TUBERCULOSIS CONTROL: CURRENT STATUS, CHALLENGES AND BARRIERS AHEAD IN 22 HIGH ENDEMIC COUNTRIES

Khan M. Ibrahim, Samreen Khan, Ulrich Laaser
Section of International Public Health (S-IPH), University of Bielefeld, Germany.

Background: Despite the fact that Directly Observed Treatment Strategy (DOTS) short course is cost effective and universally recommended by WHO for effective TB control, it is beyond the financial reach of several highly endemic countries. This article aims at identifying barriers in DOTS's implementation and progress in 22 high burden countries (HBCs) from TB. **Methods:** Medline abstracts, published papers and WHO reports were retrieved, critically examined and compared keeping standard parameters of TB control in view. **Results & Conclusion:** The increasing caseload, morbidity and mortality due to TB in high burden countries have become a major health challenge and threat to the health systems. The escalated burden of disease and deaths due to TB has posed a great threat to the international security. In the last decade little progress has been witnessed in the implementation of WHO's recommended strategy called DOTS in the 22 high burden countries. Afghanistan, Pakistan, India, Brazil, Zimbabwe, S. Africa and Uganda are some of the countries still facing challenges in the effective introduction, implementation and expansion of DOTS. Financial inabilities contribute greatly to the failure of respective national TB control programs. High burden countries are usually in the economic recession or passing through severe socio-political turmoil that has further reduced spending on TB control. Majority depends on the international assistance and put little domestic efforts. Coupled with the lack of political commitment to the issue of TB control, authors urge high TB control Program managers in HBCs to increase spending and pay a great deal of commitment to the universal implementation of DOTS, increase case detection and case management to attain their global targets.
Key words: DOTS, TB control, high burden countries.

INTRODUCTION

Since WHO declared Tuberculosis (TB) as a global emergency in 1993, TB eradication has become a matter of greater concern among the national, international and local health authorities. Contributing 85% to the total global burden, 22 countries have been identified and labelled as highly endemic countries by WHO [1]. In this battle, WHO is mutually struggling with the high burden countries and giving financial and technical assistance. Countries have launched TB control program so far but progress in achieving the desired global targets of detection (70%) and cure rates (85%) of the detected TB cases under WHO's standard therapy is still quiescent [2]. As a matter of fact only 23% of infectious cases were detected and treated under the DOTS strategy in 1999 [3]. On the contrary reports show that the burden of new TB cases is not only linearly increased in these countries but also the number of advance TB states, multiple drug resistance due to poor control measures is on the speedy march. Alone from the South-East Asian countries, the situation is alarming in India, Indonesia, Bangladesh, Thailand, Myanmar, Pakistan and Afghanistan where 50% of global bulk of TB cases occur [2]. In order to fortify TB control WHO urges on countries to adopt Directly Observed Treatment Short-course (DOTS) strategy which is highly cost effective, ensures effective diagnosis and is considered a corner stone for treating infectious cases in any setting [1]. However many developing countries have been unable to expand coverage as rapidly as needed. One year after the Amsterdam Ministerial conference (2000) the recent effort of WHO in assessing progress in TB control among the high burden countries have revealed some valuable facts about the major obstacles in expanding TB control care under DOTS. According to the report DOTS coverage is profoundly slow and further expansion is overshadowed by lack of political back up, inadequate financial and technical resources and managerial inefficiencies [3, 4]. Unless immediate action is taken, TB will continue to elude the brightest minds and challenge the human and economic resources of nations around the globe. More than 15 million people will die from tuberculosis in the next decade if countries do not fine tune their TB control programs and pledge to implement DOTS universally [1].

MATERIAL AND METHODS

Using Medline search published research data (abstracts supplemented by full articles) and WHO reports on TB control mostly in high burden countries were retrieved and examined independently country by country. A significant amount of locally available data was also collected and critically appraised. With respect to financial contribution and DOTS implementation, each country was individually assessed, progress measured, incapacities and shortcomings in the TB control activities traced. Countries were compared in terms of political commitment, domestic contribution, and also in making efforts for an effective partnership with national and international agencies for the sustainability of TB interventions. Information collected was presented in tables and graphics.

RESULTS

Assessing Progress in Tuberculosis Control:

With the exception of the Philippines, South Africa, Thailand, and to some extent India, recent data reveal that case detection and management under DOTS in the 22 high burden countries has increased very little from 21% in 1998 to 23% in 1999 [3]. Among the same list of countries only Peru and Vietnam have achieved WHO targets of case detection and treatment. It is anticipated that countries including Cambodia, Kenya, South Africa, and the United Republic of Tanzania will reach their global targets in near future if enough efforts are put in [5–7]. Examining the data from 1999 (Table 1), one gets a clear impression that only a small fraction of new sputum smear positive cases are managed under directly supervised therapy. Countries like Pakistan, Afghanistan and Brazil are far away from covering even half the number of detected cases under DOTS. In addition to the common problem of financial insufficiency, countries in different regions are confronted with diversifying challenges. Low-income countries like Zimbabwe, S. Africa, and Uganda are fighting the dual war of HIV/AIDS and TB [8]. War in Afghanistan, Vietnam, Angola and Guinea-Bissau has added heavily to the increasing sufferings, arresting progress and lessening the opportunities for establishing an effective tuberculosis control [9–11, 16].

However the examples of Peru, UR Tanzania, Kenya, Viet Nam, Cambodia, Uganda and China are worth mentioning here. They attained 100% DOTS coverage (See Table 2). This success is associated mainly to the domestic contributions by allocating reasonable amount of resources and effective partnerships and political motivation. For country wide DOTS expansion the contribution of private sector is considered a crucial element [1,3,5,6,16]. With the exception of Kenya, Philippines, and Viet Nam other countries have focused little on integrating the private sector and NGO's in the TB control. Government collaboration with other sectors is still a new concept, which greatly undermines their capacities and potential to expand the network of TB care [3–7].

Table 1: TB Control in 22 HBCs (WHO, 1999)

Country	Incidence per 100,000	% New Smear + Cases under DOTS
Zimbabwe	562	55
Cambodia	560	57
S.Africa	495	68
Kenya	417	53
Ethopia	373	22
Uganda	343	59
UR Tanzania	340	51
Afghanistan	325	5
Philippine	314	20
Nigeria	301	12

DR Congo	301	53
Indonesia	282	19
Bangladesh	241	28
Peru	228	95
Viet Nam	189	80
India	185	6
Pakistan	177	2
Myanmar	169	33
Thailand	141	40
Russian F	123	2
China	103	32
Brazil	70	7

HBCs= High Burden Countries from TB

Table 2: Population under DOTS (WHO, 1999)

Country	DOTS Population Coverage
Russian F	5
Brazil	7
Pakistan	8
Zimbabwe	12
Afghanistan	14
India	14
Philippine	43
Nigeria	45
Thailand	59
DR Congo	62
Ethopia	63
Myanmar	64
China	64
S. Africa	66
Indonesia	90
Bangladesh	90
Viet Nam	99
Peru	100
UR Tanzania	100
Cambodia	100
Uganda	100
Kenya	100

Kenya and China have established a well-organized public health system with respect to other countries where TB services are considered an integral part of the social services. The hallmark of their success is attributed not only to the dedicated leadership but also to adequate resource allocation, efficient information system and decentralized TB control system. In China TB units have been established in approximately 80 % of the country with the treatment success rate of about 96 % [3, 5]. China uses three modes of TB services with modified form of DOTS (free of cost), flexible subsidized payments depending on the socio-economic condition or insurance scheme of the patient and special case management approaches in the hospitals and other institutions. Peru has achieved 100% population coverage of DOTS. Peru's effective governmental leadership and policy declared TB control as a public good. Mobilizing domestic resources and adopting a sector wide approach improved TB control. DOTS was additionally simplified and modified to the community needs and made accessible to majority of the population [3,5,12–19].

Affective partnership and assuring sound funding resources have served a corner stone for the success in UR Tanzania, India and China etc. Pakistan and Afghanistan are among the slow progressing countries in terms of DOTS expansion. Lack of political motivation, war induced disruptions and apparent anomalies of the health systems in the region have curtailed the possibility of improving TB control activities [1, 3, 14]. Similarly DOTS progress has been severely bedevilled in Pakistan as well as in Afghanistan since the economic sanctions were imposed. With respect to the country's burden of TB cases, Table 2 illustrates DOTS coverage explicitly low in Russian Federation, Brazil, Pakistan, Afghanistan and Zimbabwe [3, 5-7].

Financial Contributions to the TB Control:

Due to low spending and poor political attention TB control programs have been widely suffered particularly in 22 highly endemic countries [3, 5, 6, 15, 17]. The performance has been very well wherever TB was the focus of attention of the governments and private agencies [5, 14]. The financial estimates of TB control for the 22 high-burden countries largely differ. Based on WHO data, Table 3 shows the level of domestic contribution with regard to the WHO estimated annual cost of TB control programs.

Furthermore the report on DOTS Expansion Plan 2001 says that realistic estimates for all high burden countries could not be made due to paucity of the credible data. More fair cost estimations need to be done by associating the number of patients who will get treated under DOTS if global targets have to be met. Of particular attention are the costs of drugs and the diagnostic supplies for the increasing number of diagnosed and treated TB cases. In addition, budgets also need to include spending to raise case detection and cure rates where targets have not yet been reached.

Report indicated that US$ 674.5 million per year is required, with existing funding totalling US$ 509 million from governments and US$ 26.5 million from grant funds. Still gap remains of US$ 64.5 million per year and an additional amount of US$ 74.5 million for which the distribution among regular budgets, loans, grants and gap is unknown. Report expressed uncertainty on the cost estimates for Indonesia, India, Nigeria, Bangladesh and Pakistan.

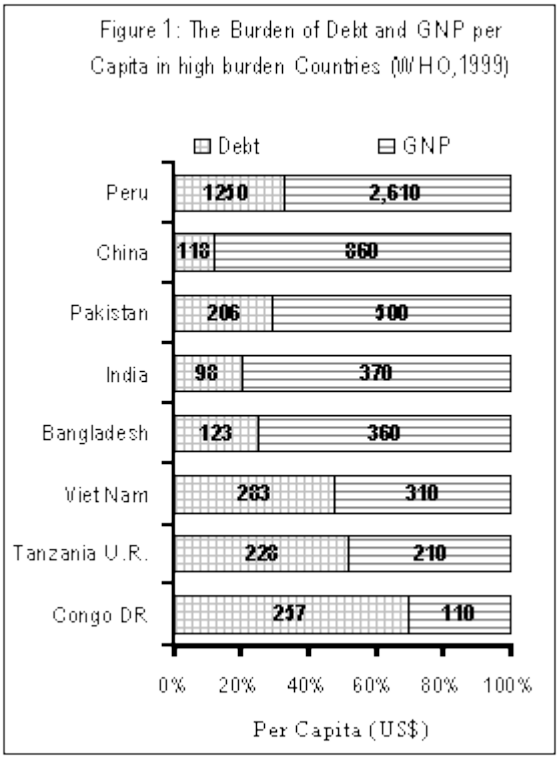
For cost estimation in these five countries it is important to have more accurate data due to their large contribution to the total number of tuberculosis cases in the 22 high-burden countries, and also due to their need to make substantial improvements in case detection rates if targets are to be reached. In Ethiopia, Kenya, S. Africa, Uganda and Thailand additional funds will be required to deal with the emerging HIV/AIDS and TB synergism and for multiple drug resistance in China, India and Russian Federation. Meticulous and country based estimations are required to raise case detection and cure rates and their associated costs [3]. With the exception of S. Africa, Peru, China where governments have been putting generous regular funds, spending in other countries was overtly low and potential sources to fill the increasing gap of resources were lacking. (Table 3).

Table 3: Estimated Costs Vs Governmental Contributions to TB Control (based on WHO 1998 Case Detection Rate)

Country	Est. Annual Cost TB Control Program in US$	Governmental Contribution (Regular Budgets only)
S. Africa	170	170
Russian F	150	120
India	100	50
China	88	43
Peru	20	20
Viet Nam	12	8

Kenya	16	12
Brazil	15	15
UR Tanzania	10	5
Thialand	10	10
Myanmar	2	1
Uganda	5	3
Afghanistan	2	0
Zimbabwe	11	-
Cambodia	4	1
DR Congo	10	0
Indonesia	9	8
Nigeria	8	3
Bangladesh	6	3
Pakistan	7	5
Philippine	13	9
Ethopia	8	1

Out of 22, Peru and Thailand have no resource gap. South Africa and Brazil are assumed to have no, or only a small, resource gap. The cost estimates of countries like Afghanistan, China, Ethiopia, Kenya, Myanmar, Nigeria, Philippines, Uganda, United Republic of Tanzania and Vietnam) depict significant deficiencies in the funds allocated by governments [3, 5, 6]. An interesting and important finding has been discovered that an overwhelming amount of debt has triggered reduction in the financial assets allocated to TB control in all high burden countries. Countries are left with no other choice rather than cutting their budgets on the health development and disease prevention [20–22] (see Figure 1).



Countries apparently are unable to fund and launch a competent TB control efforts. External debt, in most of highly TB endemic poor countries exceeds their gross national product. Similarly performance in TB control is worsened as the level of debts increased in the past [23]. Not only in these countries a negligible proportion of the

financial resources are allocated but also TB control has suffered due to lack of motivation and poor political impetus. National health development in high burden countries has attained little attention due to such fiscal inequalities.

Knowing the fact that high burden countries have either less resources or are less willing to spend, the international community has shown significant motivation and interest in joining the battle against TB. Since the Amsterdam conference leaders of G8 nations and the European Community have increased their support in taking drastic steps against the diseases of poverty, with prioritized action for HIV/AIDS, malaria, and tuberculosis. In majority of these countries, international organizations such as WHO, World Bank and western Governments and charity organizations are assisting in one or the other way [4, 6, 15].

DISCUSSION AND RECOMMENDATIONS

The article outlined the fact that success in TB control has been achieved wherever enough financial resources are allocate to the DOTS and made it an essential component of TB control program. Peru, Cambodia, Uganda, UR Tanzania, Kenya, Vietnam, Bangladesh and China have attained the highest cure rates under DOTS. Governmental spending on TB control is extremely insufficient in other high burden countries and does not comply with the increasing demands. With respect to the overwhelming TB cases in these countries a minute proportion is detected and treated under DOTS. DOTS implementation is static and prospects to achieve targets set by WHO are poor unless adequate resources combined with potent leadership are available. WHO report on DOTS progress is an important milestone in categorizing countries and identifying current challenges like TB and HIV/AIDS synergism, drug resistance and cost estimations for low-income countries. Gaps and barriers ahead are enormous and demand a great deal of political motivation and governmental support in eradicating TB. In the light of recent report by WHO, countries need to identify their (governmental) contribution, donor contribution, and understand resource gaps. To meet the global TB control targets countries like S. Africa, Zimbabwe, Indonesia, Pakistan, Afghanistan, India and the Russian Federation need to work aggressively to update their respective National TB control programs and adopt country specific approach in DOTS. Effective partnership and close incorporation of private sector are highly crucial for sustaining and expanding TB control activities. Countries need to build sound links of collaboration among countries, agencies, foundations, and nongovernmental organizations (NGOs) and prioritising health issues of their people. To accelerate the expansion of control measures under DOTS and to reach the targets for global TB control by 2005 more emphasis ought to be laid on the strict adherence of the high burden countries to the Amsterdam Declaration (March 2000 to Stop TB).

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Address for Correspondence:

Khan M. Ibrahim, Section of International Public Health (S-IPH), University of Bielefeld, Germany.

Email: ibrahim.khan@uni-bielefeld.de