DOTS IMPLEMENTATION IN IRAQ: *5 YEAR EVALUATION & EXPECTED OUTCOME IN 2010*
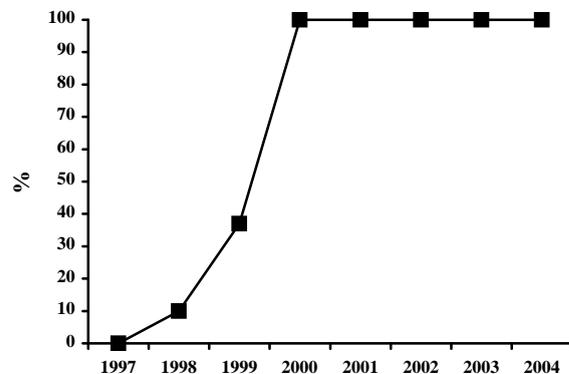
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Overview & objectives

Tuberculosis (TB) is a disease that causes millions of deaths, infects one third of the world population and profoundly damages households and country economies. It is a major health and social challenge. Iraq is one among eastern Mediterranean countries with moderate to high burden of tuberculosis. *Table (1,4)*

Table 1. TB Incidence and Notification In Eastern Mediterranean Region 2002[*]

Country	Estimated Total TB	Rate/ 100.000 pop.	Estimated SS+ PTB	Notified SS+ PTB	% CDR New SS+ PTB
Egypt	20447	29	9199	4889	53
Iran	19740	29	8882	5335	60
Iraq	40966	167	18433	3895	21
Jordan	282	5	127	91	52
Morocco	34408	114	15473	12914	85
Somalia	38428	405	17156	4729	28
Sudan	71211	217	31432	10338	33
Syria	7648	44	3441	1477	42
Tunisia	2233	23	1004	927	92
Yemen	17721	92	7966	3870	49

DOTS strategy[**] for Tuberculosis control had been recommended by WHO and plan designed to achieve the targets (detection 70% of new smear positive PTB cases and cure 85% of those detected) by year 2005. DOTS adoption in Iraq, with 100% population coverage *(except 3 Northern Governorates)*, started in October 2000 after its implementation as pilot project in Al-Saader city with declaration of its success by WHO expert[***] *(Fig-1)*. According to the implementation plan, District TB Coordinator (DTC) units had been established throughout the country which is responsible to monitor patient treatment in Primary Health Care Centre (PHCC). Ministry of Health had identified tuberculosis as a health priority and Deputy of Health Minister chairs the higher TB Supervisory committee in 2004 to rehabilitate and activate the progress of tuberculosis control in the country. National Tuberculosis Programme (NTP) promoted by MOH and

Fig 1. *Stages of DOTS population coverage*

WHO is responsible for drug procurement, distribution of national TB guideline, training of tuberculosis managers and staff, improving the quality of smear microscopy, collaboration with other health sectors and NGOs in addition to assessment and evaluation of the programme progress.

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[*] **All data in the tables and figures are collected from WHO reports (Global Tuberculosis Control 2002 – 2005) and statistic unit in Respiratory & Chest Disease Institute.**
[**] **DOTS: Directly Observed Treatment Short course.**
[***] **WHO report 2002 Global Tuberculosis Control.**

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The main objectives of NTP are to reduce TB mortality, morbidity and disease transmission while preventing the development of drug resistance.

Certain constraints hamper the efforts of TB control in the country and the progress to achieve the targets.

Plans and interventions had been revised and the budget allocated accordingly in 2003-2004 to overcome obstacles and to improve the trend of the programme indicators with a hope to minimize tuberculosis burden in near future by a sustained and well qualified national programme.

Structure & Function (*Fig 2*)

The basic NTP unit is DTCs, which are distributed all over the country. Each unit is responsible to register TB patients and monitor their treatment at PHCC level.

Data regarding number of patients and their treatment outcome are collected from DTCs in respiratory and chest diseases institute and its partners (consultation clinics) in the governorates.

NTP is responsible for collecting and analysing data from the governorates quarterly and submit it to MOH and all other involved partners including WHO.

MOH / Directorate of public health and primary health care with the collaboration of WHO as main partner and other NGOs[*] had to insure technical, logistic support to improve and strengthen performance skill of managerial staff and to supervise the programme activities conducted by NTP.

Plan of Action (*Fig 3*)

MOH had adopted DOTS strategy as international Tuberculosis control policy and the Implementation plan had been set up at the level of primary health care districts and centres. Respiratory and chest disease institute in Baghdad and consultation clinics in the governorates are the only official health sectors responsible to define, diagnose and identify the treatment regimen to TB patients. Afterward all patients will be referred to DTCs which will provide each patient; after registration; with treatment card to be introduced in PHCC nearest to his or her residency in order to begin treatment. All anti-TB services including medications are delivered to the patients without fees.

Patients with smear positive PTB should swallow their medications daily under the supervision of the drug providers in PHCC. Monitoring the treatment of these patients is conducted by DTC laboratories through sputum microscopy at regular intervals within the treatment course.

Job performance and quality assurance of TB laboratories are conducted through regular visits and supervision by NTP director to respiratory and chest disease consultation clinics in the governorates.

Directors of these clinics are responsible to supervise and monitor programme activities in DTC units which in turn act as steering key for NTP in supervising patient's treatment in PHCCs.

Structure of NTP

Fig: 2

2 National anti-TB & chest disease committee

4 Respiratory & chest disease institute

6 District TB coordinator (DTC) unit

1 M.O.H

3 Directorate of public health & Primary health care

5 Respiratory & chest disease clinic in the governorate

7 Treatment supervisors in primary health care centers (P.H.C.C)
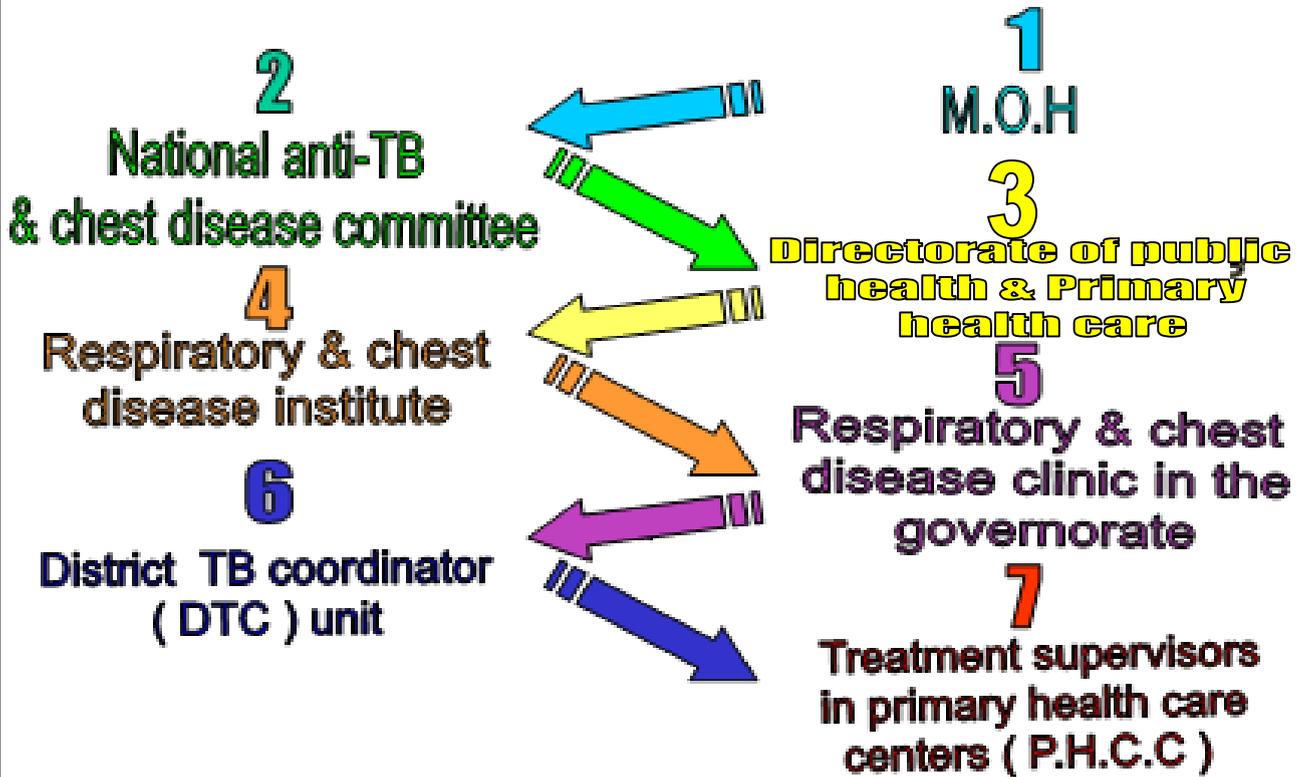
Fig: 3

DOTS Programme
Implementation Profile

Chest & Respiratory diseases consultation Clinic

Diagnosis , Supplies , Training, Supervision & Monitoring

Chest & Respiratory diseases Institute

Governorate

Patient

Baghdad

Distric TB coordinator (DTC)

Distric TB coordinator (DTC)

Daily Treatment Supervisor

P.H.C.C
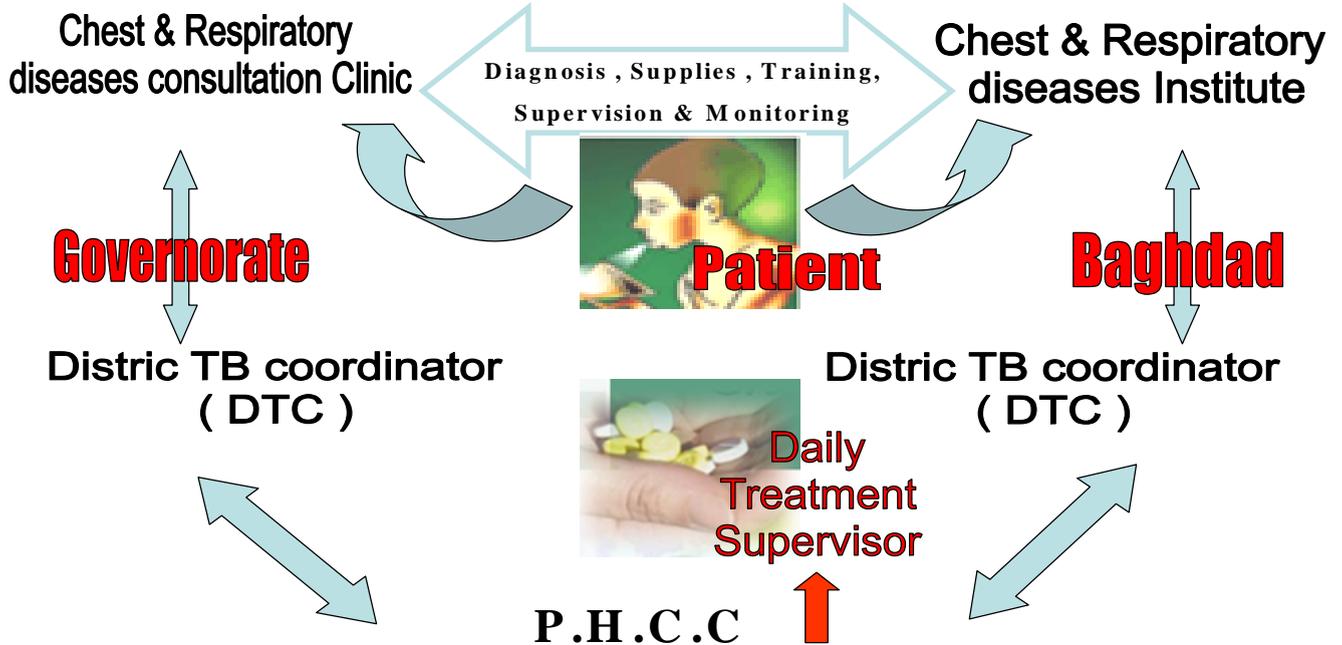
Achievements & Performance:

The main indicators used to measure the progress of DOTS implementation are case detection and cure rates and the number of administrative units in the country implementing DOTS strategy. Case detection remains without any gain in the progress towards the target during the last five years after DOTS implementation while cure rate is in the trend of regression. (*Figure 4, 5, Table 2, 3, 4*)

Table 2: % DOTS Targets 2000-2004

Indicator	2000	2001	2002	2003	2004
Detection	22	23	23	20	20
Cure	86	85	86	78	-
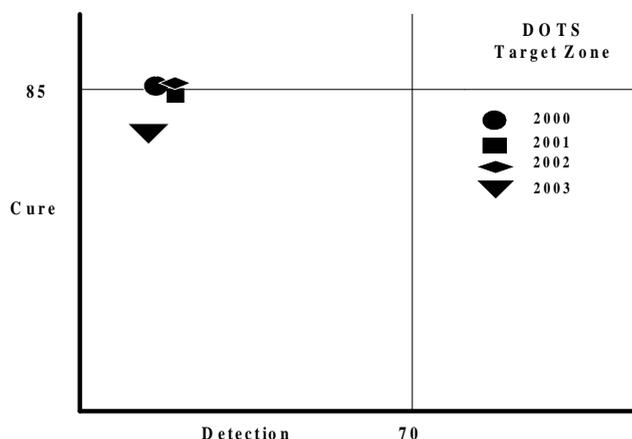
Table 3. % Indicators of treatment outcome

Indicator	2000	2001	2002	2003	2004
SCR*	91	94	91	87	88
Defaulter	3	4	3	10	-
Relapse	17	13	16	20	20
Failure	2	2	2	3	-

Low cure rate may produce more treatment failure and default; thereby the prevalence of drug resistant is likely to rise in future. On the other hand poor case detection will keep more hidden TB cases without treatment and further enhance disease transmission.

Although the obstacles mentioned below play major role in programme progress there are two facts of great importance and should be taken under consideration.
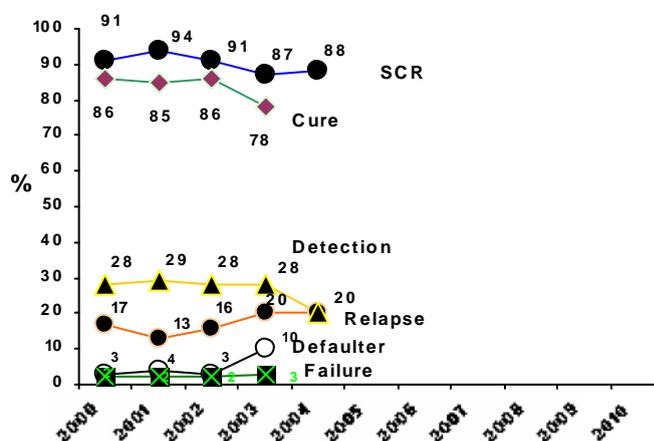

Fig 4. % DOTS Targets

Fig 5. Trend of case detection and treatment outcome.

Table 4 . New TB Cases & Case Detection rate of SS+ve PTB in 2004*

	Governorate	Population	Total TB Cases			Pulmonary Tuberculosis																Extra Pul. TB		
						Total Pul. TB			SS+ve				% CDR	Relapse			Total	SS-ve.						
			1	2	3	4	5	6	7	8	9	Estimated		10	11	12	13	14	15	16	17	18	19
			M	F	T	M	F	T	M	F	T	SS+ve	SS+ve	M	F	T	9+12	M	F	T	M	F	T
1	BAGHDAD	6554126	1647	1021	2668	1216	653	1869	661	322	983	3932	25	256	77	333	1316	299	254	553	431	368	799
2	AL.BASARH	1797821	496	303	799	392	200	592	242	129	371	1079	34	81	23	104	475	69	48	117	104	103	207
3	NINWA	2554270	555	377	932	389	232	621	143	65	208	1533	14	44	12	56	264	202	155	357	166	145	311
4	MAYSAN	762872	217	132	349	166	87	253	100	42	142	458	31	9	5	14	156	57	40	97	51	45	96
5	AL.DEWANIA	911641	379	297	676	309	250	559	137	89	226	547	41	32	23	55	281	140	138	278	70	47	117
6	DIYALA	1418455	328	223	551	231	139	370	96	30	126	851	15	30	5	35	161	105	104	209	97	84	181
7	AL.ANBAR	1328776	325	228	553	236	142	378	106	51	157	797	20	20	6	26	183	110	85	195	89	86	175
8	BABIL	1493718	349	218	567	256	147	403	132	69	201	896	22	17	4	21	222	107	74	181	93	71	164
9	KARBALA	787072	275	143	418	204	93	297	72	29	101	472	21	39	5	44	145	93	59	152	71	50	121
10	KURKOK	854470	176	156	332	142	106	248	69	40	109	513	21	15	3	18	127	58	63	121	34	50	84
11	WASIT	971280	245	207	452	174	120	294	93	67	160	583	27	19	5	24	184	62	48	110	71	87	158
12	THE-QAR	1472405	566	344	910	400	184	584	125	51	176	883	20	66	15	81	257	209	118	327	166	160	326
13	AL.MUTHANA	554994	266	215	481	209	165	374	75	27	102	333	31	7	1	8	110	127	137	264	57	50	107
14	SALAH ADDEN	1119369	178	148	326	135	110	245	56	43	99	672	15	15	7	22	121	64	60	124	43	38	81
15	AL.NAJAF	978400	274	210	484	190	114	304	146	74	220	587	37	13	3	16	236	31	37	68	84	96	180
	Total	23559669	6276	4222	10498	4649	2742	7391	2253	1128	3381	14136	24	663	194	857	4238	1733	1420	3153	1627	1480	3107

CDR: Case Detection Rate   Pul: Pulmonary   SS+ve: Sputum smear positive Pulmonary TB   SS-ve: Sputum smear negative Pulmonary TB

*Data in the table is for 15 governorates

First: is the plan of DOTS population coverage (*Figure 6, 7, 8*); it is still weakly and partially implemented since not all programme services delivered to the patients at the district and peripheral levels. This will directly influence on patients accessibility to these services and on the improvement of case detection rate.

Weak DOTS Population coverage is the result of:

1. Inadequate DOTS administrative units and misdistribution of that existed. These units had been established without taking the population number in the districts under consideration. In each primary health care district there is only one DTC unit which had been established regardless to the population number. Therefore one can expect weak service delivery to the patients in a district with big population number and the reverse is true.

2. Absence of programme decentralization.

Both of which lead to poor case detection.
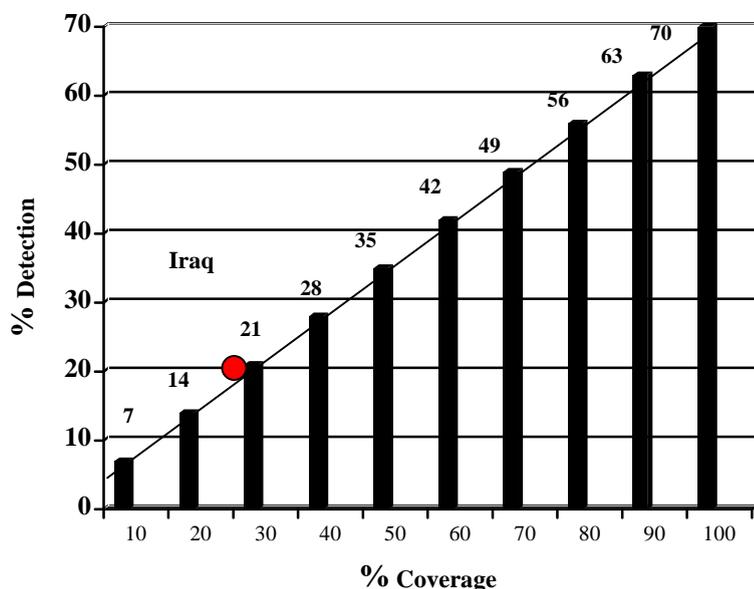
Fig 6. % DOTS Coverage and Detection rate: *The bars represent the ideal relation in-between the progress of DOTS coverage and improvement of case detection rate (**the numbers above each bar**). The circle represents this relation in Iraqi NTP. Poor case detection (20%) indicates weak programme coverage which is ideally less than (30%).*
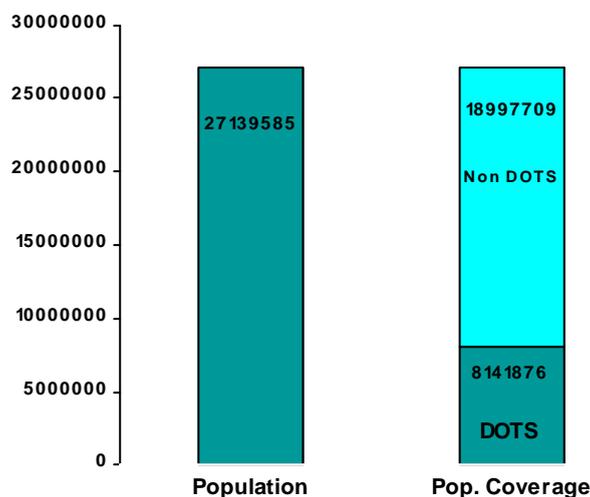
Fig 7. *DOTS population coverage (Ideal): According the postulation in fig 6 only 8 million are accessible to DOTS services out of 27 million*
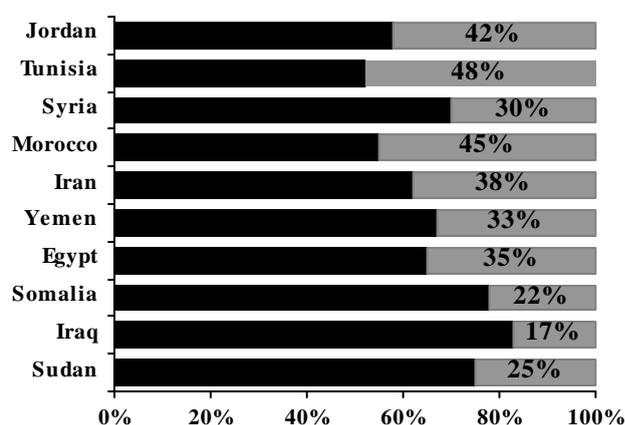
Fig 8. *Notified New SS+ve PTB Out of Total Estimated in Eastern Mediterranean region 2002*

Second: The estimated annual incidence of TB should be revised because it was conducted only once since 1979 and its annual increment has direct influence on the current detection rate and on that recorded during the last 25 years. NTP feels that this rate can not be ideal and or real unless there is re-evaluation of that estimated above.

Obstacles

1. *Delay and weak funding. The budget allotment which had been setup in 2003 is still not utilized fully for the sake of NTP rehabilitation, hoping to be invested in fiscal year 2005.*
2. *Weak supervision and monitoring of TB programme.*
3. *Lack of academic / private sector partnership with NTP.*
4. *Absence of decentralization of TB control activities.*
5. *Insufficient training of medical and paramedical staff with turn over of the managerial staff.*
6. *Imparity of TB laboratories regarding skill and competence and weak quality control system.*
7. *Outdated and insufficient diagnostic tools and equipments.*
8. *Poor community awareness and participation in disease control programme.*

Conclusions

The most critical markers of NTP progress are case detection and treatment success rates. Poor case detection is a real challenge to NTP and without noticeable improvement in its progress since the start of DOTS implementation. (*Figure 9*) It is still far to achieve the score of the strategic and global targets of 70% and success of achievement will not be expected even within short term unless sustained actions and interventions are to be undertaken. (*Figure 10, 11*) Failure to improve case detection are the result of weak DOTS population coverage, absence of decentralization in TB control activities, insufficient staff training, poor laboratory services and absence of private sector participation in disease notification and control.

Although cure rate had met the global target of 85% at the start of DOTS implementation, it shows a trend of regression afterward and failed to gain the target in 2003.This may be due to weak treatment under supervision, poor patient compliance and weak treatment monitoring. Analysing these two indicators above (i.e. poor case detection and cure rates), one can expect more disease morbidity and mortality, treatment failure with the possibility of emergence drug resistant TB.
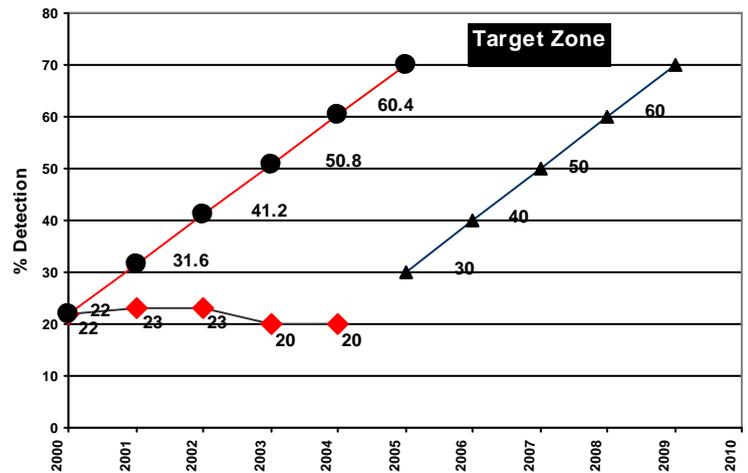

Fig 9. Trend to the Target of Case Detection:
The two steeper lines represent the progress of case detection rate towards the global target (70%). The one on the left (failed) had been planned in 2000 to achieve the target in 2005. While the one on the right (expected) will be the future trend towards the target. Annual increment of (10 %) in case detection rate started from 2005 is the only possibility for progress towards the target within short term; otherwise the success can not be achieved even in 2010.
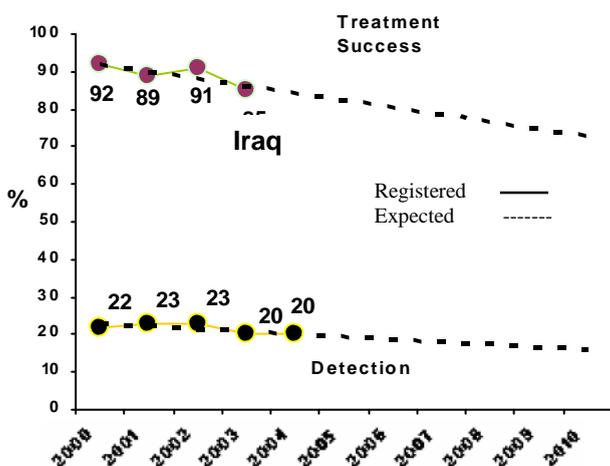

Fig 10: *Trend Of Case Detection & Treatment success Rate in Iraq & the expected in 2010*
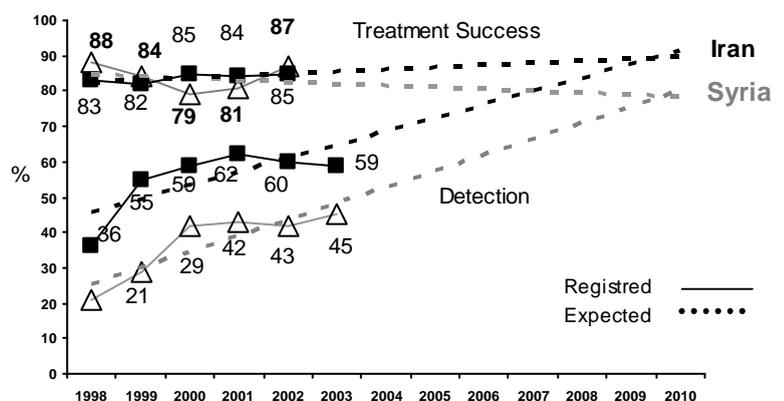

Fig 11: *Trend Of Case Detection & Treatment Success Rate in Iran & Syria: the prediction to achieve the global target by NTP in Iran is in near future. Despite the progress in case detection by NTP in Syria, there is regression in cure.*

Recommendation and Future Prospect

Short and long term strategic planning with regular review of the plans, assessment of interventions and sufficient funding for plan implementation will ensure a sustained governmental commitment to recreate an effective and well qualified NTP in near future with a better disease control.

Activating plans such as staff training and motivation, strengthen laboratory services and quality assurance system, decentralization of programme activities, ensuring supervision on job performance, ensure updated and modern diagnostic equipments and involvement of the private sector in the control activities are surely of urgent recommendations to rescue NTP and promote better disease control in the country.

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