Introduction:
Tuberculosis (TB) is an old disease caused by mycobacterium tuberculosis. It affects human civilization far immemorial time. It has been resulted in massive loss of live and economics. It is highly socially unacceptable disease resulted in harsh community disruption. The cost of human misery and agony to the large extent is immeasurable.
Tuberculosis is a disease that can affect any individual at any stage of life and no one is absolutely immune to it. It can affect any organ system in the body to the various degree of severity. TB is a pandemic to various scales of prevalence and incidence in the different continents, countries and regions. Susceptibility is different in various ethnic groups.
WHO declared TB as a global emergency in 1993 and recommended Directly Observed Treatment Short Course (DOTS) strategy to control the disease. Spirit of the strategy is commitment at all levels, diagnosis by quality assured sputum smear bacteriology, and quality assured drugs with standardized treatment management protocols under direct treatment observation. In the millennium development goals (MDGs) TB related target is to halve the burden (deaths and prevalence) and reverse the incidence of tuberculosis by 2015.
Pakistan is a developing country with high population growth rate. 2008 estimated population is 172.8 million. 58% population is in the age group of 15 to 64 years of age and children comprise 37.8% of the total population. (The world fact book –Pakistan) Pakistan ranks 8th as the highest TB burden country in the world. Incidence of all TB cases are 181 and New sputum smear positive cases are 81 per 100,000 population (WHO report-2008} Pakistan contributes about 55% disease burden in the EMRO region.
TB is a major Public health problem in Pakistan. It contributes about 5 percent total disease burden in country. All TB risk factors are highly prevalent in the country likely poverty, high population movement, excessive cross border travels of refugees, dislocation of the local population, low literacy rate, large family sizes, poor environmental sanitation and housing, unhealthy health seeking behaviors, regrettable personal, family and community hygiene in general and coughing specifically as well as weak health system.
Following WHO declaration of TB as a global emergency in 1993, the Government of Pakistan endorsed the Directly Observed Treatment, Short course (DOTS) strategy, and National TB Control Program (NTP) Pakistan adopted the strategy in 1995. Actions for TB control were geared up in 2000 at a time when the DOTS geographical coverage was around 5-6%. In 2001 Government of Pakistan declared TB national emergency and year 2005 saw 100% DOTS coverage across the country in public health facilities. TB services are mostly
delivered through the Primary Health Care (PHC) facilities network along with hospitals. The programme has achieved WHO targets of 70% case detection rate of new sputum smear positive cases and 85% treatment success rate at the end of 2008. NTP has initiated and decidedly concentrated on public Private Mix (PPM) to address the TB issue effectively. As private sector is exceedingly strong and delivers health care services to the large segment of population.

National Tuberculosis control Programme is partners’ responsive organization and is working with multiple partners including national / international (donor, implementing and assistance agencies) to control the disease in the country.

Under the grant from the Global Fund to fight AIDS, Tuberculosis and Malaria (GFATM) Round-II, NTP is sub recipient and implementing two objectives of the grant i.e.

1. Development and Implementation of Guidelines for management of difficult to diagnose / complicated adult TB suspects /cases and children with TB.
2. Development and implementation of a National Behavior Change Communication Strategy to increase disease awareness and promote healthy treatment seeking and treatment adhering behaviors.

National Tuberculosis Control Programme (NTP) has completed the fifth year of the Global Fund Round-2 grant on the 31st of December 2008 and has been close out. The report highlights activities carried out in year 2008 under the above objectives to achieve the Global fund targets. Major activities planned in year -5 of the obj-2 were

1. Expansion of programme implementation to 12 new districts.
2. Training of DHQ Hospital staff, District TB Control Officers (DTCs) and National Programme Officers (NPOs) on guidelines.
3. PHC orientation sessions for District doctors in the newly involved districts.
4. Procurement and distribution of Purified Protein derivatives (PPD).
5. Coordination with on boarded districts to strengthen programme activities.
6. Monitoring and controlling of the Programme activities.

**Involvement of 12 new districts:**

As per proposal the programme activities have to be expanded to 20 new districts in year – 5 of the objective-2. However the plan was revised by the PR and agreed to involve 12 new districts in light of availability of funds and the project stage. The project was supposed to be closed by 30th of the September 2008. However due to delay in release of funds, planned
activities could not accomplish in 19th quarter and PR was agreed to carry on activities in the 20th quarter to complete the planned activities. The 12 new districts for GF-R-2 obj-2 were selected in consultation with provincial TB Control programmes. The districts were selected on pre determined criteria. The criteria were as follow:

1. Districts with Commitment.
2. Districts with functional basic DOTS.
3. Districts with regular Pediatrician / Chest Physician or Medical specialist.
4. Districts with indoor facilities for children and medical patients.
5. Functional district level laboratory preferably with Pathologist.

List of newly selected districts was as below:

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Province</th>
<th>Name of Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Punjab</td>
<td>Sialkot</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bahawalnagar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rahim Yar Khan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vehari</td>
</tr>
<tr>
<td>2</td>
<td>Sindh</td>
<td>Suakkhar</td>
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<tr>
<td></td>
<td></td>
<td>Nawab Shah</td>
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<tr>
<td></td>
<td></td>
<td>Tando Allah Yar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jacob Abad</td>
</tr>
<tr>
<td>3</td>
<td>NWFP</td>
<td>D.I.Khan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bannu</td>
</tr>
<tr>
<td>4</td>
<td>Balochistan</td>
<td>Lasbella</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jaffar abad</td>
</tr>
</tbody>
</table>

Table 1:-- Year -5 Twelve Newly Selected Districts

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Province</th>
<th>Phase-1 districts</th>
<th>Phase-2.1 districts</th>
<th>Phase-2.2 districts</th>
<th>Phase 2.3 Yr.5 districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Punjab</td>
<td>Kasur Jhelum Muzaffargarh</td>
<td>Attock Chakwal Mandibahuddin</td>
<td>Faisalabad Jhelum Jhang</td>
<td>Sialkot Bahawalnagar Rahim Yar Khan Vehari</td>
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<td></td>
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<td></td>
<td>Siakhar Nawab Shah</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Tando Allah Yar Jacob Abad</td>
</tr>
<tr>
<td>2</td>
<td>Sindh</td>
<td>Thatta Shikarpur Dadu</td>
<td>Khairpur Sanghar Noshefoeroze</td>
<td>Badin Jamshoro Mirpurkhas</td>
<td>Suakhar Nawab Shah</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tando Allah Yar Jacob Abad</td>
</tr>
<tr>
<td>3</td>
<td>NWFP</td>
<td>Abbottabad Nowshera</td>
<td>Haripur Mardan</td>
<td>Kohat Swabi</td>
<td>D.I.Khan Bannu</td>
</tr>
<tr>
<td>4</td>
<td>Balochistan</td>
<td>Sibbi Ketch</td>
<td>Qilla Abdullah Khuzdar</td>
<td>Naseerabad Loralai</td>
<td>Lasbella Jaffar abad</td>
</tr>
</tbody>
</table>

Table .2:- Districts in the Country Where Programme Activities Are Implemented
Training of Services Deliverers:

Essential element of implementation of the project guidelines was high quality training of the concerned staff to achieve the programme objectives and targets. The activities will support NTP objectives and will be a stretched stride out towards programme goal.

In year-5 two types of trainings were conducted

- Training of clinicians and TB Control coordinators of districts selected in year-5.
- Training of PHC doctors and Programme persons (EDOs-MSs) of districts selected in year-5

To ensure effective implementation and ownership at the Districts level, Chest specialists, Pediatricians, District TB Control Programme representatives, District TB Coordinators and National Programme officers of the selected districts were trained.

Adult learning training methodology was adopted, mainly consisting of the following:

1. Power Point Presentations
2. Group discussion.
3. Question answer at the end of every session
4. Videos on the diagnostic procedures.
5. Practical demonstrations of procedures.(like PPD administration)
6. Previous day review Sessions

Training Of Clinicians, District TB Control Officers and National Programme Officers of Districts Selected In Year- 5 On Adult Difficult To Diagnose and Complicated TB Suspects and Cases:

NTP conducted training workshop in July 2008 for chest specialists, district TB Coordinators and national Programme Officers for the twelve newly selected districts on the programme developed guidelines, for the management of adult difficult to diagnose and complicated TB suspects and cases. Participants included DHQ hospitals chest specialists, District TB Coordinators and National programme officers of the twelve newly selected GF-R-2 objectives’ - 2 districts. Only untrained National Programme Officers were invited from the selected districts. The following districts were trained with respect to the adult national guidelines:
Punjab: - Sialkot, Rahim Yar Khan, Bahawalnagar and Vehari
Sindh: - Suakkhar, Jacobabad, Tando Allah Yar and Nawab shah
NWFP: - D.I.Khan and Bannu
Balochistan: - Lasbella and Jaffar abad

Dr. Shaheena Qayyum from Ouija institute of Chest diseases Karachi was principle workshop facilitator. She has been remained consultant for NTP for the development of guidelines. Her selection as a principle facilitator was to ensure high quality training workshop.
Training of Clinicians, District TB Control Officers and National Programme Officers on Guidelines for the Management of Children with TB:

The training on Child guidelines for the selected year-5 district was conducted at Islamabad from 20th to 22nd October 2008. The participants were district Pediatricians’, District TB control Officers and untrained national Programme officers. There were three pediatricians from old districts (Swabi, Mardan, and Badin) who were also invited in the training as the previously trained were transferred. Dr Iajaz Khan was the principle facilitato, a known pediatrician from Al-Shifa international hospital Islamabad. He has been remained NTP consultant for the development pediatric guidelines.
PHC Level Training:
One day orientation session was organized in nine new GF districts to strengthen referral system between Primary Health Care centers (PHC) and district Head Quarter Hospitals (DHQ) for the management of difficult to diagnose / complicated adult and children with TB suspects/ cases in particular and all TB patients in general. The participants were Doctors from diagnostic centers, EDO (H) and Medical superintendents from DHQ Hospitals. Aim of involvement of EDOs (H) and Medical superintendent was to build ownership and strengthen Programme activities. The programme has developed referral forms to standardize the referral system.

Procurement and Distribution of Purified Protein Derivatives (PPD):
PPD is an important screening test to support the diagnosis of TB in children. Pediatricians significantly favor PPD administration and its interpretation in line with pediatrics scoring chart. From the available budget PPD was procured and distributed to the newly involved and old districts. PPD was directly supplied to provincial TB control managers to ensure proper and rapid distribution.

Monitoring and Coordination with on boarded districts to strengthen programme activities:
The project activities were implemented in 30 districts up to the end of year -4. There was regular monitoring and coordination with all districts, the efforts being made were aimed to strengthen activities, concentrate on issues and facilitate reporting.

Targets achieved:
With reference to the Referral guidelines NTP is reporting to GF on two indicators in objective -2.
1. Number of service deliverers trained.
2. No of patients managed/referred by the primary and secondary health care facilities according to developed Guidelines.

Number of Service Deliverers Trained:
NTP with the support of GFR-2 has trained NPOs, DTCs Chest Specialists, Pediatricians and medical officers at Rural Health centers. Detail of health care providers trained in 2008 on both guidelines is as follow:

<table>
<thead>
<tr>
<th>Pediatricians</th>
<th>Chest physicians</th>
<th>DTCs</th>
<th>NPOs</th>
<th>PHC level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15*</td>
<td>12</td>
<td>12</td>
<td>3</td>
<td>117</td>
<td>159</td>
</tr>
</tbody>
</table>

* Three pediatricians from old districts
Analysis of 2008 data:

All patients that have been managed according to the prescribed protocols and referred accordingly are reported to NTP. The analyzed report is from old districts. The newly involved district will start reporting from December 2008. More over frequent transfer of Pediatricians and chest physicians have unfavorably affected data reporting. Premature departure of the Project coordinator and deputy coordinator also affected programme activities.

Table 3:- Total Number of cases managed according to Guidelines in 2008

Table 4:- Monthly reporting pattern of adult and Children managed according to the guidelines.