DOH**
6.1	BHU	Bumburat	Treatment Center	5 000	DOH
7	RHC	Kaghuzi	Diagnostic & Treatment	10 000	DOH
7.1	BHU	Mroi	Treatment Center	10 000	DOH
7.2	BHU	Shongush	Treatment Center	5 000	DOH
8	**BHU**	**Neshkoh**	**Diagnostic & Treatment**	**15 000**	**DOH**
8.1	BHU	Zundrangram	Treatment Center	12 000	DOH
8.2	BHU	Khot	Treatment Center	8 000	DOH
8.3	BHU	Reach	Treatment Center	10 000	DOH
8.4	CD	Shagram	Treatment Center	15 000	AKHS
Total	All	34	D (8) + T (26) = 34	320 000	DOH+AKHS

3.2: Training

Two trainings for the medical officers were arranged in the capital town Chitral in August and September. The training was based on WHO Modules "Managing Tuberculosis at District Level". Duration

of the training was 6 days. 8 microscopists were trained in Peshawar on sputum examination for direct microscopy. This training was based mainly on the IUATLD book "Sputum Examination for tuberculosis by direct microscopy". Duration of the training was 12 days, included the theoretical and practical aspects. Italian Cooperation for Development (ICD) provided all the facilities for the mentioned trainings. The LHWs trainings were held at all the tehsil headquarters by DTO and the concerned district coordinator of the programme. For the training of village health workers, the incharge of the AKHS was involved with the DTO.

3.3: Procurement of drugs and laboratory Material

Before the start of the programme, a buffer stock of drugs and laboratory material was procured for 9 months. The health secretary to the Government of NWFP kindly managed a reasonable stock of drugs. The laboratory material and reagents were provided by ICD. The only road to Chitral remains closed for 6 months (December to May), due to a heavy snowfall in the area. The possible approach to Chitral in 6 months is by aeroplane, which is not a regular practice. Keeping in mind all these constraints, the author managed to provide a concrete and solid base to the programme.

3.4: Supervision, Monitoring and Evaluation

The major deficiency in the programme delivery is the lack of logistic system. The issue has been discussed many times with the provincial health authorities. In the present economical crises of the country, it is not possible for MOH, to provide a car to DTO. The present system of supervision is quite weak. As a compromise on the issue, ICD has been given the task of supervision at least once in a quarter. The DTO will accompany the ICD team to visit the various facilities in the district. The WHO National TB Programe Manager NWFP will evaluate the programme and will find out the solution of the problems.

4. New case detection

The actual implementation of the activities started from 1st December 1998. Few cases were reported in the 4th quarter of 1998. The full quarter reports available are, for the 1st and 2nd quarters of year 1999. According to the Annual Risk of Tuberculosis Infection (ARTI) in North West Frontier Province, 86 SS+ cases is the target per 100000 population. For the new case detection, WHO has specified at least 70% detection of the specified target.

According to the 1998 population census, the population of Chitral district is 3 20 000. 110 cases have been detected in the first 2 quarters (see table1). With the passage of time the number of newly detected cases will increase definitely. Even if the same trend will continue in the coming 2 quarters of the year, the number will increase to 220 patients. 220 / 3.2 x 1 means that 69 SS+ cases will be the detection target. For the newly established programmes, 70% is the target. Chitral has achieved the target in the initial stages, which shows that proper arrangements always give required results even in a difficult situation. See table 3 for the new case detection.

Table 3: New Cases and Relapses Reported by Chitral during 1st & 2nd Quarter 99.

District	Quarter	Pulmonary TB Smear Positive Cases: New Cases M	F	T	Relapses M	F	Pulmonary Smear Negative TB M	F	Extra-Pulmonary Tuberculosis M	F	Total Cases M	F	Total
Chitral	1st Q99	13	38	51	0	0	45	75	26	45	84	158	242
	2nd Q99	15	44	59	0	4	59	131	55	96	129	275	404
Subtotal	1-2 Q99	28	82	110	0	4	104	206	81	141	213	433	646
Sex %	1-2 Q99	25.5	74.5	100	0	100	33.5	66.5	36.5	63.5	33	67	100
Cat. %	1-2 Q99	17			1		48		34		33	67	100

The number of SS negative and EP cases is extremely high. It is because of the very high awareness in the community. The patients immediately contact the centers in case of 3 weeks cough (keeping in view the objectives of the programme). The major segment of EP cases is intestinal tuberculosis. Although there are no arrangement for the identification of different strains in the province, but the use of unskimmed cow milk is very common in the area. Veterinary

department will be contacted in this regard.

5. Age Group and Sex distribution

The maximum age groups involved are 25-34 years and 35-44 years (see table 4). Scientifically it is not a good sign for the future activities. New people will be affected in the future. Maximum efforts are required to control the situation. Female are more involved as compared to male. The possible reasons are:

1. Ladies are more accessible to the health workers. In government facilities they are more.
2. Males are usually attended by the general practitioners as males are the money makers.

Table 4: Case Notification by Age Group and Sex of Smear Positive Cases, 1999.

District	Quarter	0-14		15-24		25-34		35-44		45-54		55-64		65-		Total		
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T
Chitral	1st Q99	0	1	1	7	4	13	2	8	3	6	1	2	2	1	13	38	51
Chitral	2nd Q99	1	3	1	8	3	18	5	9	0	4	3	1	2	1	15	44	59
Subtotal	1-2Q99	1	4	2	15	7	31	7	17	3	10	4	3	4	2	28	82	110
%	1-2Q99	5		15		35		22		10.		7		6		26	74	100

6. Sputum conversion rate

The sputum conversion report is a good indicator for the efficacy of the drugs. It also gives a clue towards the results of the treatment. The WHO target for sputum conversion is 85%. The available report is only for 1st quarter 1999. The report shows a conversion rate of 78% (see table 5). Out of 11 cases not done, 4 cases were defaulters and one died in the initial phase of treatment. If the one case who died in the initial phase of treatment is excluded, the conversion rate will become 80%. In a difficult situation like Chitral, it is quite encouraging.

7. Treatment Results

At present the programme is in the early stages of implementation. The cohort analysis is done for the cases registered 12-15 months earlier. The cohort analysis for the 1st quarter 1999 will be available in the beginning of 2nd quarter 2000. However sputum conversion rate is the best indicator of the future results.

Table 5: Sputum Conversion at 2 (3) months in New Smear Positive Cases and at 3 (4) months in Relapses and Other Retreatment Cases.

Conclusion

DOTS Strategy can work any where if, Proper Planning, Proper Network, Specified Training, Proper Procurement of Drugs and Laboratory material, Supervision, Monitoring and Evaluation are in place. Missionary Managerial Zeal has the key role for the achievement of specified results.