Chapter 6

National Programmes Under NRHM

6.1 INTRODUCTION

Several National Health Programme such as the National Vector Borne Diseases Control, Leprosy Eradication, TB Control, Blindness Control and Iodine Deficiency Disorder Control Programmes have now come under the umbrella of National Rural Health Mission.

6.2 NATIONAL VECTOR BORNE DISEASES CONTROL PROGRAMME (NVBDCP)

The National Vector Borne Diseases Control Programme (NVBDCP) is an umbrella programme for prevention and control of vector borne diseases viz. Malaria, Japanese Encephalitis (JE), Dengue, Chikungunya, Kala-azar and Lymphatic Filariasis. Out of these six diseases, two diseases namely Kala-azar and Lymphatic Filariasis have been targeted for elimination by 2015. The States are responsible for implementation of programme whereas the Directorate of NVBDCP, Delhi provides technical assistance, policies and assistance to the States in the form of cash & commodity as per approved pattern. Malaria, Filaria, Japanese Encephalitis, Dengue and Chikungunya are transmitted by mosquitoes whereas Kala-azar is transmitted by sand-flies. The transmission of vector borne diseases depends on prevealance of infective vector mosquitoes and man-vector contact, which is further influenced by various factors such as climate, sleeping habits of human, density of vectors and their biting etc.

The general strategy for prevention and control of vector borne diseases under NVBDCP is described below:

(i) **Integrated Vector Management** including Indoor Residual Spraying (IRS) in selected high risk areas, Long Lasting Insecticidal Nets (LLINs), use of larvivorous fish, anti-larval measures in urban areas including bio-larvicides and minor environmental engineering including source reduction.

(ii) **Disease Management** including early case detection with active, passive and sentinel surveillance and complete effective treatment, strengthening of referral services, epidemic preparedness and rapid response.

(iii) **Supportive Interventions** including Behaviour Change Communication (BCC), Inter-sectoral Convergence, Human Resource Development through capacity building.

6.2.1 Malaria

a. Malaria is an acute parasitic illness caused by *Plasmodium falciparum* or *Plasmodium vivax* in India. Nine major species of anopheline mosquitoes transmit malaria in India. The main clinical presentation is with fever with chills; however, nausea and headache can also occur. The diagnosis is confirmed by microscopic examination of a blood smear and Rapid Diagnostic Tests for Pf cases. Majority of the patients recover from the acute episode within a week. Malaria continues to pose a major public health threat in different parts of the country, particularly due to *Plasmodium falciparum* due to which severity may develop and may cause fatality, if not treated early.

b. In India, 9 species of Malaria vectors are prevalent, out of which the major vector for rural malaria is *Anopheles culicifacies*, found all over the country and breeds in clean ground water collections. Other important Anopheline species namely *An.minimus* and *An.fluviatilis* breed in running channels, streams with clean water. Some of the vector species also breed in forest areas, mangroves, lagoons, etc, even in those with organic pollutants.

c. In urban areas, malaria is mainly transmitted by *Anopheles stephensi* which breeds in man-made

water containers in domestic and peri-domestic situations such as tanks, wells, cisterns, which are more or less of permanent nature and hence can maintain density for malaria transmission throughout the year. Increasing human activities, such as urbanization, industrialization and construction projects with consequent migration, deficient water and solid waste management and indiscriminate disposal of articles (tyres, containers, junk materials, cups, etc.) create mosquitogenic conditions and thus contribute to the spread of vector borne diseases.

Epidemiological Situation

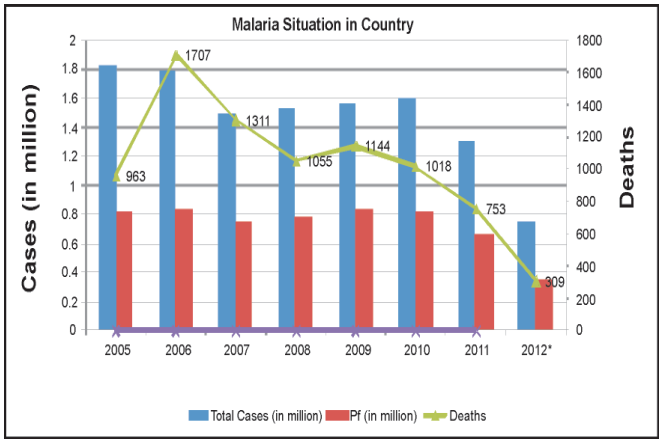
The status of total cases, Pf cases, deaths and API from 2005 to 2012 (Up to October) is given in the table and the Graph as follows. The state-wise data on malaria cases & deaths since 2009 is at **Appendix-1**.

Malaria Situation in the country during 2005-2012*

Year	Cases (in million)		Deaths	API
	Total	Pf		
2005	1.82	0.81	963	1.68
2006	1.79	0.84	1707	1.66
2007	1.50	0.74	1311	1.39
2008	1.53	0.78	1055	1.36
2009	1.56	0.84	1144	1.36
2010	1.60	0.83	1018	1.37
2011	1.31	0.67	753	1.10
2012*	0.74	0.36	309	

** Data for 2012 up to September*

Pre-independence estimates of Malaria were about 75 million cases and 0.8 million deaths annually. The problem was virtually eliminated in the mid sixties but resurgence led to an annual incidence of 6.47 million cases in 1976. Modified Plan of Operation was launched in 1977 and annual malaria incidence started declining. The cases were contained between 2 to 3 million cases annually till 2001 afterwards the cases have further started declining. During 2011, the malaria incidence was around 1.31 million cases, 0.67 million Pf cases and 753 deaths. During 2012 (till September updated on 2.11.12), 0.74 million cases, 0.36 Pf cases and 309 deaths have been reported. About 91% of malaria cases and 99% of deaths due to malaria are reported from high disease burden states namely Northeastern (NE) States, Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan and West Bengal. However, other States are also vulnerable and have local and focal upsurge. Resistance in *Plasmodium falciparum* to Chloroquine was observed to be very high and frequent in the studies conducted during 2001 onwards. Therefore, Artemisine Combination Therapy (ACT) is now being used as first line of treatment for all Pf cases in whole of



the county. For strengthening surveillance, Rapid Diagnostic Test (RDT) for diagnosis of *P.falciparum* malaria has also been introduced in high endemic areas and being scaled up. ASHAs have been trained in diagnosis and treatment of malaria cases and are involved in early case detection and treatment.

The Government of India provides technical assistance and logistics support including anti-malaria drugs, DDT, larvicides, etc. under the National Vector Borne Disease Control Programme. State Governments have to meet other requirements of the programme and to ensure the implementation of programme. North-Eastern States are provided 100 per cent central assistance for programme implementation that includes operational cost.

Externally supported projects

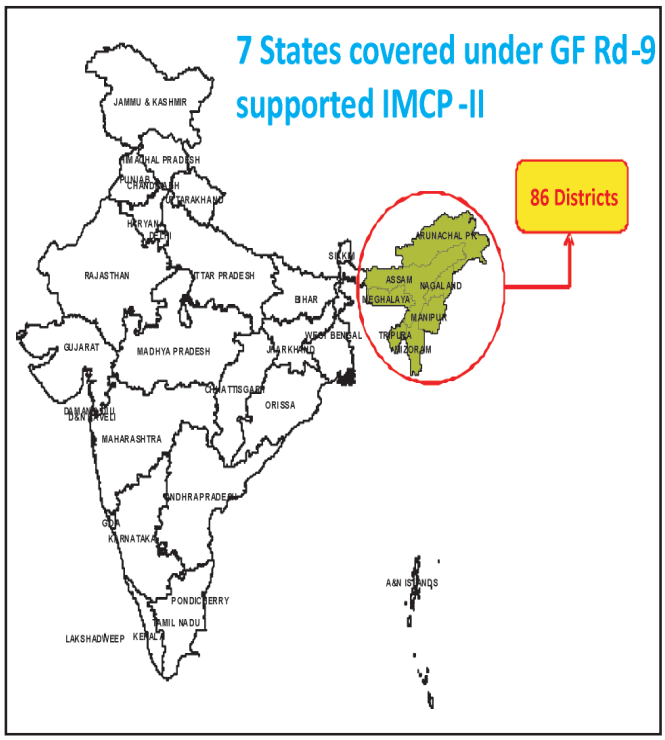
Additional support for combating malaria is provided through external assistance in high malaria risk areas. There are two such externally funded projects which are currently being implemented for malaria control:

(i) Global Fund Supported Intensified Malaria Control Project (IMCP-II)

(ii) World Bank Supported Project on Malaria Control & Kala-azar Elimination.

The areas covered under these projects are as under:

(i) The Global Fund supported Intensified Malaria Control Project (IMCP-II): Global fund Round 9 supported Intensified Malaria Control Project (IMCP-II) is being implemented since October 2010 for a period of five years in 7 NE States. The project area covers a population of 42 million in 86 districts.

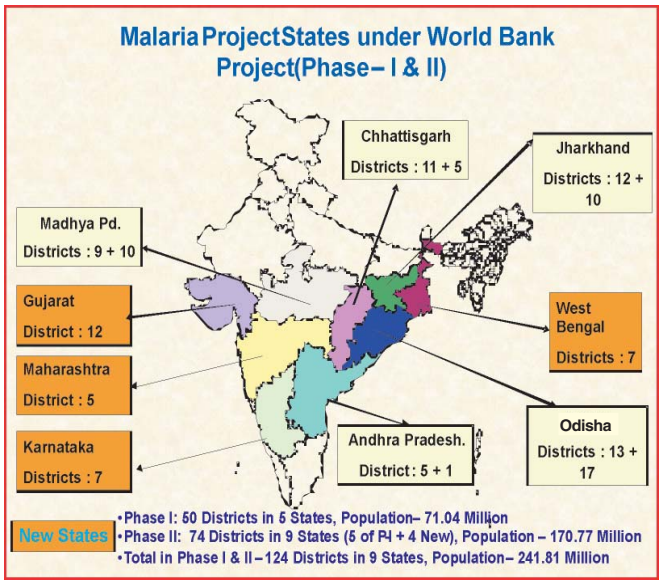


The strategies of the project are early diagnosis and complete treatment, integrated vector control including promotion of ITN (LLINs), through intensive IEC and capacity building & training of the health workers & community volunteers. Specific inputs are provided to these project areas in the form of manpower, RDTs, drugs and LLINs. The period for first phase is for two years starting from October 2010 to Sept. 2012. The Phase-II will be granted by the GFATM based on the experience of the phase I. CARITAS India is the Principal Recipient 2 (PR2) in the project.

Additional Support provided in project area is listed below:

- Human resource such as Consultants and support staff for project monitoring units at state and district level and malaria technical supervisor and laboratory technicians at sub-district level.
- Capacity building of Medical Officer/Lab. Technicians/ Fever Treatment Depots/Volunteers etc.
- Commodities such as Long-Lasting Insecticidal Nets (LLINs), Rapid Diagnostic tests for quick diagnosis of Malaria, alternate drugs i.e. Artemesinin based Combination Therapy and Inj. Artesunate for treating severe malaria cases.
- Planning & administration including mobility support, monitoring, evaluation and operational research (studies on drug resistance and entomological aspects).

(ii) The World Bank Supported Project on Malaria Control & Kala-azar Elimination.



This project has been approved for 5 years effective from 2009 to December 2013. The total financial outlay for this project is Rs.1000 crore. This project covers 124 malarious districts of nine (9) States namely, Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Karnataka & West Bengal and 46 Kala-azar districts in three States namely, Bihar, Jharkhand and West Bengal. The project is being implemented in two phases. Phase-I covered 50 most malaria endemic Districts in five States namely, Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Odisha and Jharkhand and 46 kala-azar Districts in Bihar, Jharkhand & West Bengal. From 3rd year, Phase-II is being implemented in remaining 74 high malaria endemic Districts.

Additional support provided in this project is:

- Provision of Human Resource like Consultants & Support staff at National, State, District & Sub District level for Surveillance& monitoring.
- Promotion & use of long lasting Insecticide Nets (LLINs) in high malaria endemic areas.
- Social Mobilization and vulnerable community plan to address the issues of marginalized sections.
- Strong BCC/IEC activities at Sub district level through identified agencies.
- The project also envisaged the safe guard policies by undertaking Environmental Management Plan (EMP) on safe disposal & for prevention of environmental hazards.
- Capacity building of Medical Officer/Lab Technicians/Fever Treatment Depots/ Volunteers etc.
- Supply of rapid kits for Malaria and drug Artemesinin based Combination Therapy (ACT) for treatment of Pf cases.

6.2.2 Urban Malaria Scheme

The Urban Malaria Scheme (UMS) under NVBDCP is being implemented in 131 towns in 19 States and Union Territories protecting 130.3 million population in 2011.

Objectives:

The main objectives were the reduction of the disease to a tolerable level in which the human population can be protected from malaria transmission with the available means.

The Urban Malaria Scheme aims at:

a). To prevent deaths due to malaria.

b). Reduction in transmission and morbidity.

Epidemiological Situation:

About 10% of the total cases of malaria are reported from urban areas. Maximum numbers of malaria cases are reported from Ahmedabad, Chennai, Kolkata, Mumbai, Vadodara, Vishakhapatnam, Vijayawada etc.

The comparative epidemiological profile of Malaria during 2008-12 in all urban towns of the country is given below:

Comparative Epidemiological profile of Malaria in 19 States under UMS during 2008-12

Year	Population	Total cases	P.f	P.f %	SPR	SFR	Deaths
2008	113334073	113810	18963	13.42	1.66	0.22	102
2009	114699850	166065	31134	18.75	2.98	0.56	213
2010	116136978	220062	33174	15.07	3.79	0.57	149
2011	130316971	142502	13910	9.76	2.07	0.20	147
2012*	130329138	23662	1210	5.11	0.92	0.05	8

**Provisional up to September 2012*
P.f = Plasmodium falciparum, SPR= Slide Positivity Rate, SFR= Slide Falciparum Rate.

Control Strategy

Under UMS, Malaria Control strategies are for (i) Parasite control & (ii)Vector control :

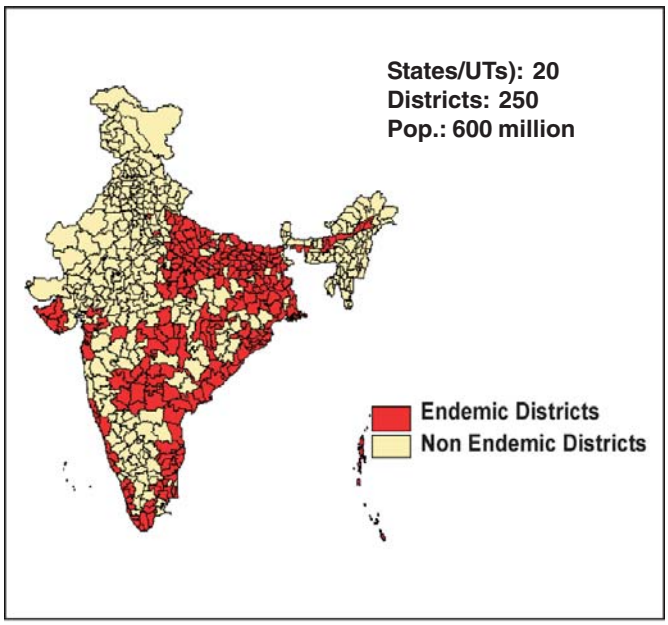
(i) **Parasite control:** Treatment is done through passive agencies viz. hospitals, dispensaries both in private & public sectors. In mega cities malaria clinics are established by each health sector/ malaria control agencies viz. Municipal Corporations, Railways, Defence services.

(ii) **Vector control:** Source reduction, use of larvicides, use of larvivorous fish, space spray, minor engineering and Legislative measures.

The control of urban malaria depends primarily on the implementation of urban bye-laws to prevent mosquito breeding in domestic and peri-domestic areas or residential blocks and government/commercial buildings, construction sites. Use of larvivorous fish in the water bodies such as natural water bodies, slow moving streams, lakes, ornamental ponds/fountains etc. is also recommended. Larvicides are used for water bodies, which are unsuitable for use of larvivorous fish. Awareness campaigns are also undertaken by Municipal Bodies/Urban area authorities. The Bye-laws have been enacted and implemented in Delhi, Mumbai, Chandigarh, Ahmedabad, Bhavnagar, Surat, Rajkot, Bhopal, Agartala and Goa.

6.2.3 Elimination of Lymphatic Filariasis

Lymphatic Filariasis in India is mainly caused by *Wuchereria bancrofti* and is transmitted mainly by



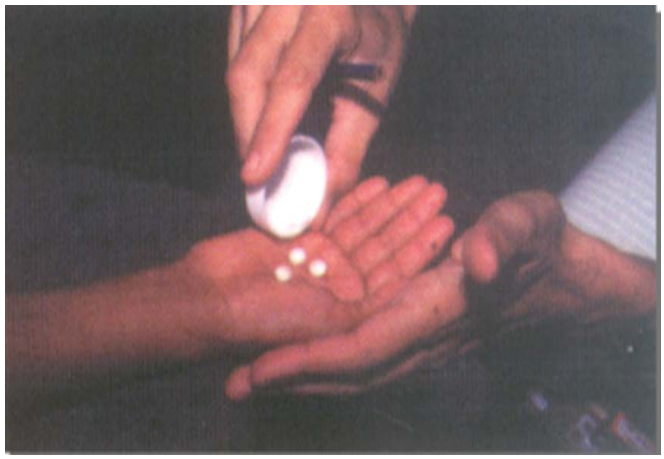
mosquito *Culex quinquefasciatus* which breeds in dirty and polluted water, however, it can also breed in clear water in the absence of polluted water. The infection is prevalent in both urban and rural areas. The disease is also caused by another positive agent namely *Brugia malayi* which is transmitted mainly by *Mansonia annulifera* which is the principal vector of this parasite. *M.uniformis* also plays a role in transmission of the disease and, therefore, is the secondary vector for transmission of *brugia* infection. Prevalence of brugia infection is restricted to small foci of Kerala.

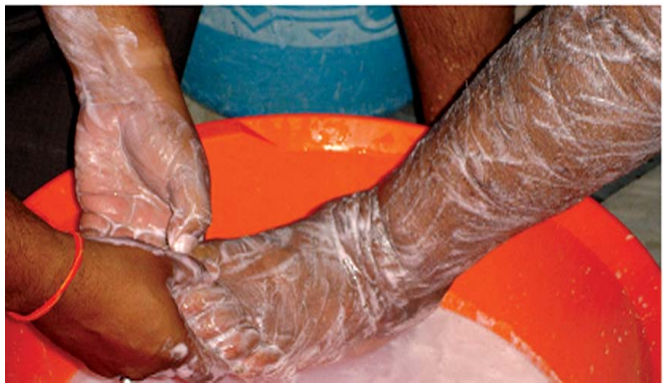
The disease is reported to be endemic in 250 Districts in 20 States and UTs. The population of about 600 million in these districts is at risk of lymphatic filariasis. This disease causes personal trauma to the affected persons and is associated with social stigma, even though it is not fatal.

The target year for Global elimination of this disease is by the year 2020. Government of India is signatory to the World Health Assembly Resolution in 1997 for Global Elimination of Lymphatic Filariasis. The National Health Policy (2002) has envisaged elimination of lymphatic Filariasis in India by 2015.

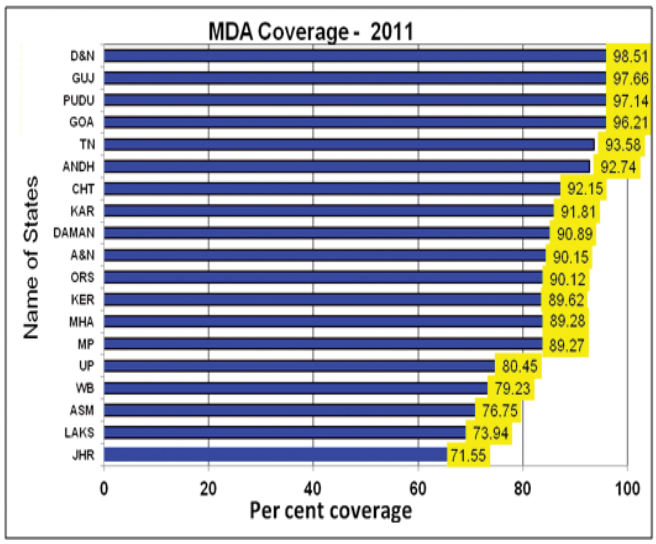
The strategy of lymphatic filariasis elimination is through:

- Annual Mass Drug Administration (MDA) of single dose of DEC + Albendazole for a minimum five rounds or more to the eligible population (except pregnant women, children below 2 years of age and seriously ill persons) to interrupt transmission of the disease.
- Home based management of lymphoedema cases and up-scaling of hydrocele operations in identified CHCs/ District Hospitals /Medical Colleges.

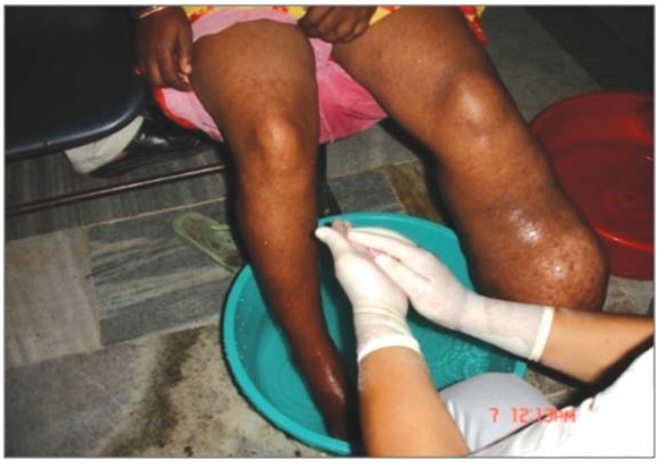




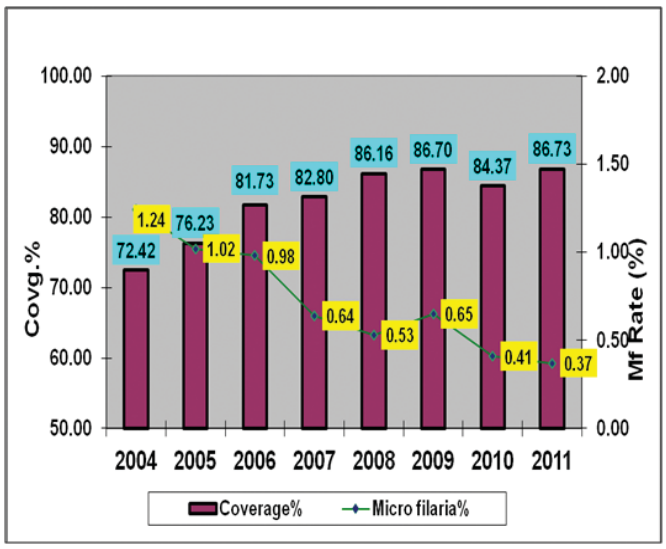
To achieve elimination of Lymphatic Filariasis, the Government of India during 2004 launched annual Mass Drug Administration (MDA) with annual single recommended dose of DEC tablets in addition to scaling up home based foot care and Hydrocele operation. The co-administration of DEC+ Albendazole has been up scaled since 2007. The programme covered 202 districts in 2004 whereas by the year 2007, all the 250 LF endemic Districts were covered. MDA starts the month of November; however, the dates of observance of MDA are staggered depending on the preparedness of the states. The coverage has improved from 72% in 2004 to 87% in 2011. MDA-2011 round was observed in 19 States/UTs except Bihar (as shown in chart above). In Uttar Pradesh also it was observed only in 14 districts out of 50 LF



endemic districts. Thus in 2011 MDA round, only 176 districts out of 250 were covered. The state wise coverage is indicated in **Appendix-2.**



The Line listing of lymphoedema and Hydrocele cases was initiated since 2004 by door to door survey in these filaria endemic districts. The enlisted cases are regularly being updated by state health authorities and more cases are being recorded. This increase is mainly due to incomplete surveys during initial years and reluctance on part of community to reveal their manifestations of lymphoedema and Hydrocele. The updated figure till September 2012 revealed about 12 lakh cases with clinical manifestations (8 lakhs lymphoedema and 4 lakhs Hydrocele). The initiatives have also been taken to demonstrate the simple washing of foot to maintain hygiene for prevention of secondary bacterial and fungal infection in chronic lymphoedema cases so that the patients get relief from frequent acute attacks. The states

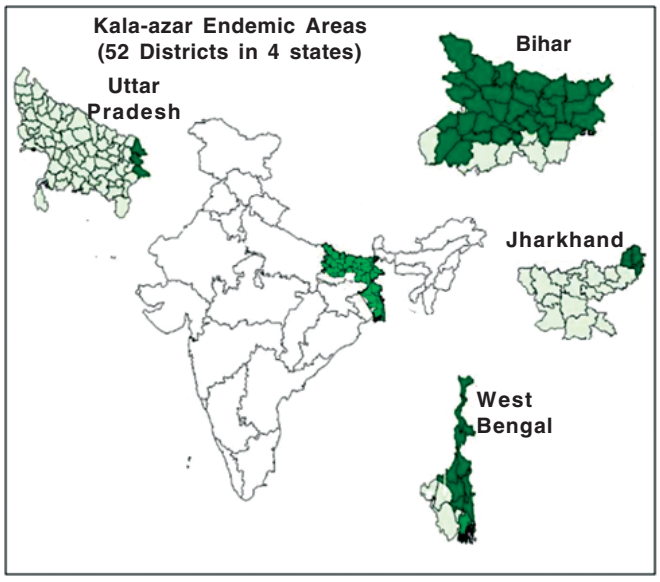


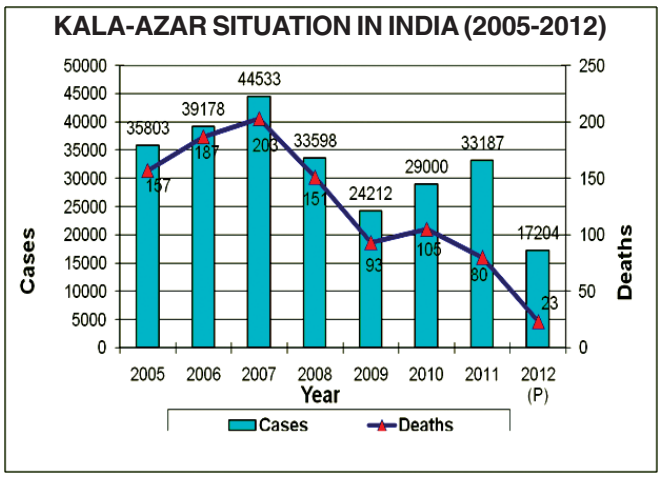
regularly update the list and intensify the hydrocele operations in their respective states.

The microfilaria survey in all the implementation units (districts) is being done through night blood survey before MDA. The survey is done in 4 sentinel and 4 random sites collecting total 4000 slides (500 from each site). The data provided by the states indicate reduction in overall microfilaria rate in the MDA districts (1.24% in 2004 to 0.37% in 2011).

6.2.4 Kala-azar

Kala-azar is caused by a protozoan parasite *Leishmania donovani* and spread by sandfly (*phelbotomus argentipes)*, which breeds in shady, damp and warm places in cracks and crevices in the soft soil, in masonry and rubble heaps, etc. Proper sanitation and hygiene are





critical to prevent sand fly breeding. The disease has also been targeted for elimination by 2015 as per tripartite agreement between India, Nepal and Bangladesh. In pursuance to achieve the elimination goal, case detection and treatment compliance has been strengthened and Rapid Diagnostic Test for Kala-azar and oral drug *miltefosine* has been introduced. World Bank is providing State & District level VBD Consultants, Kala azar Technical Supervisor (KTS), mobility for monitoring & supervision and capacity building/training in 46 districts in 3 states namely Bihar, Jharkhand and West Bengal.

Kala-azar is endemic in 52 districts (31 in Bihar, 4 in Jharkhand, 11 in West Bengal and 6 in UP). The Kala-azar Control Programme was launched in 1990-91. The annual incidence of disease has come down from 77,102 cases in 1992 to 29,000 cases in 2010 and deaths from 1,419 to 105 respectively. The cases recorded during 2011 were 33,187 with 80 deaths, whereas during 2012 (till September updated on 22.11.2012) 17204 cases and 23 deaths have been reported. **Appendix-3.**

Strategy for Kala-azar elimination is through:

- **Parasite elimination and disease management**
  - Early case detection and complete treatment;
  - Strengthening of referral;
- **Integrated vector control**
  - Indoor Residual Spraying (IRS);
  - Environmental management by maintenance of sanitation and hygiene;
- **Supportive interventions**
  - Behaviour Change Communication for social mobilization;
  - Inter-sectoral convergence;
  - Capacity building by training and Monitoring and Evaluation

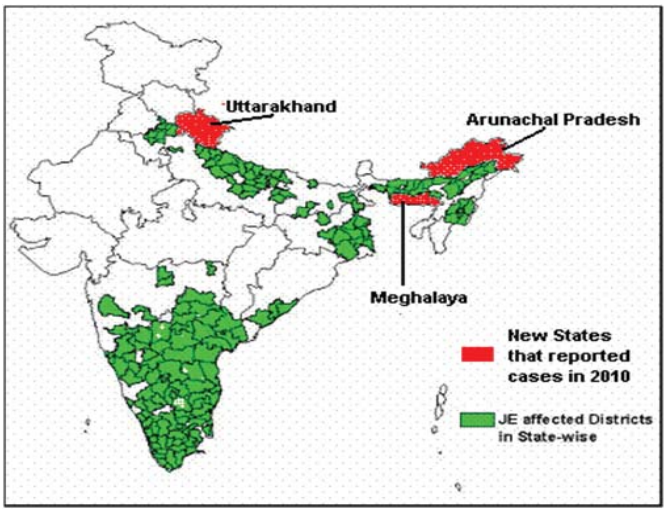
To realize the goal of elimination of Kala-azar, the Govt. of India is providing 100% support to endemic states since 2003-04.

Initiatives undertaken for Kala-azar elimination are as follows:

- Diagnostic tools i.e. RDK for Kala-azar has been introduced in all the Kala-azar endemic districts.
- Effective Oral drug – Miltefosine has een introduced and expanded in all the affected districts as first line of treatment.
- Indoor residual spray with DDT 50% for vector control.
- Incentive to the Kala-azar patient towards loss of wages @ Rs.50/- per day during the period of treatment.
- Free diet support to the patient and one attendant accompanying the patient.
- Incentive to ASHA for Rs.200/- per patient (Rs.50/- for referring a suspected case and Rs.150/- after completion of the treatment after confirmation through RDK).
- Support to states for engaging 46 VBD Consultants and 276 Kala-azar Technical Supervisors (KTS) in 46 districts under World Bank Supported Project.

6.2.5 Japanese Encephalitis (JE)

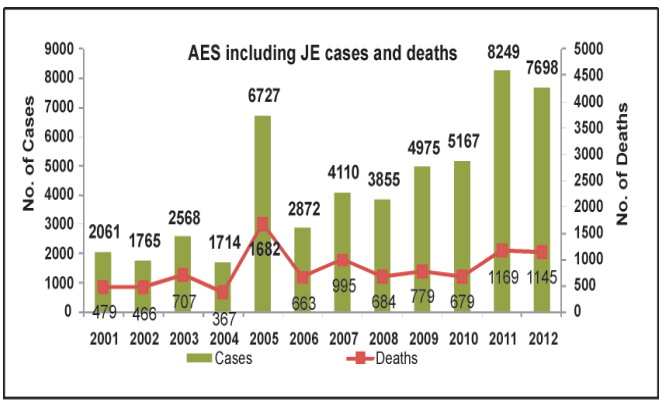
Japanese Encephalitis is a zoonotic disease which is transmitted by vector mosquito mainly belonging to *Culex vishnui* group. The transmission cycle is maintained in the nature by animal reservoirs of JE virus like pigs and water birds. Man is the dead end host, i.e. JE is not transmitted from one infected person to other. Outbreaks are common in those areas where there is close interaction between pigs/birds and human beings. The vectors of JE breed in large water bodies rich in aquatic vegetations such as paddy fields. The population at risk is about 350 million.



Case definition of AES: Clinically, a case of AES is defined as a person of any age, at any time of the year with the acute onset of fever and a change in mental status (including symptoms such as confusion, disorientation, coma or inability to talk). And/or new onset of seizures (excluding/simple febrile seizures). Other early clinical findings may include an increase in irritability, somnolence or abnormal behaviour greater than that seem with usual febrile illness.

Epidemiological Situation: JE has been reported from different parts of the country. The disease is endemic in 17 states of which Assam, Bihar, Tamil Nadu, Uttar Pradesh and West Bengal have been reporting outbreaks. In year 2010, 5167 cases and 679 deaths due to Acute Encephalitis Syndrome (AES) were reported. During the year 2011, 8249 cases of AES and 1169 deaths have been reported. During 2012 (till 21.11.2012), 7698 cases of AES and 1145 deaths have been reported. Out of this 3376 cases and 517 deaths are reported from Uttar Pradesh.

State-wise JE cases and deaths are given in **Appendix-4.**

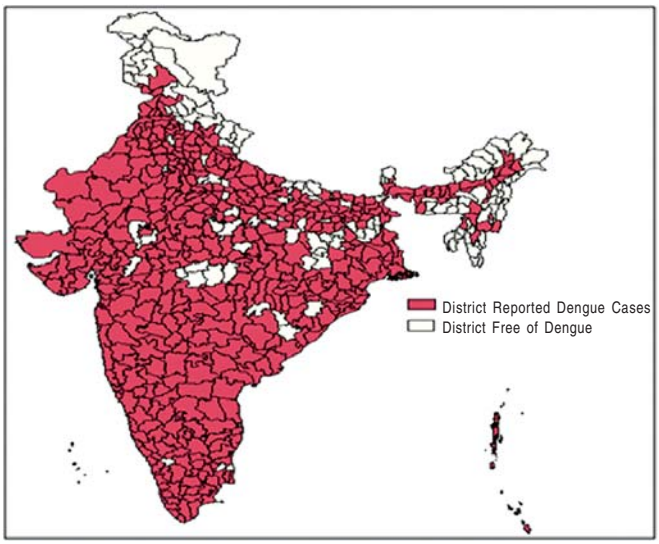


There is no specific cure for this disease. Symptomatic and early case management is very important to minimize risk of death and complications. Govt. of India launched JE vaccination programme as an integral component of Universal Immunization Programme (UIP) with single dose live attenuated JE (SA- 14-14-2) in 11 endemic districts of 4 States namely Uttar Pradesh, Assam, West Bengal and Karnataka for children between 1 and 15 years of age and 88.39% coverage was achieved. Further during 2007, 2008, 2009 and 2010, 28, 21, 30 and 28 districts respectively were covered under JE Vaccination bringing the total number of vaccinated districts to 109 as 7 districts of Eastern Uttar Pradesh which were brought under JE vaccination during 2006 were again targeted under special vaccination drive during 2010.

In addition, implementation of public health measures such as, Social Mobilization through different media like radio, TV including cable network, miking, inter-personal communication, etc for disseminating appropriate messages in the community is crucial. The emphasis is given on keeping pigs away from human dwellings or in pigsties particularly during dusk to dawn which is the biting time of vector mosquitoes. Sensitization of the community regarding avoidance of man-mosquito contact by using bet nets and fully covering the body are also advocated. Since early reporting of cases is crucial to avoid any complication and mortality, community is given full information about the signs and symptoms as well as availability of health services at health centres/hospitals. Besides, the states are advised fogging with malathion (technical) as an outbreak control measure in the affected areas.

For further strengthening the prevention and control measures against JE/AES, a multipronged strategy and a convergence with different Ministries has been proposed by GoI in line with the recommendations of GoM. As per this proposal which is under consideration of Government of India, an integrated approach with following Ministries has been suggested.

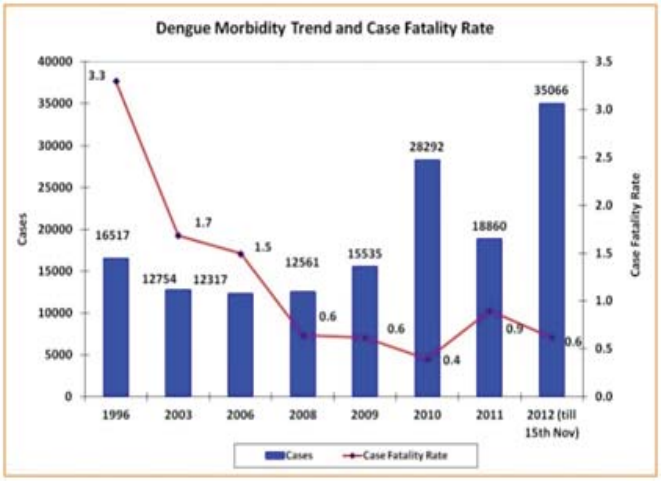
Ministry of Health & Family Welfare, Ministry of Drinking Water Supply & Sanitation, Ministry of Women & Child Development, Ministry of Social Justice & Empowerment, Ministry of Rural Development, Ministry of Urban Development.



6.2.6 Dengue Fever/Dengue Haemorrhagic Fever

Dengue Fever is an outbreak prone viral disease, transmitted by *Aedes* mosquitoes. Both *Aedes aegypti* and *Ae. albopictus* are involved in transmission. *Aedes aegypti* mosquitoes prefer to breed in manmade containers, viz., cement tanks, overhead tanks, underground tanks, tyres, desert coolers, pitchers, discarded containers, junk materials, etc, in which water stagnates for more than a week. This is a day biting mosquito and prefers to rest in hard to find dark areas inside the houses. *Aedes albopictus* mosquitoes prefer to breed in natural habitats like tree holes, plantation etc. The risk of dengue has shown an increase in recent years due to rapid urbanization, life style changes and deficient water management including improper water storage practices in urban, peri-urban and rural areas, leading to proliferation of mosquito breeding sites. The disease has a seasonal pattern i.e., the cases peak after monsoon and it is not uniformly distributed throughout the year. However, in the southern states and Gujarat the transmission is perennial. Dengue is a self limiting acute disease characterized by fever, headache, muscle, joint pains, rash, nausea and vomiting. Some infections results in Dengue Haemorrhagic Fever (DHF) and in its severe form Dengue Shock Syndrome (DSS) can threaten the patient's life primarily through increased vascular permeability and shock due to bleeding from internal organs. Though during 2010, highest numbers of cases were reported (28292) the deaths have declined. The Case Fatality Rate (CFR) which was 3.3 % in 1996 had come down to 0.4% in 2010 and 0.9% in 2011 because of better management of Dengue cases in the country following National guidelines. The disease is spreading to newer geographcal areas every year.

Epidemiological Situation: Dengue is endemic in 31 States/UTs. After 1996, Outbreak with a total number of 16517 cases and 545 deaths upsurge of cases were



recorded in 2003, 2005 and 2008. In 2009, total 15535 cases and 99 deaths have been reported. During 2010, 28292 cases and 110 deaths were reported whereas during 2011, 18860 cases and 169 deaths have been reported. During 2012 (till 15th November), total 35066 cases and 216 deaths have been reported (**Appendix-5**).

Highest number of deaths were reported by Tamil Nadu (60) followed by Maharashtra (59).

There is no specific anti-viral drug or vaccine against dengue infection. Mortality can only be minimized by early diagnosis and prompt symptomatic management of the cases. A strategic action plan has been developed for prevention and control of Dengue and issued to the endemic States for implementation. Guidelines for clinical management of dengue fever/ dengue haemorrhagic fever and dengue shock syndrome cases have been developed and sent to the states for wider circulation. Advisories have been sent to the endemic areas for effective vector control through inter-sectoral collaboration and active community involvement, regular monitoring of Dengue cases as well as entomological parameters to forecast likely outbreaks and to take timely remedial measures. The States have been communicated to undertake widespread campaigns for community awareness and mobilization through different media like mass media, miking, inter-personal communication, etc. The emphasis is on elimination of mosquito breeding sources like avoidance of water collection in and around houses, removal of all discarded and disposed/junk materials, keeping all water containers/storage facilities tightly covered and cleaning the water coolers at least once a week before re-filling. Since early reporting of cases is crucial to avoid any complication and mortality, the community is given full information about the signs and symptoms as well as availability of health services at health centres/ hospitals. Alerting the Hospitals for making adequate arrangements for management of Dengue/ Dengue Haemorrhagic Fever cases have also been advised.

The Directorate of National Vector Borne Disease Control has provided detailed guidelines for the prevention and control of dengue to the affected states. Intensive health education activities through print, electronic and inter-personal media, outdoor publicity as well as an inter-sectoral collaboration with civil society organization (NGOs/CBOs/Self-Help Groups), PRIs and Municipal bodies have been emphasized. Regular supervision and monitoring is conducted by the Programme. The Government of India in consultation with States has identified 347 sentinel surveillance hospitals with laboratory support for augmentation of diagnostic facilities in the endemic states. Further, for advanced diagnosis and backup support 14 Apex Referral Laboratories **(Appendix-6)** have been identified and linked with sentinel surveillance hospitals. To make these functional, IgM capture ELISA test kits are provided through National Institute of Virology, Pune free of cost. Contingency grant is also provided to meet the operational costs.

For early diagnosis ELISA based NS1 kits have been introduced under the programme which can detect the cases from 1st day of infection. IgM capture ELISA tests can detect the cases after 5th day of infection.

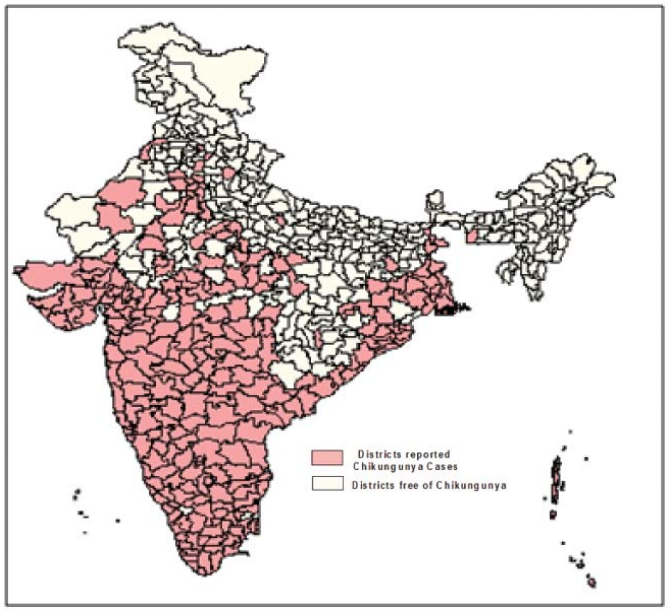
The GoI has taken the following steps for prevention and control of Dengue:

- Monitoring the situation through reports received from State Health Authorities.
- A Mid Term Plan for prevention and control of dengue has been developed in 2011 and circulated to the states for implementation. The main components of Mid Term Plan for Prevention and control of Dengue are as follows:
- Surveillance - Disease and Entomological Surveillance
- Case Management - Laboratory diagnosis and Clinical Management
- Vector Management - Environmental management for Source Reduction, Chemical control, Personal protection and Legislation

- Outbreak response - Epidemic preparedness and Media Management
- Capacity building- Training, strengthening human resource and operational research
- Behaviour Change Communication - Social mobilization and Information Education & Communication (IEC)
- Inter-sectoral coordination – with Ministries of Urban Development, Rural Development, Panchayati Raj, Surface Transport and Education sector
- Monitoring and Supervision - Analysis of reports, review, field visit and feedback

6.2.7 Chikungunya

Chikungunya is a debilitating non-fatal viral illness caused by Chikungunya virus. The disease re-emerged in the country after a gap of three decades. In India a major epidemic of Chikungunya fever was reported during 60s & 70s; 1963 (Kolkata), 1965 (Puducherry and Chennai



in Tamil Nadu, Rajahmundry, Vishakhapatnam and Kakinada in Andhra Pradesh; Sagar in Madhya Pradesh and Nagpur in Maharashtra) and 1973 (Barsi in Maharashtra). This disease is also transmitted by *Aedes* mosquito. Both *Ae. aegypti* and *Ae. albopictus* can transmit the disease. Humans are considered to be the major source or reservoir of Chikungunya virus. Therefore, the mosquitoes usually transmit the disease by biting infected persons and then biting others. The infected person cannot spread the infection directly to other person (i.e. it is not contagious disease). Symptoms of Chikungunya fever are most often clinically indistinguishable from those observed in dengue fever. However, unlike dengue, hemmorrhagic manifestations are rare and shock is not observed in Chikungunya virus infection. It is characterized by fever with severe joint pain (arthralgia) and rash. Chikungunya outbreaks typically result in large number of cases but deaths are rarely encountered. Joint pains sometimes persist for a long time even after the disease is cured.

During 2006, total 1.39 million clinically suspected Chikungunya cases reported in the country. Out of 35 States/UTs 16 were affected: Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, Madhya Pradesh, Gujarat, Kerala, Andaman & Nicobar Islands, Delhi, Rajasthan, Puducherry, Goa, Odisha, West Bengal, Lakshadweep and Uttar Pradesh. There are no reported deaths directly related to Chikungunya. In 2007, total 14 States were affected and reported 59535 suspected Chikungunya fever cases with nil death. Subsequently in 2008, 2009 and 2010, 95091, 73288 and 48176 suspected Chikungunya fever cases with nil death were reported**.** During 2011, 20402 suspected Chikungunya fever cases have been reported whereas during 2012 (till 15th November 2012) total 14227 suspected Chikungunya cases have been reported **(Appendix-7).**

As already mentioned, *Aedes* mosquitoes bite during the day and breed in a wide variety of man-made containers which are common around human dwellings. These containers such as discarded tyres, flower pots, old water drums, family water trough, water storage vessels and plastic food containers collect rain water and become the source of breeding of *Aedes* mosquitoes. *Ae.aegypti* played the major role in transmitting the disease in all the states except Kerala, where *Ae. albopictus* played the major role. *Ae. albopictus* breeding was detected in latex

collecting cups of rubber plantations, shoot-off leaves of areca palm, fruit shells, leaf axils, tree holes etc.

There is neither any vaccine nor drugs available to cure the Chikungunya infection. Supportive therapy that helps to ease symptoms, such as administration of non-steroidal anti-inflammatory drugs and getting plenty of rest are found to be beneficial.

Government of India is continuously monitoring the situation, sending guidelines and advisories for prevention and control of Chikungunya fever to the states. Since same vector is involved in the transmission of Dengue and Chikungunya strategies for transmission risk reduction by vector control are also same. A comprehensive Mid Term Plan for prevention & control of Chikungunya and Dengue/Dengue Haemorrhagic Fever has been prepared and disseminated for guidance to the states. Support in the form of logistics and funds are provided to the states. The central teams are deputed to the affected states for technical guidance of the state health authorities. As most transmission occurs at home, therefore, community participation and co-operation is of paramount importance for successful implementation of programme strategies for prevention and control of Chikungunya. For effective community participation, people are informed about Chikungunya and the fact that major epidemics can be prevented by taking effective preventive measures by community itself. Therefore, considerable efforts have been made through advocacy and social mobilization for community education and awareness.

For carrying out proactive surveillance and enhancing diagnostic facilities for Chikungunya, the 347 Sentinel Surveillance Hospitals in States/UTs across the country are involved in dengue in the affected states also carries Chikungunya tests. Both Dengue and Chikungunya Diagnostic kits (IgM capture ELISA) to these institutes are provided through National Institute of Virology, Pune and cost is borne by GoI. Further, rapid response by the concerned health authorities has been envisaged on report of any suspected case from the Sentinel Surveillance Hospitals to prevent further spread of the disease.

The overall strategies for prevention and control are same as in Dengue such as symptomatic management of cases, reduction of breeding sources, personal protection and intensive IEC and capacity building.

Initiatives undertaken by Govt. of India for prevention and control of Dengue/Chikungunya are as follows:

i. Continuous monitoring of Chikungunya and Dengue situation in states.

ii. Circulation of guidelines and advisories for prevention and control of diseases to affected states.

iii. Launch of intensive IEC and Behaviour Change Communication activities through print, electronic media, interpersonal communication, outdoor publicity as well as inter sectoral collaboration with civil society organizations (NGOs/CBOs/ Self Help Groups), PRIs.

iv. Provision of larvicides and adulticides to affected states.

v. Identification and strengthening of Apex Referral Laboratories and sentinel surveillance hospitals for diagnosis and regular surveillance.

vi. NIV, Pune has been entrusted for supply of test kits to the identified institutions free of cost.

vii. Contingency grant provided to the Apex Referral Laboratories and sentinel surveillance hospitals to meet the operational cost.

viii. Training is imparted on various aspects of prevention and control of Dengue and Chikungunya to programme personnel, Medical Officers on Case Management and laboratory personnel on case diagnosis.

Appendix-1

State-wise Malaria situation in the Country

STATES/UTs.	2009		2010		2011		2012(till October*) updated on 05.11.12)	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Death
Andhra Pradesh	25152	3	33393	20	34949	5	19123	0
Arunachal Pradesh	22066	15	17944	103	13950	17	4307	3
Assam	91413	63	68353	36	47397	45	25304	10
Bihar	3255	21	1908	1	2643	0	1689	0
Chhattisgarh	129397	11	152209	47	136899	42	72770	5
Goa	5056	10	2368	1	1187	3	1145	0
Gujarat	45902	34	66501	71	89764	127	55272	54
Haryana	30168	0	18921	0	33401	0	14723	4
Himachal Pradesh	192	0	210	0	247	0	165	0
J&K	346	0	802	0	1091	0	649	0
Jharkhand	230683	28	199842	16	160653	17	101126	11
Karnataka	36859	0	44319	11	24237	0	12548	0
Kerala	2046	5	2299	7	1993	2	1149	1
Madhya Pradesh	87628	26	87165	31	91851	109	45200	29
Maharashtra	93818	227	139198	200	96577	118	38003	61
Manipur	1069	1	947	4	714	1	225	0
Meghalaya	76759	192	41642	87	25143	53	16539	33
Mizoram	9399	119	15594	31	8861	30	7716	20
Nagaland	8489	35	4959	14	3363	4	2397	1
Odisha	380904	198	395651	247	308968	99	187309	33
Punjab	2955	0	3477	0	2693	3	1402	0
Rajasthan	32709	18	50963	26	54294	45	25803	17
Sikkim	42	1	49	0	51	0	64	0
Tamil Nadu	14988	1	17086	3	22171	0	13458	0
Tripura	24430	62	23939	15	14417	12	9650	2
Uttarakhand	1264	0	1672	0	1277	1	1550	0
Uttar Pradesh	55437	0	64606	0	56968	0	31800	0
West Bengal	141211	74	134795	47	66368	19	39378	25
A&N Islands	5760	0	2484	0	1918	0	1138	0
Chandigarh	430	0	351	0	582	0	213	0
D & N Haveli	3408	0	5703	0	5150	0	4557	0
Daman & Diu	97	0	204	0	262	0	145	0
Delhi	169	0	251	0	413	0	282	0
Lakshadweep	8	0	6	0	8	0	0	0
Puducherry	65	0	175	0	196	1	76	0
All India Total	**1563574**	**1144**	**1599986**	**1018**	**1310656**	**753**	**736875**	**309**

**Provisional*

Appendix-2

Population Coverage (%) during Mass Drug Administration (MDA)

Sl. No.	States/ UTs	2009	2010	2011
1	Andhra Pradesh	91.85	92.50	92.74
2	Assam	**ND**	76.08	76.75
3	Bihar	77.91	78.61	**ND**
4	Chhattisgarh	91.53	92.99	92.15
5	Goa	95.37	94.63	96.21
6	Gujarat	97.63	98.33	97.66
7	Jharkhand	85.99	63.64	71.55
8	Karnataka	89.30	91.46	91.81
9	Kerala	77.81	81.91	89.62
10	Madhya Pradesh	87.59	90.74	89.27
11	Maharashtra	89.51	89.38	89.28
12	Odisha	89.81	90.63	90.12
13	Tamil Nadu	94.13	**ND**	93.58
14	Uttar Pradesh	**ND**	81.04	80.45
15	West Bengal	86.93	**ND**	79.23
16	A&N Islands	91.40	77.12	90.15
17	D & N Haveli	95.84	96.20	98.51
18	Daman & Diu	91.56	92.04	90.89
19	Lakshadweep	83.86	80.09	73.94
20	Puducherry	96.02	96.92	97.14
	Total	**86.70**	**84.37**	**86.73**

ND: - Not Done

Appendix-3

State-wise Kala-azar Cases & Deaths

Sl. No.	Affected State	2009		2010		2011(P)		2012 (P)	
		Cases	Death	Cases	Death	Cases	Death	Cases	Death
1	Bihar	20519	80	23084	95	25222	76	13386	21
2	Jharkhand	2875	12	4305	5	5960	3	3027	1
3	West Bengal	756	0	1482	4	1962	0	770	0
4	Uttar Pradesh	17	1	14	0	11	1	4	0
5	Uttarakhand	2	0	1	0	0	0	7	1
6	Delhi *	12	0	92	0	19	0	9	0
7	Gujarat *	0	0	0	0	0	0	0	0
8	Assam	26	0	12	0	5	0	0	0
9	Sikkim	5	0	3	0	7	0	1	0
10	Madhya Pradesh	0	0	0	0	0	0	0	0
11	Himachal Pradesh	0	0	6	1	1	0	0	0
12	Punjab*	0	0	1	0	0	0	0	0
	Total	**24212**	**93**	**29000**	**105**	**33187**	**80**	**17204**	**23**

*Imported

Appendix-4

State-wise Cases and Deaths due to suspected AES/JE

Sl. No.	Affected States/UTs	2009		2010		2011		2012 Till 21.11.2012	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Andhra Pradesh	49	0	139	7	73	1	64	0
2	Assam	462	92	469	117	1319	250	1343	229
3	Bihar	325	95	50	7	821	197	745	275
4	Delhi	0	0	0	0	9	0	0	0
5	Goa	66	3	80	0	91	1	66	0
6	Haryana	12	10	1	1	90	14	5	0
7	Jharkhand	0	0	18	2	303	19	16	0
8	Karnataka	246	8	143	1	397	0	189	1
9	Kerala	3	0	19	5	88	6	29	6
10	Maharashtra	5	0	34	17	35	9	37	20
11	Manipur	6	0	118	15	11	0	2	0
12	Nagaland	9	2	11	6	44	6	21	2
13	Punjab	0	0	2	0	0	0	0	0
14	Tamil Nadu	265	8	466	7	762	29	804	53
15	Uttar Pradesh	3073	556	3540	494	3492	579	3376	517
16	Uttarakhand	0	0	7	0	0	0	174	2
17	West Bengal	454	5	70	0	714	58	827	40
	Grand Total	**4975**	**779**	**5167**	**679**	**8249**	**1169**	**76981**	**145**

Appendix-5

State-Wise Dengue Cases And Deaths

Sl. No.	State	2009		2010		2011		2012 (Pro.till 15th November)	
		Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	Andhra Pradesh	1190	11	776	3	1209	6	1734	2
2	Arunachal Pradesh	0	0	0	0	0	0	156	1
3	Assam	0	0	237	2	0	0	262	4
4	Bihar	1	0	510	0	21	0	94	0
5	Chhattisgarh	26	7	4	0	313	11	1	0
6	Goa	277	5	242	0	26	0	33	0
7	Gujarat	2461	2	2568	1	1693	9	1461	2
8	Haryana	125	1	866	20	267	3	676	2
9	Himachal Pradesh	0	0	3	0	0	0	0	0
10	J & K	2	0	0	0	3	0	16	1
11	Jharkhand	0	0	27	0	36	0	42	0
12	Karnataka	1764	8	2285	7	405	5	3482	21
13	Kerala	1425	6	2597	17	1304	10	3674	13
14	Madhya Pradesh	1467	5	175	1	50	0	139	6
15	Meghalaya	0	0	1	0	0	0	11	2
16	Maharashtra	2255	20	1489	5	1138	25	1464	59
17	Manipur	0	0	7	0	220	0	6	0
18	Mizoram	0	0	0	0	0	0	6	0
19	Nagaland	25	0	0	0	3	0	0	0
20	Odisha	0	0	29	5	1816	33	2029	6
21	Punjab	245	1	4012	15	3921	33	621	15
22	Rajasthan	1389	18	1823	9	1072	4	418	0
23	Sikkim	0	0	0	0	2	0	2	0
24	Tamil Nadu	1072	7	2051	8	2501	9	9249	60
25	Uttar Pradesh	168	2	960	8	155	5	184	3
26	Uttrakhand	0	0	178	0	454	5	25	2
27	West Bengal	399	0	805	1	510	0	6067	9
28	A&N Island	0	0	25	0	6	0	15	0
29	Chandigarh	25	0	221	0	73	0	325	0
30	Delhi	1153	3	6259	8	1131	8	1584	4
31	D&N Haveli	0	0	46	0	68	0	138	1
32	Daman & Diu	0	0	0	0	0	0	50	0
33	Puducherry	66	0	96	0	463	3	1102	3
	TOTAL	**15535**	**96**	**28292**	**110**	**18860**	**169**	**35066**	**216**

Appendix - 6

APEX REFERRAL LABORATORIES

1.	National Institute of Virology, Pune.
2.	National Center for Disease Control (former NICD), Delhi.
3.	National Institute of Mental Health & Neuro-Sciences, Bangalore.
4.	Sanjay Gandhi Post-Graduate Institute of Medical Sciences, Lucknow.
5.	Post- Graduate Institute of Medical Sciences, Chandigarh.
6.	All India Institute of Medical Sciences, Delhi.
7.	ICMR Virus Unit, National Institute of Cholera & Enteric Diseases, Kolkata.
8.	Regional Medical Research Centre (ICMR), Dibrugarh, Assam.
9.	King's Institute of Preventive Medicine, Chennai.
10.	Institute of Preventive Medicine, Hyderabad.
11.	B J Medical College, Ahmedabad.
12.	State Public Health Laboratory, Thiruvananthapuram, Kerala
13.	Defence Research Development and Establishment, Gwalior
14.	Regional Medical Research Centre for Tribals, (ICMR) Jabalpur, Madhya Pradesh

Appendix-7

State-wise Clinically Suspected Chikungunya Cases

Sl. No.	States/UTs	2009	2010	2011	2012(till 15th November)
1	Andhra Pradesh	591	116	99	1822
2	Bihar	0	0	91	33
3	Goa	1839	1429	664	405
4	Gujarat	1740	1709	1042	1140
5	Haryana	2	26	215	17
6	Jharkhand	0	0	816	86
7	Karnataka	41230	8740	1941	2246
8	Kerala	13349	1708	183	61
9	Madhya Pradesh	30	113	280	1
10	Meghalaya	0	16	168	0
11	Maharashtra	1594	7431	5113	1466
12	Odisha	2306	544	236	129
13	Punjab	0	1	0	1
14	Rajasthan	256	1326	608	95
15	Tamil Nadu	5063	4319	4194	5018
16	Uttar Pradesh	0	5	3	0
17	Uttarakhand	0	0	18	0
18	West Bengal	5270	20503	4482	1381
19	A&N Island	0	59	96	209
20	Chandigarh	0	0	1	0
21	Delhi	18	120	110	6
22	D&N Haveli	0	0	0	82
23	Lakshadweep	0	0	0	0
24	Puducherry	0	11	42	29
	Total	**73288**	**48176**	**20402**	**14227**

6.3 NATIONAL LEPROSY ERADICATION PROGRAMME (NLEP)

1. The National Leprosy Control Programme (NLEP) was launched by the Govt. of India in 1955. Multi Drug Therapy came into wide use from 1982 and the National Leprosy Eradication Programme was introduced in 1983. Since then, remarkable progress has been achieved in reducing the disease burden. India achieved the goal of elimination of leprosy as a public health problem, defined as less than 1 case per 10,000 populations, at the National level in the month of December 2005 as set by the National Health Policy, 2002. MDT is supplied free of cost by WHO.

2. Following are the programme components –

1) Case detection and Management.

2) Disability prevention and Medical Rehabilitation.

3) Information, Education & Communication (IEC/ BCC)

4) Human Resources and Capacity building.

5) Programme Management.

6.3.1 Epidemiological Situation

The year 2011-12 started with 0.83 lakh leprosy cases on record as on 1st April 2011, with PR 0.69/10,000. Till then 32 States/ UTs had attained the level of leprosy elimination. A total of 543 districts (84.58%) out of total 642 districts also achieved elimination by March 2012.

A total of 209 high endemic districts were identified for special actions during 2011-12. After thorough analysis a total of 2019 blocks & 2 urban areas were identified for special action. The States were advised to post well trained District Leprosy Officer in all the districts where these blocks are located. In addition one officer should be identified in each of these blocks to strengthen the process of supervision and monitoring.

At the end of the year 2011-12, Leprosy Status is as below:

1. 33 States/ UTs had already achieved the level of elimination i.e. PR less than 1 case per 10,000 population. One State (Chhattisgarh) and One U.T. (Dadra & Nagar Haveli) has remained with PR between 1 and 3 per 10,000 population.

2. A total of 1.27 Lakh new Leprosy cases was detected during the year 2011-12 giving ANCDR of 10.35 per 100,000 population.

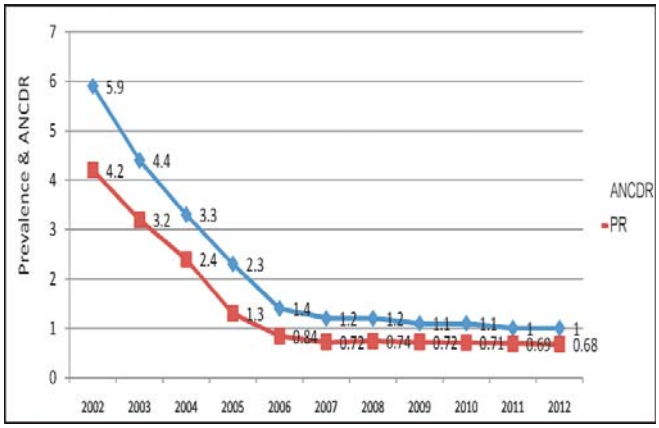
3. A total of 0.83 Lakh Leprosy cases on record as on 1st April, 2012 with PR 0.68/10,000 Population.

4. The Proportion amongst new leprosy cases detected during 2011-12 indicates of MB (49.0), Female (37.0), Child (9.7), Visible Deformity (3.0), ST cases (15.8) and SC cases (18.4).

5. 2548 reconstructive surgeries were conducted in 2011-12 for correction of disability in leprosy affected persons.

6. Out of 140590 leprosy cases discharged during the year (2011-12), 127899 cases were released as cured after completing treatment.

7. Out of 219075 global leprosy cases reported in 2011, 127,295 cases were reported by India. Thus India contributed about 58% of new cases detected globally in 2011 and this trend is likely to continue for some more years. The trend of Prevalence and Annual New Case Detection Rate Per 10,000 population since 2001-02 is shown in the Graph below:



6.3.2 Activities under NLEP

1. **Diagnosis and treatment of leprosy**- Services for diagnosis and treatment (Multi drug therapy) are provided by all primary health centres and govt. dispensaries throughout the country free of cost. Difficult to diagnose and complicated cases and cases requiring reconstructive surgery are referred to district hospital for further management. ASHAs under NRHM are being involved to bring out leprosy cases from villages

for diagnosis at PHC and follow up cases for treatment completion. ASHAs are being paid incentive for this activity from the programme budget.

2. **Training** - Training of general health staff like medical officer, health workers, health supervisors, laboratory technicians and ASHAs are conducted every year to develop adequate skill in diagnosis and management of leprosy cases. The District Nucleus staffs under the District Leprosy Officer monitors the activities in the PHCs and provide on job training wherever needed to the General Health Care Staff.

3. **Urban leprosy control**- To address the complex problems in urban areas, the Urban Leprosy control activities are being implemented in 422 urban areas having population size of more than 1 lakh. These activities include MDT delivery services & follow up of patient for treatment completion, providing supportive medicines & dressing material and monitoring & supervision.

4. **IEC**- Intensive IEC activities are conducted for awareness generation and particularly reduction of stigma and discrimination against leprosy affected persons. These activities are carried through mass media, outdoor media, rural media and advocacy meetings. More focus is given on inter personal communication. Mass media campaign was carried out through the Prasar Bharti & Private T.V. Channels and F.M. Channels to spread awareness about leprosy in the General Public. IEC activities for NLEP are also a component of the all NRHM IEC Campaigns. The State/Districts also participate in Health Melas for spreading awareness about leprosy.

5. **NGO services under SET scheme**- Presently, 39 NGOs are getting grants from Govt. of India under Survey, Education and Treatment (SET) scheme. The various activities undertaken by the NGOs are, IEC, Prevention of Impairments and Deformities, Case Detection and MDT Delivery. From financial year 2006 onwards, Grant-in-aid is being disbursed to NGO through State Health (Leprosy) Societies.

6. **Disability Prevention and Medical Rehabilitation**– Emphasis is being given on correction of disability in leprosy affected persons through reconstructive surgery (RCS). An amount of Rs. 5000/- is provided as incentive to leprosy affected persons from BPL family for undergoing per major reconstructive surgery in identified Govt./NGO institutions to compensate loss of wages during their stay in hospital. Support is also provided to Government institutions in the form of Rs. 5000/- per major RCS conducted, for procurement of supply & material and other ancillary expenditure required for the surgery.

➢ For prevention of disability among persons with insensitive hands and feet, they are given dressing material, supportive medicines and micro-cellular rubber (MCR) footwear. The patients are also empowered with self care procedure for taking care of themselves.

7. **Supervision and Monitoring** –Programme is being monitored at different level through analysis of monthly progress reports, through field visits by the supervisory officers and programme review meetings held at Central, State and District level. For better epidemiological analysis of the disease situation, emphasis is given to assessment of New Case Detection and Treatment Completion Rate and proportion of grade II disability among new cases.

District nucleus is a nodal agency at a district level. Without the complete districts nucleus team, it is very difficult to monitor the programme regularly. It may be mentioned that leprosy services are being provided through the Primary Health Care Institutions with the General Health Staff. The component called District Nucleus was kept at the District level under the District Programme Officer with persons from erstwhile vertical staff under NLEP.

Independent Programme Evaluation was carried out during the year 2010 through an independent agency.

6.3.3 Initiatives

i. **Special Activity in High Endemic Distt**.- 209 Districts had reported ANCDR (Annual New Case Detection Rate) more than 10 per lakh population. Special activity for early detection and complete treatment, Capacity building and extensive IEC, Adequate availability of MDT, Strengthening of Distt. Nucleus, Regular monitoring & supervision and review, Regular follow up for neuritis and reaction, Self care practices, Supply of MCR footwear in adequate quantity and Improvement in RCS performance

through camp approach were carried out in the above districts during 2011-12, to reduce the disease burden.

ii. **Involvement of ASHA–** A scheme to involve ASHAs was drawn up to bring out leprosy cases from their villages for diagnosis at PHC and follow up cases for treatment completion. To facilitate the involvement of ASHA, they were being paid an incentive as below during the year 2011-12.

(i) On confirmed diagnosis of case brought by them – Rs. 100/-

(ii) On completion of full course of treatment of the case within specified time- PB leprosy case – Rs. 200/- and MB Leprosy case – Rs. 400/-

ASHAs under the NRHM were involved in Leprosy programme for last 4 years. However during 2011-12, their participation has substantially increased.

6.3.4 Budget

The Budget allocation under NLEP for 2010-11 was Rs. 45.32 crore and expenditure of Rs. 37.35 crores was incurred during the year. Budget allocation for 2011-12 is Rs. 44.02 crores. Rs. 40.63 crores expenditure has been incurred during the year.

6.4 REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME (RNTCP)

1. TB Disease burden in India

Tuberculosis (TB) is major public health problem in India. India with population of 1.22 billion (17% of global population) contributes to about 21% of the global TB Burden. It is estimated by WHO that annually about two million incident TB cases occur in India with mortality of around 0.28 million. The state-wise estimated TB incident cases are in:

TB Incidence: The National estimates of Annual Risk of TB Infection (ARTI) which gives an indirect measurement of incidence of TB, prior to 2000 was 1.7% and estimates based on National ARTI survey in 2001-03 reduced to 1.5% and based on latest ARTI Survey in 2007-09 has further reduced to 1.1%, thus showing declining trend.

TB Prevalence (all forms of TB) has been reduced from 586 cases per lakh population (1990) to 249 cases per lakh population as per the WHO Global Report 2010. Repeat population surveys conducted by NIRT (ICMR) indicate an annual decline in prevalence of disease by 12%. Based on the TB prevalence rates per lakh population, India is the 17th amongst the 22 highest burden countries in the world.

TB Mortality in the country has reduced from over 42 deaths due to TB per lakh population in 1990 to 23 deaths due to TB per lakh population as per the WHO Global Report 2010.

2. Goal of the Programme

The goal of TB control Programme is to decrease mortality and morbidity due to TB and cut transmission of infection until TB ceases to be a major public health problem in India.

3. Objectives of the programme

- To achieve and maintain cure rate of at least 85% among New Sputum Positive patients.
- To achieve and maintain case detection of at least 70% of the estimated NSP cases in the community.

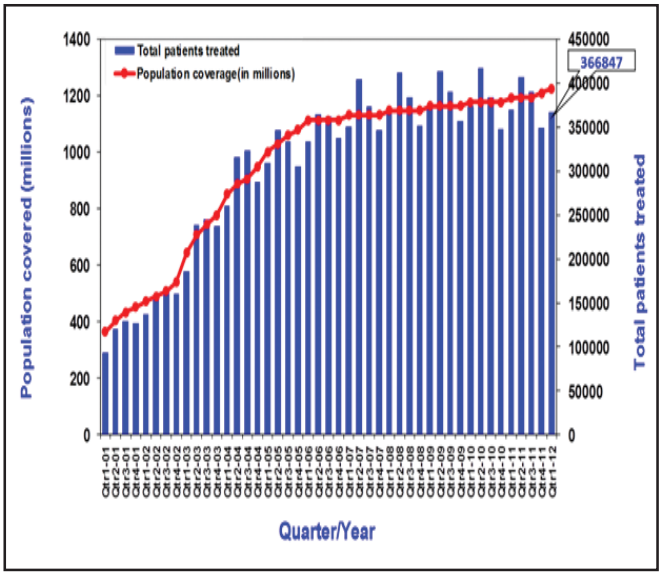
The current focus of the programme is on ensuring universal access to quality TB diagnosis and quality treatment services to all TB patients in the community.

4. Benefits already accrued in 11th Five Year Plan

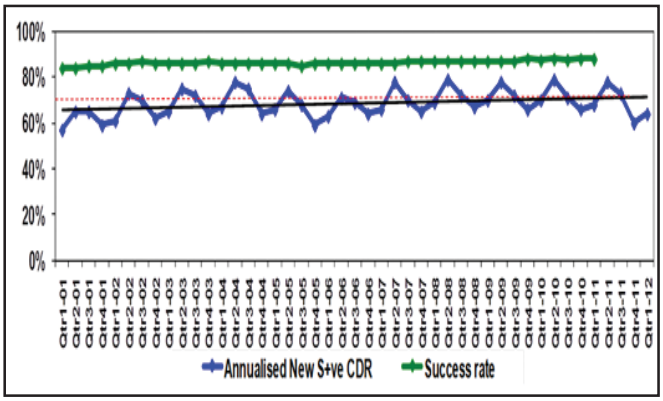
Indicator	11th FYP	
	Planned	Achieved
No of TB suspects examined (millions)	29.65	35.5
Total number of patients to be put on treatment (millions)	6.3	7.55
New Smear Positive patients to be put on treatment (millions)	2.95	3.68
No of MDR TB patients to be put on treatment (000)	5	4.2
Success Rate in New Smear Positive patients in RNTCP (%)	≥85%	87%
Annual Risk of TB Infection (%) Reduced from 1.5% to 1.1%		
Prevalence reduced from 4.1 to 3.1 million,		
Incidence reduced from 2.4 to 2.3 million,		
Mortality reduced from 4.1 to 3.2 lakh		

5. RNTCP Achievements

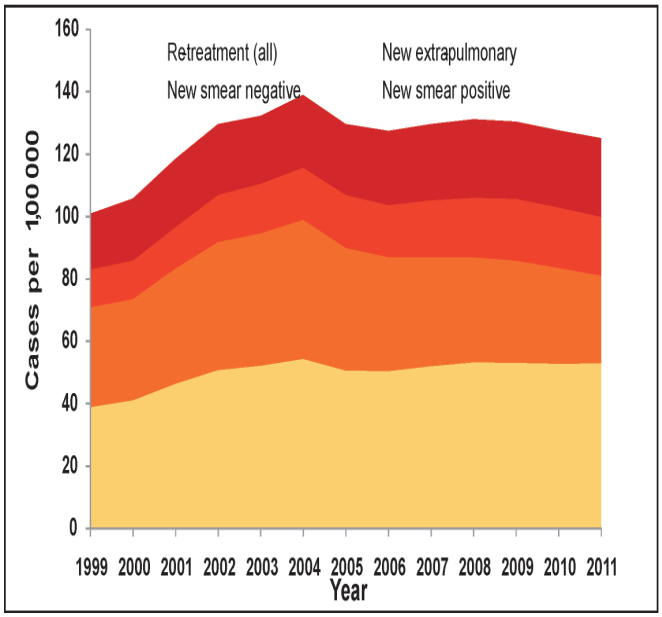
- Since its inception, the programme has initiated >15 million patients on treatment, thus saving more than 2.6 million additional lives.



- Graph 1: Population in India covered under DOTS and Total Tuberculosis Patients put on treatment each quarter
- Treatment success rates have tripled from 25% in pre-RNTCP era to 87% presently and TB death rates have been reduced from 29% to 4% during the same period.
- Since 2007, RNTCP has also achieved the NSP case detection rate of more than 70% in line with the global targets for TB control while maintaining the treatment success rate of >85%.
- Graph 2: Annual New sputum smear positive case detection rate and treatment success rate in DOTS areas, 2001-2012.



- Graph 3: Trends in notification of different types of TB cases under RNTCP



- Quality assured diagnostic facilities are available through nearly 13000 designated microscopy centres (DMCs) across the country.
- To ensure quality of sputum microscopy, external quality assurance is being routinely conducted throughout the country as per a standardized protocol based on international guidelines with all components for ensuring quality – on site evaluation, panel testing and blinded crosschecking.
- All states are implementing the 'Supervision and Monitoring strategy' – detailing guidelines, tools and indicators for monitoring the performance from the PHI level to the national level.
- The programme is focusing on the reduction in the default rates amongst all new and re-treatment cases and is undertaking steps for the same.
- To improve access to tribal and other marginalized groups the programme has developed a Tribal action plan which is being implemented with the provision of additional TB Units and DMCs in tribal/difficult areas, additional staff, compensation for transportation of patient & attendant and higher rate of salary to contractual staff.

- The programme has introduced Pediatric patient wise boxes, in 2006, with formulations and doses specifically designed for convenient usage in children.
- >2000 NGOs and >10,000 Private Practitioners are involved in the programme in different signed schemes under NGO/PP schemes. In addition 292 medical colleges (including private ones) have been involved in RNTCP by the end of 1stQ 2012.
- Health facilities in government sectors outside Health Ministry have been involved viz. ESI, Railways, Ports and the ministries of Mines, Steel, Coal, etc.
- Intensified Public Private Mix project is being undertaken with Indian Medical Association (IMA) in 16 States and with Catholic Bishop Conference of India (CBCI), a Faith Based Organisation (FBO), in 19 States under the Global Fund supported Rolling Continuation Channel (RCC) Project.
- Under the Global Fund Round 9 project, civil society organizations are undertaking activities in 374 districts across 23 states to enhance the visibility and reach of the programme and engage with communities and community based care providers to improve TB care and control.

6.4.1 Drug Resistant Tuberculosis (DR-TB)

Disease burden: WHO Global TB Report 2011, estimates that approximately 64,000 cases of Multi-Drug Resistant-TB (MDR-TB) emerge annually from the notified cases of pulmonary TB in India, based on the data available from population based drug resistance surveys carried out in 3 states of India that revealed the prevalence of MDR-TB to be ~3% among new TB cases and 12-17% among previously-treated TB cases. Isolated studies have reported XDR-TB in India. However, the extent and magnitude of this problem is yet to be determined. Preliminary results show that there is not yet any XDR-TB amongst new cases and ~0.5% amongst re-treatment cases. However, when translated into numbers the M/XDR TB cases are significant and pose a serious challenge to TB epidemiology unless effectively managed. The national guidelines for programmatic management of drug resistant TB is available, periodically updated (Revised on June 2012) and have clear guidance for quality management of MDR-TB and XDR-TB.

6.4.2 Key Features of RNTCP for Programmatic Management of Drug Resistant TB (PMDT) in India

Diagnosis of M/XDR TB

- Decentralized diagnostic and treatment services
- Diagnosis: Clinical indication to offer Drug Susceptibility Testing (DST)
  - Initially: All failures of first line regimen, contacts of known MDR TB case(Criteria A)
  - Subsequently: + All smear positive re-treatment cases at diagnosis, any smear positive follow up case (Criteria B)
  - For XDR-TB: if culture positive at 6 months and culture reverted cases (Criteria C)
- Drug susceptibility testing
  - Specimen transport to accredited reference laboratory
  - Line Probe Assay (LPA) – if available – is preferred DST method for first line drugs

MDR Diagnostic Technology	Choice
Molecular DST (e.g. LPA DST)	First
Liquid culture isolation and LPA DST	Second
Solid culture isolation and LPA DST	Third
Liquid culture isolation and Liquid DST	Fourth
Solid culture isolation and DST	Fifth

  - DST for 2nd line drugs done at 3 National Reference Labs (National TB Institute-Bangalore; National Institute of Research in Tuberculosis-Chennai and Lala Ram Sarup Institute-New Delhi)

Treatment of M/XDR TB

- Treat based on Rifampicin (Rif) / DST results (Rif mono-resistance rare)
- Initial Hospitalization at Drug Resistant TB Centers (DR-TB Centre) followed by ambulatory care

- Standardized treatment Regimen for MDR-TB – daily DOT

– (6-9 months) Kanamycin; Levofloxacin; Cycloserin; Ethionamide; Pyrazinamide; Ethambutol / (18 months) Levofloxacin; Cycloserin; Ethionamide; Ethambutol

– PAS used as a substitute drug in case of intolerance

- Standardized treatment Regimen for XDR-TB – daily DOT

– (6-12 months) Capreomycin; PAS, Moxifloxacin, High dose INH, Clofazimine; Linezolid; Amoxycilin-Clavulanic Acid / (18 months) PAS, Moxifloxacin, High dose INH, Clofazimine; Linezolid; Amoxycilin-Clavulanic Acid

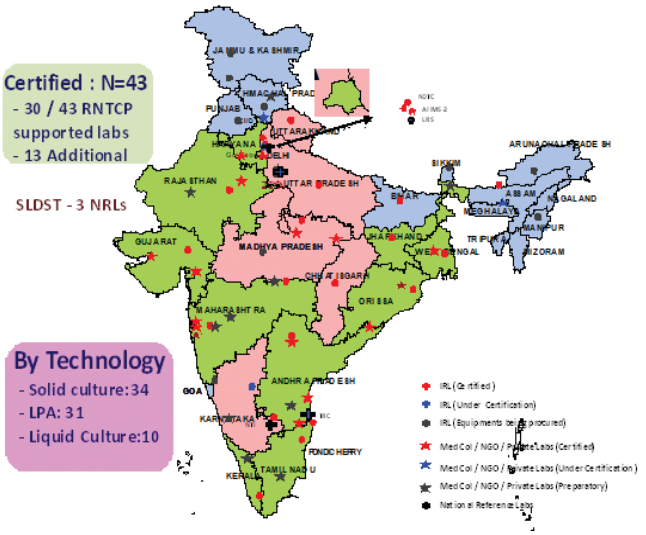
– Clarithromycin and Thiacitazole used as a substitute drug in case of intolerance.

Status and Progress in Scaling-up of PMDT Services in India

- Quality diagnosis and treatment services under programmatic management of drug resistant TB were introduced since 2007.

- 43 RNTCP Certified Culture-DST laboratories are currently functional with rapid molecular test (Line Probe Assay – LPA) available in 31 of these labs.

Figure 1: RNTCP Network of Culture and DST Laboratories – Sept '12



- PMDT services are available in all 35 states of the country across 527 districts covering a population of 864 million (71%) as on 25th Oct 2012 and are being rapidly scaled up.

- 24/35 states have achieved 100% geographical coverage and the remaining states are expected to achieve complete geographical coverage by 2012-13

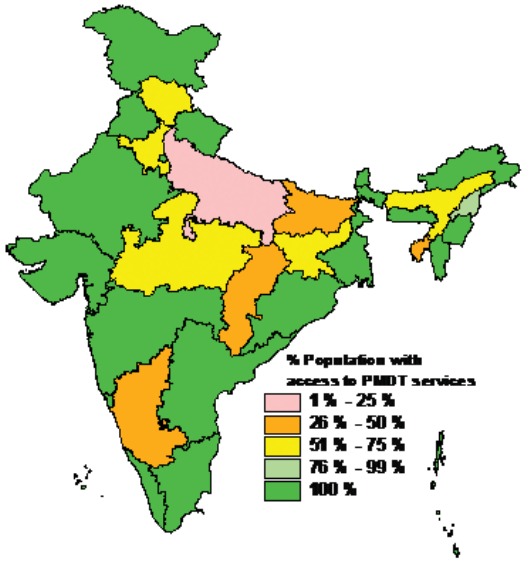
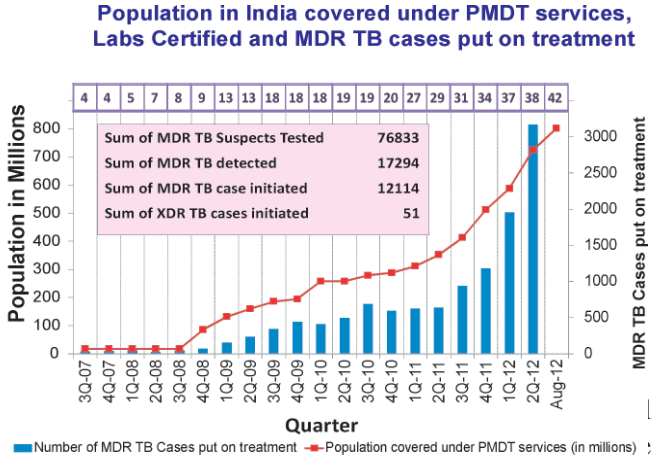


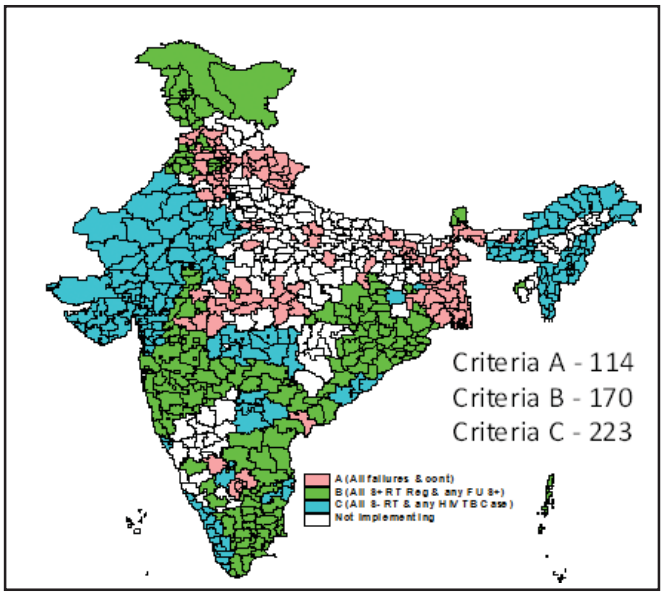
Figure 2: Proportion of Population with Access to PMDT services in India as on Sept '12

- Graph 4: Population in India covered under PMDT services, C-DST Laboratories Certified and Total MDR TB cases put on treatment each quarter.



up RNTCP PMDT services for M/XDR TB nationwide.

- All states are expected to move towards universal access to quality diagnosis and treatment of MDR TB patient by gradually extending the opportunity to diagnose early during the treatment course of TB patients.
- Figure 3: Status of PMDT services implementation in districts in India by various MDR TB Suspects Criteria as on Sept'12



- PMDT guidelines refined and updated in June 2012 under guidance from National DOTS Plus committee.

6.4.3 Monitoring and Evaluation of RNTCP

RNTCP has a developed a strategy document for supervision and monitoring of RNTCP. The same was updated in 2012. This strategy defines the role of each staff and officer in supervision & monitoring of the programme from the most peripheral level to central level. Frequency of visits, checklists for supervision, and indicators for monitoring their interpretation and possible solution and corrective actions are defined in the strategy.

6.4.3.a Programme review and monitoring indicators at various levels

Review of progress and programme performance is review at various level on a regular basis in a structured manner. This includes biannual national review meeting of STOs and Consultants. Quarterly review of District TB Officers and programme partners at state level including the State Task Forces for medical colleges is a regular features. District-wise programme performance is reviewed using Monitoring Indictors published by Central TB Division on quarterly and annual basis. Epi-Info based EPI-CENTRE is used for compilation of TU wise aggregated information on case finding, smear conversion and treatment outcome reports throughout the country. Programme management information at TU and district level is also compiled in the same manner.

6.4.3.b Programme Evaluations

Each State/UT is expected to carry out state level Internal Evaluation of RNTCP implementation in atleast two districts per quarter.

Central Internal Evaluation of atleast two states is carried out per quarter with two districts in each state. Use of Epidata software for quick data entry of findings from visits to DOT Centres, DMCs, TUs and patient visits has been recently introduced and the analysis of the same gives the objective insight in programme evaluation of the districts. Structured Programme Evaluation has been the a very important tool for systematic feedback to the programme implementation at district and state level.

6.4.3.c Focussed Action Plan

Despite of regular supervision, monitoring and evaluation, there is a wide variation in performance of the State/UTs and districts throughout the country. In many instances, the reason is that there was no systematic attempt to find the reasons of underperformance of these areas at local level or inadequate capacity building and support from the state level. These districts were identified by CTD in consultation with the State/UTs. With the objective to improve the performance in such areas, the special guidance was given by Central T Division to the State teams to conduct situational analysis in an objective manner.

Based on the situational analysis, Focussed Action Plans were prepared by the state teams for each of these listed underperforming districts in the country. The same were shared with CTD and feedback on each plan was given to prioritize and strategize high impact activities for each of these districts. With the specific action suggested to the state teams including the concentrated efforts by the state teams for supportive supervision of these districts and hand holding for planning and conducting activities in these districts by state and district teams in a coordinated

manner. Action Taken Reports on plan for each of these districts in an on-going activity since Jan 2012. The impact of the Focused Action Plan strategy will be assessed in the year 2013.

6.4.3.d Improving TB surveillance by transitioning to Case Based Web Based recording and reporting (Nikshay)

RNTCP since implementation followed international guidelines for recording and reporting for Tuberculosis Control Programme with minor modifications. Epi-info based EPI-CENTRE software was being used for the purpose of electronic data transmission from district level upwards. Initially DOS version was in use and the programme shifted to windows version in 2007. However, the data available at district, state or national level is in aggregated form.

So, with the objective to improve TB surveillance in the country, programme has undertaken the initiative to develop a Case Based Web Based application named Nikshay. This ICT application (Nikshay) was launched on 15th May 2012 by NIC (HQ) and Central TB Division.

The data entry of the individual TB cases is being done at the block level DEOs of NRHM (same person doing the MCTS entry). So, for successful implementation of Nikshay the ICT infrastructure at block level, computer, internet and manpower (NRHM appointed DEO) is being used under the direction of AS& MD (NRHM).

Currently in its initial phases, Nikshay has been divided into 16 strategic phases:

- Phases 1, 2, 3, 4: Basic Information about facilities and officials in the RNTCP, Information of TB cases initiated on DOTS, Notification of TB and registration system: This will involve registration of health establishments and data entry of notified TB cases at TU and district level.
- Phase 5: Programmatic Management of DR TB: Details of MDR-TB requests and results will be uploaded by DST labs and treatment details will be uploaded by the treatment centres.
- Phase 6: SMS based treatment monitoring and follow up: Push query and pull information on treatment adherence from DOT provider on weekly basis with periodic SMS alerts to patients.
- Phase 7, 8: Linkages between facilities for transfer & referral: Linkage of various public health establishments and track the transfer of patient from one centre to another. The data entry for referral will be done at the TU level and the receiving TU will be alerted through various channels.
- Phase 9: Hand held device use: Nikshay application will be made available on android handheld device
- Phase 10: Multiple entry mode: will include mapping and defining output of automatic machines for rapid diagnostics for TB
- Phase 11, 12: Web based TB Notification and mobile, IVRS based notification for private health facilities
- Phase 13: Automated output with inbuilt statistical software
- Phase 14:Programme management: This phase will enable electronic transfer of incentives to relevant stakeholders including drugs and logistics management
- Phase 15: OR Proposal tracking system
- Phase 16: GIS mapping of DR-TB cases & TB cases notified
- Tills Sept 2012, more than 2,00,000 patients are already registered under this system.

6.4.4 TB Notification in India

6.4.4.a Background

Tuberculosis was never a notifiable disease nationally in India. Though in some of the states it was for quite a long time, it was never properly implemented due to many reasons. India's National TB Control programme provides quality assured diagnostic and treatment services to all the TB patients including necessary supportive mechanisms for ensuring treatment adherence and completion. But these services cannot be made available to large number of patients availing services from private sector, as they are not currently reported to the programme. The National Programme is unable to support TB patients and facilitate effective treatment as there is no information on TB and M/XDR TB diagnosis and treatment in private sector and unable to monitor and act for this looming epidemic. The country has a huge private sector and it is growing at enormous pace. Private sector

predominates in health care and TB treatment. Extremely large quantities of anti-TB drugs are sold in the private sector. Poor prescribing practices among private providers with inappropriate and inadequate regimens and unsupervised treatment continues in private sector without supporting patient for ensuring treatment adherence and completion with unrestricted access to first and second line TB drugs without prescription. High cost of TB and M/XDR TB drugs for privately treated patients is leading to further poverty and treatment interruptions.

A large number of patients are not benefitted with these programme services and leads to non adherence, incomplete, inadequate treatment leading to M/XDR TB, mitigating all the efforts of the programme to prevent emergence and spread of drug resistance. If the TB patients diagnosed and treated under private sector are reported to public health authorities, the mechanisms available under the programme can be extended to these patients to ensure treatment adherence and completion. The impending epidemic of M/XDR TB can only be prevented to a large extent by this intervention.

To curb this situation, Government of India declared Tuberculosis a notifiable disease on 7th May 2012 with the following objectives.

6.4.4.b Objectives of TB Notification

1. To have establish Tuberculosis surveillance system in the country
2. To extend mechanisms of TB treatment adherence and contact tracing to patients treated in private sector
3. To ensure proper TB diagnosis and case management and further accelerate reduction of TB transmission
4. To mitigate the impeding Drug resistant TB epidemic in the country

6.4.4.c Implementation tools & methods

For the purpose of notification, the contact details of the nodal officer at district level and the reporting formats are available on the website www.tbcindia.nic.in. All the health establishments throughout the country in public as well as private and non governmental sector are expected to notify TB cases.

For the purpose of notification the definition of TB cases is as below:

Microbiologically-confirmed TB case – Patient diagnosed with at least one sputum specimen positive for acid fast bacilli, or Culture-positive for Mycobacterium tuberculosis, or RNTCP-approved Rapid Diagnostic molecular test positive for tuberculosis.

OR

Clinical TB case – Patient diagnosed clinically as tuberculosis, without microbiologic confirmation and initiated on anti-TB drugs.

List of RNTCP endorsed TB diagnostics are as below:

Smear Microscopy (for AFB):

- Sputum smear stained with Zeil-Nelson Staining or
- Fluorescence stains and examined under direct or indirect microscopy with or without LED.

Culture:

- Solid(Lowenstein Jansen) media or
- Liquid media (Middle Brook) using manual, semi-automatic or automatic machines e.g. Bactec, MGIT etc.

Rapid diagnostic molecular test:

- Conventional PCR based Line Probe Assay for MTB complex or
- Real-time PCR based Nucleic Acid Amplification Test (NAAT) for MTB complex e.g. GeneXpert

Sputum Smear Microscopy (for AFB): Sputum smear stained with Zeil-Nelson Staining or Fluorescence stains and examined under direct or indirect microscopy.

Sputum Culture: Sputum culture on solid (Lowenstein Jansen) media or liquid media (Middle Brook) using manual, semi-automatic or automatic machines e.g. Bactec , MGIT etc.

Rapid diagnostic molecular test: Line Probe Assay for MTB or Nucleic Acid Amplification Test (CB-NAAT)

6.4.5 Evolution of Joint TB/HIV collaboration

Since the advent of the collaborative efforts in 2001, TB-HIV activities have evolved to cover most of the recommendations as per the latest WHO policy statement issued in 2012. In 2007, the first National Framework for

joint TB-HIV collaborative activities was developed which endorsed a differential strategy reflective of the heterogeneity of TB-HIV epidemic. Coordinated TB-HIV interventions were implemented including establishment of a coordinating body at national and state level, dedicated human resources, integration of surveillance, joint monitoring and evaluation, capacity building and operational research.

6.4.5.a Progress in TB / HIV collaboration

Tremendous progress has been made in the implementation of collaborative TB/HIV activities.

Intensified TB case finding has been implemented nationwide at all HIV testing centers (known as integrated counselling and testing centres, or ICTCs) and has now been extended to all ART centres, with better reporting coming from States implementing the intensified TB-HIV package.

6.4.5.b Challenges in TB-HIV collaboration

However, several challenges remain. Only about 50% of TB patients know their HIV status and of those identified as HIV positive, only about 60% are linked to ART as the majority are poor and unable to reach centralized ART centres. As compared to TB services, which are mostly decentralized and integrated into the general health system, HIV services remain largely centralized. Thus, this gap between RNTCP and NACP infrastructure results in suboptimal linkages. Sputum smear microscopy is not a sensitive tool to diagnose TB among PLHIV, and access to a culture based diagnosis (or equivalent technology) is lacking. Implementation of airborne infection control measures in health care settings is also limited. The INH preventive therapy is not yet a policy; but is being tested for operational feasibility for further decision. Despite the achievements, the mortality among HIV-infected TB patients continues to be unacceptably high.

6.4.5.c Vision: Universal access to TB/HIV care (2012-17)

There may be several reasons for the high mortality among HIV-infected TB patients: these include undiagnosed or late diagnosis of HIV, delayed or missed TB diagnosis among PLHIV, provision of inadequate chemotherapy to drug-resistant TB cases in the context of unavailability of decentralized culture and DST facilities, late presentation by HIV/TB patients (indicated by low CD4 counts at the time of diagnosis), and operational issues like long distances to travel for patients and lack of finances resulting in suboptimal linkages to centralized ART services. Available evidence suggests mortality reduction may be most effectively driven by efficient, early and improved HIV diagnosis, improved diagnosis of TB among PLHIV and prompt initiation of ART and TB treatment among HIV-infected TB patients. Results from the SAPIT (Starting ART at three points in TB treatment), CAMELIA (Cambodian early versus late initiation of ART) and STRIDE (Strategy immediate) trials have all demonstrated the mortality benefit of early compared to deferred initiation of ART during TB treatment, especially in the subgroup of patients with advanced immunodeficiency. The National AIDS Control Organization's adoption of recent WHO recommendations to treat all HIV-infected TB patients with ART, irrespective of CD4 count, and other measures being put in place to enhance access of HIV-infected TB patients to ART should help enhance survival. Hence, RNTCP and NACP (National AIDS Control Programme) have jointly planned the following interventions in their next strategic plans (2012-17):

1. Given the need to strengthen collaborative efforts, the next five-years would focus on reinforcing mechanisms for ensuring effective implementation and improving service delivery for TB and HIV infected patients.
2. Decentralization of HIV testing facilities and co-location in all TB microscopy centres has been planned to ensure universal coverage of HIV testing among TB patients.
3. Early and improved diagnosis of TB and Rifampicin resistance, through rapid diagnostic technology for PLHIV is envisaged. Field-testing and deployment of improved TB diagnostic tools, such as high-sensitivity cartridge-based nucleic acid amplification tests, for more effective diagnosis of TB and drug-resistant TB among PLHIV is expected to reduce morbidity and mortality.
4. Measures to improve access of HIV-infected TB patients to ART centres by provision of travel support and engagement with the affected community have been planned.
5. Early initiation of ART for all PLHIV with CD4 counts of <350, and for all HIV-infected TB

patients irrespective of CD4 count. Early initiation of ART is expected to improve immune competency and prevent the development of TB.

6. Recording and reporting formats have been modified to optimize supervision and monitoring of implementation of TB/HIV collaborative activities.

7. More than half of PLHIV globally and in India do not know their HIV status and are diagnosed late. Initial results of research into the feasibility of "PITC among TB suspects" as a method of achieving early and improved diagnosis of HIV has been promising, and broader surveillance is planned to drive policy decisions. Again, earlier HIV diagnosis can broaden opportunities for HIV care and treatment, including TB prevention.

8. The National Technical Working Group for TB/HIV has approved an operational feasibility cum efficacy study for Isoniazid Preventive treatment among PLHIV. The study will be led by National Institute for Research in TB (earlier TRC, Chennai) and conducted in 12 ART centres in the country. The results of this study will guide nationwide scale-up.

6.4.5.d Operational Research for TB-HIV

RNTCP conducted an operational research on provider initiated HIV testing and counselling (PITC) among TB suspects based on recommendation of National Technical Working Group (NTWG). The study was conducted in one district each of Andhra Pradesh and Karnataka (Vizianagaram and Mandya), with an objective to assess if PITC was feasible and effective in finding out "new" HIV cases given that all TB suspects were offered HIV testing. This study showed that HIV prevalence among TB suspects can be as high as that among TB patients ranging between 7%-10%, and also that PITC can be feasibly implemented in settings with decentralized HIV testing facilities. Acknowledging the strong evidence, NTWG recommended the national programmes to implement PITC among TB suspects in high HIV settings; the same would be piloted in 1-2 high prevalence states at all DMC with co-located HIV testing facility for a period of 3-6 months with mechanisms for recording and reporting to finalize the operational guidance before scale-up to other high HIV settings. The NTWG also recommended national programmes to implement similar surveillance activities in moderate and low HIV settings. Accordingly, protocols have been developed and surveillance has been initiated in 10 districts of the country. Evidence generated from these studies will guide scale-up across the country.

6.4.5.e Global guidelines for treatment of TB among persons living with HIV: unresolved issues

Revised National TB Control Programme (RNTCP) in India uses a fully intermittent thrice-weekly rifampicin-containing regimen for all TB patients including those who are HIV-infected; whereas, WHO recommends daily TB treatment at least during the intensive phase. The WHO recommendation was based on the results of a meta-analysis demonstrating increased risk of recurrence and failure among HIV-infected TB patients receiving intermittent TB treatment, compared to a daily regimen. Review of the primary evidence indicates limited, low-quality information on intermittency, mostly from observational studies in the pre-antiretroviral treatment (ART) era. Molecular epidemiology in India indicates that most of the recurrences and many of the failures resulted from exogenous re-infection, suggesting poor infection control and high transmission rather than poor regimen efficacy. Subsequently published studies have shown acceptable TB treatment outcomes among HIV-infected TB patients receiving intermittent anti-TB regimens with concomitant ART. Treatment outcomes among HIV-infected TB patients treated under programmatic conditions show low failure rates but high case-fatality; death has been associated with lack of ART. Hence, the highest priority is to reduce mortality by linking all HIV-infected TB patients to ART. While urgently seeking to reduce death rates among HIV-infected TB patients, given the poor evidence for change and operational advantages of an intermittent regimen, RNTCP intends to collect the necessary evidence to inform national policy decisions through randomized clinical trials.

6.4.6 Childhood tuberculosis under RNTCP

Background: The actual burden of pediatric TB is not known due to diagnostic difficulties but has been assumed that 10% of total TB load is found in children. Globally, about 1 million cases of pediatric TB are estimated to occur every year accounting for 10-15% of all TB; with more than 100,000 estimated deaths every year, it is one of the top 10 causes of childhood mortality. Though MDR-TB and XDR-TB is documented among pediatric age group, there are no estimates of overall burden, chiefly

because of diagnostic difficulties and exclusion of children in most of the drug resistance surveys.

Contrary to traditional national TB programmes pediatric tuberculosis (i.e., TB among the population aged less than 15 years) has always been accorded high priority by RNTCP since the inception of the programme. In order to simplify the management of pediatric TB, RNTCP in association with Indian Academy of Pediatrics (IAP) has described criteria for suspecting TB among children, has separate algorithms for diagnosing pulmonary TB and peripheral TB lymphadenitis and a strategy for treatment and monitoring patients who are on treatment. In brief, TB diagnosis is based on clinical features, smear examination of sputum where this is available, positive family history, tuberculin skin testing, chest radiography and histopathological examination as appropriate. The treatment strategy comprises three key components. First, as in adults, children with TB are classified, categorised, registered and treated with intermittent short-course chemotherapy (thrice-weekly therapy from treatment initiation to completion), given under direct observation of a treatment provider (DOT provider) and the disease status is monitored during the course of treatment. Second, based on their pre- treatment weight, children are assigned to one of pre-treatment weight bands and are treated with good quality anti-TB drugs through ''ready-to-use'' patient wise boxes containing the patients' complete course of anti-TB drugs are made available to every registered TB patient according to programme guidelines.

Progress

1. The number of pediatric TB cases registered under RNTCP has shown an increasing trend in the past five years and for 2011, about 90,000 cases were notified accounting for 7% of all cases. Expectedly, smear negative and EP cases predominate.

2. Treatment for MDR-TB for children is now available under the programme and a new weight band (<16kg) has been created.

3. The treatment outcomes of pediatric TB cases, though not reported routinely under the programme, have been studied in operational research settings. Operational research conducted in the states of Delhi, Karnataka and Gujarat reported very high treatment success rates (about 95% among new TB cases) among pediatric TB patients indicating the effectiveness of RNTCP regimens and management guidelines.

National consultation on management of childhood tuberculosis in 2012

In order to reconcile between global and national guidelines, to review the evidence base and update the RNTCP guidelines in consensus with Indian academy of paediatrics, a national consultation was organized in January 2012. The above mentioned issues were extensively deliberated and several changes have been recommended in the diagnosis, treatment and prevention of childhood TB.

National Technical Working Group on Pediatric TB, a mechanism for continuing consultation: *A national technical working group of 10-12 experts on pediatric TB is constituted with clearly defined terms of reference*. This provides a forum for continuing consultations with experts and an opportunity to evolve the guidelines based on evolving evidence.

6.4.7 Medical Colleges

Systematic involvement of medical colleges under RNTCP has been a huge success story. Under RNTCP Medical Colleges play important roles in service delivery, advocacy, training and operational research. Medical colleges have been effectively organized at a large scale through task force mechanisms at state, zonal and national levels, with RNTCP supporting with additional human resources, logistics for microscopy, funds to conduct sensitizations, trainings and research in RNTCP priority areas. RNTCP has partnered with 291 Medical Colleges in India and in 2011 they have contributed in a major way in finding more TB cases, especially smear negative and extra – pulmonary cases. In 2011, 87,271 smear-positive TB cases, 49,031 smear-negative TB cases and 83,824 extra-pulmonary TB cases were diagnosed at medical colleges and referred for treatment; altogether, this accounts for about 15% of all cases diagnosed and registered for treatment in the country. 656 faculty members from Medical Colleges are trained as master trainers, these trained human resource available in the medical colleges are supporting program beyond the academics and participating in the National as well as local training as facilitators for over 338 CMEs and workshops as part of advocacy efforts and also participating in Internal Evaluations and appraisals. 243

Medical Colleges are running ICTC, 154 ART centres and 240 of Medical Colleges having standard cross referrals between RNTCP and ICTC/ART centers.

6.4.8 New Initiatives in Public-Private Mix (PPM)

National Technical Working Group (NTWG) has been formed to provide a forum for dialogue and guide innovation and learning & provide guidance on technical aspects such as the appropriate diagnostic and treatment standards, guidance on the scope and geographic distribution of initial projects, and policy requirements for improved PPM.

MoU has been signed **with Indian Pharmaceutical Association (IPA), All India Organisation of Chemists & Druggists (AIOCD), Pharmacy Council of India (PCI) and SEARPharm Forum** representing World Health Organization (WHO) – International Pharmaceutical Federation (FIP) Forum of National Associations in South-East Asia for engaging pharmacists in RNTCP for TB Care & Control in India. Special focus activities include promoting the rational use of Anti-TB drugs and contributing to preventing the emergence of drug resistance. The First Meeting of the Core Committee held in October 2012.

6.4.9 Financial Performance

XI th plan (2007-12) Year-wise Details of RNTCP budget Allocation and expenditure:

Year	Budget Outlay (in crores)	Expenditure (in crores)
2007-08	267.00	262.12
2008-09	280.00	279.90
2009-10	312.25	312.02
2010-11	350.00	349.95
2011-12	400.00	391.16
Total	**1609.25**	**1595.15**

6.5 NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS (NPCB)

6.5.1 Background

National Programme for Control of Blindness (NPCB) was launched in the year 1976 as a 100% centrally sponsored scheme with the goal of reducing the prevalence of blindness to 0.3% by 2020. Rapid Survey on Avoidable Blindness conducted under NPCB during 2006-07 showed reduction in the prevalence of blindness from 1.1% (2001-02) to 1% (2006-07).

Main causes of blindness are as follows: - Cataract (62.6%) Refractive Error (19.70%) Corneal Blindness (0.90%), Glaucoma (5.80%), Surgical Complication (1.20%) Posterior Capsular Opacification (0.90%) Posterior Segment Disorder (4.70%), Others (4.19%) Estimated National Prevalence of Childhood Blindness / Low Vision is 0.80 per thousand.

The allocation for the 11th Plan (2007-12) was Rs.1250.00 crore. The allocation for the current financial year (2012-13) is Rs.290.00 crore.

6.5.2 Main objectives of the programme

a) To reduce the backlog of blindness through identification and treatment of blind;

b) To develop Comprehensive Eye Care facilities in every district;

c) To develop human resources for providing Eye Care Services;

d) To improve quality of service delivery;

e) To secure participation of Voluntary Organizations/Private Practitioners in eye Care;

f) To enhance community awareness on eye care.

6.5.3 Salient features/strategies adopted to achieve the objectives

- Provision of assistance to make eye care programme comprehensive by covering diseases other than cataract like diabetic retinopathy, glaucoma, corneal transplantation, vitreo-retinal surgery, treatment of childhood blindness etc.
- Reduction in the backlog of blind persons by active screening of population above 50 years, organizing screening eye camps and transporting operable cases to fixed eye care facilities
- Coverage of underserved area for eye care services through public-private partnership.
- Capacity building of health personnel for improving their skill, enhancing their knowledge in delivery of high quality eye services.

- Community Awareness/Information, Education and Communication (IEC) activities for creating awareness on eye- care. Major events include eye donation awareness fortnight (25th August to 8th September) and World Sight Day (2nd Thursday of October) each year in addition to ongoing activities.
- Screening of children for identification and treatment of refractive errors and provision of free glasses to those affected and belonging to poor socio-economic strata.
- Development of Regional Institute of Ophthalmology and medical colleges in a phased manner as Centres of Excellence in retina units/ low vision units/paediatric eye units.

6.5.4 New Initiatives introduced during 11th Plan

- Review meeting on the functioning of Regional Institutes of Ophthalmology (RIOs) was held on 4th June, 2012 at Nirman Bhawan, New Delhi.
- Review meeting on the functioning of Sentinel Surveillance Units (SSUs) was held on 13th July, 2012 at Nirman Bhawan, New Delhi.
- Review meeting on implementation of NPCB with the State Programme Officers was held on 27-28th September, 2012 at Nirman Bhawan, New Delhi.

6.5.5 Major performance indicators

Budget allocation and expenditure

(Rs. in crore)

Year	Budget allocated (BE/FE)	Expenditure
2007-08	165.20	164.92
2008-09	250.00	249.50
2009-10	253.02	252.90
2010-11	202.58	202.41
2011-12	222.00	221.64
2012-13	290.00	122.95 (as on 30.10.2012)
Total	**1382.80**	**1214.32**

6.5.6 Physical targets and achievements

Cataract operations

Year	Target	Cataract operations performed	% surgery with IOL
2007-08	50,00,000	54,04,406	94
2008-09	60,00,000	58,10,336	94
2009-10	60,00,000	58,10,684	95
2010-11	60,00,000	60,32,724	95
2011-12	70,00,000	63,49,205	95
2012-13	70,00,000	19,15,738	95

School Eye Screening Programme

Year	No. of free spectacles provided to school age group children with refractive errors	
	Target	Achievement
2007-08	3,00,000	5,12,020
2008-09	3,00,000	4,94,484
2009-10	4,73,472	5,05,843
2010-11	6,00,000	5,48,611
2011-12	6,00,000	6,58,061
2012-13	10,00,000	58,118

Collection of donated Eyes

Year	Collection of donated eyes	
	Target	Achievement
2007-08	40,000	38,646
2008-09	50,000	41,780
2009-10	55,000	46,589
2010-11	60,000	44,926
2011-12	60,000	49,410
2012-13	60,000	12,648

Training of Eye Surgeons

Year	Target	No. of eye Surgeons trained
2007-08	400	300
2008-09	400	450
2009-10	400	400
2010-11	400	350
2011-12	400	350
2012-13	400	185

6.6 NATIONAL IODINE DEFICIENCY DISORDERS CONTROL PROGRAMME (NIDDCP)

Iodine deficiency, hidden hunger, is an essential micronutrient required daily at 100-150 micrograms for the entire population for normal human growth and development. Deficiency of Iodine can cause physical and mental retardation, cretinism, abortions, stillbirth, deaf mutism, squint, loss of IQ compromised school performance & various types of goiter. Results of sample surveys conducted in 365 districts covering all the States/ Union Territories have revealed that 303 districts are endemic where the prevalence of Iodine Deficiency Disorders is more than 10%. It is estimated that more than 71 million persons are suffering from goiter and other Iodine Deficiency Disorders (IDD), in the country. No State /UT is free from IDD.

6.6.1 Objectives

- Surveys to assess the magnitude of the Iodine Deficiency Disorders in districts.
- Supply of iodated salt in place of common salt.
- Resurveys to assess iodine deficiency disorders and the impact of iodized salt after every 5 years in districts.
- Laboratory monitoring of iodized salt and urinary iodine excretion.
- Health Education and Publicity [Information, Education & Communication (IEC)].

6.6.2 Significant Achievements

i. Consequent upon liberalization of iodized salt production, Salt Commissioner has issued licenses to 824 salt manufacturers out of which 532 units have commenced production. These units have an annual production capacity of 120 lakh Metric tonnes of iodized salt.

ii. The production/supply of iodized salt from April 2012 to December, 2012 was 37.44 lacs metric tones.

iii. Notification banning the sale of non iodized salt for direct human consumption in the entire country is already issued under Food Safety & Standards Act 2006 and Regulations 2011.

iv. For effective implementation of National Iodine Deficiency Disorders Control Programme 31 States/UTs have established Iodine Deficiency Disorders Control Cells in their State Health Directorate.

v. In order to monitor the quality of iodized salt and Urinary Iodine excretion 30 States/UTs have already set up Iodine Deficiency Disorders monitoring laboratories while the remaining States are in the process of establishing the same.

vi. For estimation of iodine content in iodized salt, a total of 34054 salt samples were analyzed (upto Feb. 2013) out of which 28857 (85%) salt samples were found confirming to the standard.

vii. For estimation of urinary iodine excretion for bio-availability of iodine 9465 urine samples were collected and analyzed (upto February 2013) out of which 8569 samples were found confirming to the above 100 micrograms/litre (91%).

viii. For ensuring the quality of iodized salt at consumption level, a total of 1697941 salt samples were tested by salt testing kit (upto February 2013) out of which 1051118 (62%) salt samples were found confirming to the standard.

ix. IDD district survey Training was given to Medical and paramedical personnel of five districts i.e. Panchkula, Kapurthala, Gurdaspur, Tarn-Taran and Jalandhar of Punjab State.

x. Global IDD Prevention Day was observed throughout the country on 21 October, 2012. Messages on benefits of consumption of iodized salt in prevention and control of IDD were published in National & Regional News Papers

on the eve of global IDD Prevention Day through DAVP.

xi. Visible goitre has reduced significantly in the country.

xii. Cretins are rarely born in the country.

6.6.3 Information, Education & Communication Activities

1. ***Activities through Song & Drama:*** Song and Drama Division through their field units have been carrying out extensive special interactive programmes/activities in 200 high focused districts in 16 States of the country.

2. ***Activities through Doordarshan:*** IDD Spots containing messages on consequences of Iodine Deficiency Disorders and benefits of consuming iodated salt are being telecast through the National Network of Doordarshan daily and telecast of the IDD messages under Swasth Bharat Programme.

3. ***Activities through All India Radio:*** IDD Spots containing messages on major consequences of Iodine Deficiency Disorders and benefits of consuming iodated salt in all 14 regional languages are broadcast by the All India Radio through its 37 Vividha Bharthi channels and 129 primary channels.

4. ***Activities through Railways:*** Messages about IDD and consumption of Iodated salt on computerized railway reservation tickets are being carried out through the Railways.

5. ***Activities through the State Health Directorate:*** State Governments have also been provided grants for undertaking IEC activities at the local level in their regional languages to make the impact of IEC activities more effective including celebration of Global IDD Prevention Day in all Districts.