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of the Global Fund

Expenditure reported by national Tuberculosis programs in 22 high burden countries between 2010 – 2012: what is the Global Fund's contribution?

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This paper contributes to discussions around value-for-money in health programs by analyzing the costs of treatment and prevention of tuberculosis as reported to WHO each year by 22 countries designated as "high-burden": contributing to 80% of the overall burden of tuberculosis. The study is a cross-national comparison across three years (2010-2012) of reported expenditure. The authors used an average annual cost, taken over the three years, to estimate the cost per notified cases. Five countries were included in the BRICS grouping; the remaining 17 were classified separately. A proportion of funding provided by the Global Fund was compared with funding from domestic and other sources.

Findings show that between 2010 and 2012, the national TB programs (NTP) in all 22 high-burden countries reported \$ 6.37 billion in total expenditure for 14 million reported cases of TB. The number declines to \$2.7 billion when the Russian Federation is excluded. For the 17 non-BRIC countries the cost per notified case ranges from \$30 per case in Myanmar to \$289 in Thailand, with an average of \$89 per case per year. For BRICS countries excluding Russia, the average spend per case was \$118 per year. For the non-BRICS countries the average spend was \$31 per notified case per year. Again, for the non BRICS countries, the Global Fund grants money met between 9% and 76% of the total expenditure for these countries programs, with an average of 40%.

Average total cost per case notified, which varies considerably across the countries, appears relatively modest given the scale of the epidemics. Among the 17 non-BRICS countries, the Global Fund's contributions are substantial. The risks of relying on one granting organization for a high proportion of funds are discussed, particularly for these non-BRICS countries. The implications of this, in the context of the roll-out of the Fund's new funding model (NFM), are briefly discussed.

Introduction Strong investment cases and improving value-for-money in public health programs are key priorities for donors - none more so than the Global Fund to Fight AIDS, TB and Malaria: the world's largest health financing mechanism for the three diseases. Aidspan has conducted a simple analysis of expenditure by national tuberculosis programs as reported by governments, excluding contributions by the US government*, relative

to the burden of disease. The analysis assesses the proportional contribution by the Global Fund to other sources of funding in 22 countries classified as high-burden. Their classification as high-burden countries (HBC) is given because together they constitute about 80% of the total burden of disease, and over 1 million of the deaths reported annually from TB**.

* An estimation of the United States Government funds spent in the HBC countries 2010 - 2012 is given in Appendix A.

** Afghanistan, Bangladesh, Brazil, Burma, Cambodia, China, Democratic Republic of Congo, Ethiopia, India, Indonesia, Kenya, Mozambique, Nigeria, Pakistan, the Philippines, Russia, South Africa, Tanzania, Thailand, Uganda, Vietnam, and Zimbabwe. The BRICS are Brazil, Russia, India, China and South Africa.

During the three-year period 2010-2012, just over 14 million cases were reported by national TB programs (NTP) in those 22 countries to the World Health Organization (WHO). More than 3.5 million of those people died.

At a global level, the high rates of morbidity and mortality appear to be slowly declining in most countries, but not all (WHO Global TB Reports, 2011 and 2012). Indeed, joint infection with HIV, as well as the rising incidence of MDR-TB, remains twin threats to many populations, despite the considerable investment of domestic and foreign resources in controlling TB.

The analysis sought to ascertain the proportion of support from the Global Fund per notified case in HBC. Then it went deeper, to calculate whether there were significant cost-per-case differences between countries, and between the BRICS and non-BRICS within the HBCs. These comparisons are likely to be useful at country and regional level, as part of the push to make every dollar spent on health count. By comparing the proportion spent by the Global Fund with that of other sources of income, the risk of relying on a single donor was also highlighted.

The analysis was based on three years of existing data for the 22 HBC and looked at basic descriptors and relationships among three variables: total cost of national programs (as reported by the NTPs to WHO), the Global Fund contribution to those national programs as recorded by disbursements (reported on the Global Fund website)* and

the total number of notified cases of TB**. Totals were disaggregated by BRICS and non-BRICS high burden countries, as followed by other TB analysts (Floyd et al, 2013). This was done to allow for the much bigger population of several of the BRICS, and the fact that although they have all received grants from the Global Fund, in relative terms (next to their burden of disease) those grants have not been large.

The classification of these 22 countries as high-burden, responsible for 82% of the disease burden, has remained consistent in the period under review. This helps ensure consistency in data extraction and analysis. Nearly all of the countries were recipients of Global Fund grants during the period. Focusing on only 22 countries might be considered a limitation of the analysis, but given the proportion of the global TB burden that these countries carry this can also be interpreted as a strength of the paper.

Background Tuberculosis continues to have a very high rate of disease in many countries, despite signs in the last decade of the epidemic beginning to fall globally (Global TB Report, 2012). Some HBC are still experiencing rates between 300 and 400/100,000 (Global TB Report, 2013). In 2012, for example, an estimated 8.6 million people developed TB, and of these about 1.3 million died of the disease. Of the 8.6 million who developed TB, 6.2 million were “notified cases” (and the breakdown within this group is that 5.7 million were new cases, and 400,000 were relapse or previously diagnosed cases. A further 3 million cases are estimated as being missed globally.

* NTPs report the Global Fund contributions in the summary reports to WHO each year, but because some countries do not count the amount given by the Fund in their disbursement to pay for technical assistance and some other costs, we decided to use the Global Fund disbursement records as reported by the Fund on their website.

** A tuberculosis notified case is a new or relapse case, or a case who has had their treatment changed in that year.

These are patients who are not diagnosed or treated by the national programs, but are “missed” for a number of reasons. Those reasons include: clinical misdiagnoses, or death before diagnosis of TB, but are subsequently thought to have died of the disease. Or these are patients who have no access to health services (live in hard to reach areas) or they may be patients who get care and treatment in private facilities, who do not then report to the NTPs.

The cost of this burden is large. The total expenditure by TB programs globally has been documented for the period 2002 to 2011 by Floyd and colleagues (Floyd et al 2013). The total reported as spent by NTPs grew from \$1.7 billion in 2002 to \$4.4 billion in 2011. By 2013, this had grown to over \$6 billion (Global TB Report 2013), contributed in the form of national budget allocations, foreign loans to governments, grants from donors -- either agencies or in bilateral contributions from governments -- and grants through the Global Fund. Again, by 2013, the Global Fund was the largest external investor in TB case management, responsible for about 80% of the total international spending on TB, with over \$700 million in disbursements were sent to countries that year.

In the first paper of its kind, Floyd et al (2013) looked at the trends in funding and spending around TB between 2002 and 2011 across 104 countries including all HBC. They also examined the cost per patient successfully treated, measuring the value for money in each of the programs. This money mostly paid for diagnosis and treatment for drug-susceptible TB. Between 2002 and 2012, more than 43 million cases had been successfully treated.

Cost for treatment in low- and lower middle-income countries ranged between \$100 and \$500 per patient. Other research in this area is

lacking, beyond a recent paper by Diel and colleagues that shows the average per TB patient cost within the 27 European Union member states ranging between \$4,386 and \$13,263 for drug-susceptible TB, to between \$30,960 and \$73,500 for MDR TB, and up to \$220,200 for XDRTB patients in some countries (Diel et al, 2014). These totals include both direct and indirect costs of treating TB in these countries.

As TB is a notifiable disease, there is now a substantial body of data available on rates of disease, treatment completion and the demography of those affected. Most of these data are open-source. Financial data are also increasingly available although they remains harder to interpret often due to the variability in what is reported and when.

There are a number of current approaches to estimating the total costs of the TB burden. Generally, analysts separate direct and indirect costs. Direct costs are identified as program costs, such as human and lab-based or medical resources, administration, supervision, lab or associated costs with running the programs, and patient costs including access to care and maintaining treatment for as long as is necessary.

Indirect costs to patients include lost productivity costs due to disease and lost opportunity to families who have to spend scarce resources caring for the patient instead of on other essential needs.

Methods currently in use by most NTPs do not usually report the cost of treatment during outpatient visits or in-patient costs (ie the cost of staying in hospital or treatment facilities once diagnosed).

Another area of research beyond the scope of this paper is estimation of the economic burden of TB care for patients and their families and households, including indirect and opportunity costs (Tanimura et al, 2014).

Such research has also sought to estimate the costs of disease to national economies and the total financial / economic burden of disease. This is of particular interest to those trying to measure the contribution of TB to poverty of households (Ukwaja et al, 2012).

This paper uses data from WHO's global TB database as well as the Global Fund's own data services. The question asked is: what is the Global Fund's contribution to the cost per notified case of TB in the high burden countries? To answer this question the authors also answer the wider question: what is the cost reported by NTPs per TB case notified to WHO?

Methods and Data This study was designed to measure the contribution by the Global Fund to the cost per notified case as measured by the NTP's in the Global TB Reports (2010 – 2012). It is a descriptive study using secondary data from several sources (described below). Three variables were extracted and three additional variables were created for analysis. The three extracted variables are: total notified new and relapse cases of TB; total disbursed Global Fund money; and total government or domestic expenditure plus other loans and grants.

Data sources: All TB notified cases from 2010-2012 from 22 HBC were gathered and extracted from the WHO Global TB Reports. The records and reports used can be found [here](#) and [here](#). This extraction included all new and relapsed* cases of TB (smear positive and smear negative, pulmonary, and extra-pulmonary TB) that occurred during those three years. [Note: the notified patients are only a proportion of all patients treated for drug sensitive TB and the retreatment or relapse cases can be up to 20 per cent of all

cases treated]. Costs are aggregated into an annual total. The reports also provide a breakdown of the sources of funding for these expenditures: government, Global Fund, loans and other grants.

The analysis compared the sum total of funding from government, loan and other grant contributions -- called 'domestic and other grants totals' -- with the funding provided by the Global Fund.

Global Fund Disbursements: Disbursements to countries as reported by the Global Fund provided the best-quality data for the Fund's own grants. The Fund has been publicly reporting disbursement data by grants since 2002. Global Fund reports of disbursements to HBC were extracted for each of the three years and summarized. The reason we relied on the Global Fund disbursement data rather than the NTP reports is that we believe that the former are more complete than the latter.

According to the WHO Global TB Program, some countries split their disbursements by whether they were spent on core NTP costs or were spent on technical assistance. We note that the NTPs only report on Global Fund money that comes through their channels. What this means is that PRs that are non-governmental (either CSOs, or UN organizations), who also receive funds for TB, do not necessarily channel the funds onwards to the NTPs but also use them for TB-related work. These are outside the reporting channels of the NTPs. We captured the total disbursement amounts, via the Global Fund website, within the Aidspace platform on grants (see [here](#)).

* Relapse cases are: people who have been previously been treated for TB and for whom there was bacteriological confirmation of cure and/or documentation that treatment was completed. Relapse cases may be true relapses or a subsequent episode of TB caused by reinfection and for this reason they are added to the new cases.

To reduce the likely “float and bounce” of the financial data we took the sum of three year totals, and then took averages of those totals to get yearly rates, rather than try and look at these data by year. This is because reporting on expenditure by these programs can vary considerably and since our aim was to measure the proportion that the Global Fund has been contributing per case notified, and not look specifically at the costs, we decided that using an average for three years of data would ease interpretation.

Note: This is not a full economic evaluation of the cost of TB. We have not attempted to measure all the direct and indirect costs to households and individuals affected by the disease, nor can we estimate the economic development costs of the disease. We are limited by the data in the WHO TB Reports collected from all countries with a significant burden of TB but which do not include the full costs borne by the national programs or the governments in question. For example, the majority of the countries we have looked at do not report the in-patient costs of treating patients with the disease, nor do they report the out-patient staff costs. In every country included in this analysis, there are many civil societies or faith-based organizations (eg mission hospitals and private facilities) that spend a lot on the diagnosis, treatment and follow up on TB patients and their families. Spending by these groups is not reported globally or even nationally in many places. Finally, there are some donors who provide support to the national TB program via other routes. For example, many PEPFAR-supported countries received money for TB or joint HIV/TB work but the funds for these activities mostly do not flow through the government, but via their large INGO partners or the local implementing partners. As a result the total amount of money spent in HBC is larger than that reported by the NTPs annually through the WHO TB databases. Despite these caveats, this analysis remains useful as a starting point.

The US government (USG) invests a lot of funds in TB control in these high-burden countries, but relatively small amounts of these funds go through the national governments. Instead the funds tend to be programmed through large civil society

organizations. Typically, those organizations are the international NGOs and companies that USAID and CDC work with at country level. Because these funds are not handled by the NTPs, they are not counted in their reporting of expenditure to WHO. In Appendix A, we provide the totals for each of the HBCs that the US provided funds to, as reported in the *Congressional Budget Justifications* in the years 2010, 2011 and 2012.

It must also be acknowledged that USG also gives about one-third of all the funds used by the Global Fund, and has done since its inception.

Results As described above, our results are split by non-BRICS and BRICS countries. We also removed Russia as its reported expenditure was more than half the total global expenditure, and using it in this analysis strongly biases the results upwards (on average). In addition, we understand that Russia includes in its reporting all in-patient and out-patient health system costs that are not included by other countries. Its extreme outlier status makes it certainly worthy of analysis but we decided that this was not the place to do it.

Expenditure Analysis: Table 1 shows the total expenditure per year by national TB programs. Between 2010 and 2012, NTPs in all HBC report a total of \$ 6.37 billion spent. Without Russia, this total is \$2.73 billion. For the 17 non-BRICS countries, the total is \$1.13 billion. Table 1 presents this by year, showing the peak of expenditure over the period in 2011.

Table 2 shows the total expenditure as reported by the NTPs across non BRICS and BRICS high-burden countries for the three years 2010 to 2012. It shows the Global Fund

disbursements for the three years for the countries' TB grants, and the total for other expenditure by the NTPs. The countries with the largest disbursements by the Global Fund were Indonesia, Pakistan and Bangladesh; the smallest were Mozambique, Afghanistan and Uganda. The total received by these 17

countries was nearly \$500 million. The third column is the total reported expenditure for TB, which came to \$1.1 billion. The biggest spenders here are Thailand, Indonesia and Philippines. The lowest spenders are Afghanistan, Uganda and Zimbabwe.

Table 1: Total expenditure reported by NTPs by year for high-burden countries

	All HBCs \$million	Without Russia \$million	Non- BRICS Countries \$million
2010	1,983	765	378
2011	2,284	1,069	355
2012	2,05	894	400
Total	6,368	2,728	1,133

Table 3 shows total expenditure per notified case and how much was spent by the Global Fund grant per notified case, across BRICS and non BRICS HBCs. The final column shows the relative proportion of what the Global Fund grants contribute to the total cost. We are presenting each of these results as a per year or average cost since this seemed easier to understand than just reporting the average for three years total.

The Non-BRICS Countries: In total the non-BRICS spent nearly \$1.6 billion on TB over three years and notified nearly 7.9 million cases, so the average for the cost per case is \$79. The disbursements from the Global Fund to these 17 countries amounted to \$248 million, which at \$31 per case means that the Fund is contributing 39% of the total amount of the reported expenditure by these HBCs (see Figure 1).

The range of total expenditure per case is considerable: from \$30/case/ year in Myanmar to \$289 per case in Thailand. Thailand is clearly an outlier in this group with the next highest expenditure / case being

Nigeria which is over \$175 per case lower in terms of average expenditure. Other countries that are reporting relatively low expenditure are Uganda, Pakistan, Indonesia and Congo. Countries spending more than \$100 per case other than Thailand, are Tanzania, Cambodia, and Nigeria.

The average expenditure, as measured by the Global Fund support per notified case per year, in these countries ranges from \$8 per case/year in Mozambique to \$67 per case/year in Zimbabwe, with an average across the 17 countries of \$31. The distribution shows three groups – the lowest cost per case notified are Uganda (\$20), Tanzania (\$15) and Mozambique (\$8). Eleven of the countries receive Global Fund support of between \$22 and \$36 per case. Only Thailand, Nigeria and Zimbabwe have over this and they are all within \$11 of each other. This is graphically shown in Figure 1.

In terms of the relative contribution by the Global Fund to total expenditures, this ranges from 9% in Mozambique and 13% in Thailand, to 75% in Zimbabwe and 76% in Myanmar.

Table 2: Total NTP expenditure divided up by Global Fund disbursements, and domestic financing + loans + other grants, by BRICS and non BRICS

Country	2010-2012 Global Fund Disbursements	2010-2012 Domestic funds + Loans + other grants	2010 – 2012 Totals
NON- BRICS			
Afghanistan	\$7,784,695	\$10,600,000	\$18,384,695
Bangladesh	\$51,297,469	\$22,600,000	\$73,897,469
Cambodia	\$12,559,217	\$23,100,000	\$35,659,217
Congo (DRC)	\$28,465,821	\$17,911,813	\$46,377,634
Ethiopia	\$44,702,964	\$50,200,000	\$94,902,964
Indonesia	\$62,023,795	\$67,600,000	\$129,623,795
Kenya	\$21,978,320	\$22,600,000	\$44,578,320
Mozambique	\$3,241,014	\$32,900,000	\$36,141,014
Myanmar	\$27,774,951	\$8,800,000	\$36,574,951
Nigeria	\$49,325,816	\$39,900,000	\$89,225,816
Pakistan	\$51,460,117	\$37,000,000	\$88,460,117
Philippines	\$43,526,711	\$77,584,413	\$121,111,125
Tanzania	\$8,307,530	\$46,700,000	\$55,007,530
Thailand	\$22,421,438	\$144,500,000	\$166,921,438
Uganda	\$8,080,117	\$10,900,000	\$18,980,117
Viet Nam	\$26,327,604	\$20,300,000	\$46,627,604
Zimbabwe	\$23,910,721	\$7,609,000	\$31,519,721
Non BRICS Total	\$493,188,301	\$639,603,558	\$1,132,791,859
BRICs			
Brazil	\$6,323,744	\$171,400,000	\$177,723,744
China	\$158,543,637	\$709,400,000	\$867,943,637
India	\$83,255,108	\$248,000,000	\$331,255,108
Russia	\$8,184,073	\$3,631,800,000	\$3,639,984,073
South Africa	\$ N/A	\$217,900,000	\$217,900,000
BRICS Total	\$256,306,562	\$4,978,500	\$5,234,806,562

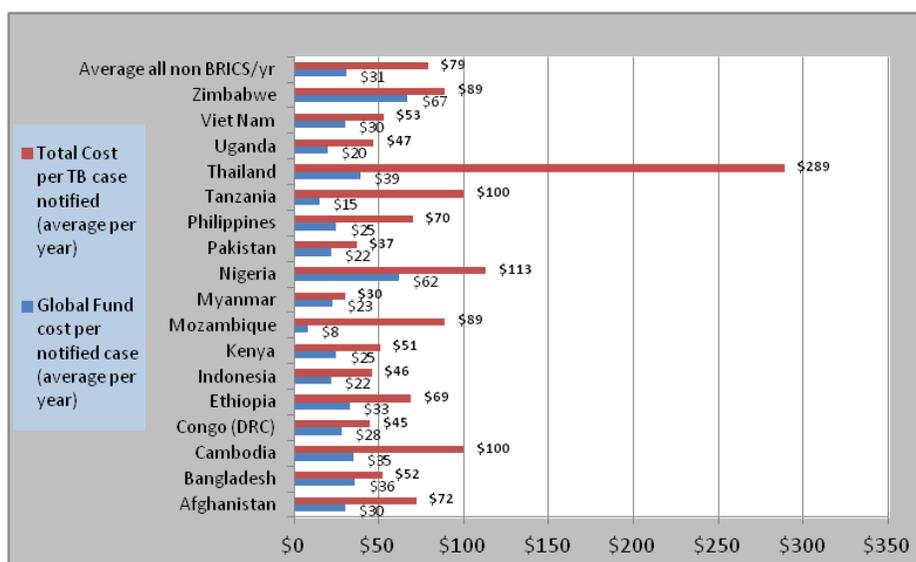


Figure 1: Total cost per notified case compared to Global Fund cost per notified case for non BRICS HBCs (2010 - 2012)

Table 3: Relationship between GF disbursements, total NTP reported expenditure & notified cases/year

Country	2010-2012 Global Fund disbursements	2010 – 2012 Total NTP expenditure + loans + grants	Cases notified to WHO, 2010, 2011 and 2012	Cost per TB case notified relative to Global Fund support/year	Total Cost per TB case notified, per year	Proportion of cost of notified case/year as supported by Global Fund
Afghanistan	\$7,784,695	\$18,384,695	85,393	\$30	\$ 72	42%
Bangladesh	\$ 51,297,469	\$ 73,897,469	476,284	\$36	\$ 52	69%
Cambodia	\$ 12,559,217	\$ 35,659,217	119,200	\$35	\$100	35%
Congo (DRC)	\$ 28,465,821	\$ 45,175,965	333,286	\$28	\$ 45	63%
Ethiopia	\$ 44,702,964	\$ 94,902,964	456,556	\$33	\$ 69	47%
Indonesia	\$ 62,023,795	\$129,623,795	948,432	\$22	\$ 46	48%
Kenya	\$ 21,978,320	\$ 44,578,320	289,579	\$25	\$ 51	49%
Mozambique	\$ 3,241,014	\$ 36,141,014	135,926	\$ 8	\$ 89	9%
Myanmar	\$ 27,774,951	\$ 36,574,951	409,497	\$23	\$ 30	76%
Nigeria	\$ 49,325,816	\$ 89,225,816	263,717	\$62	\$113	55%
Pakistan	\$ 51,460,117	\$ 88,460,117	789,715	\$22	\$ 37	58%
Philippines	\$ 43,526,711	\$121,111,125	574,087	\$25	\$ 70	36%
Tanzania	\$ 8,307,530	\$ 55,007,530	182,633	\$15	\$100	15%
Thailand	\$ 22,421,438	\$166,921,438	192,525	\$39	\$289	13%
Uganda	\$ 8,080,117	\$ 18,980,117	133,854	\$20	\$ 47	43%
Viet Nam	\$ 26,327,604	\$ 46,627,604	295,441	\$30	\$ 53	56%
Zimbabwe	\$ 23,910,721	\$ 31,519,721	118,373	\$67	\$ 89	75%
Total non BRICS	\$493,188,301	\$1,132,791,859	5,804,498	\$31	\$79	39%
BRICS (excluding Russia)						
Brazil	\$ 6,323,744	\$ 177,723,744	224,409	\$ 9	\$264	4%
China	\$158,543,637	\$ 867,943,637	2,698,713	\$20	\$107	18%
India	\$ 83,255,108	\$ 331,255,108	3,953,651	\$ 7	\$ 28	25%
South Africa	\$ -	\$ 217,900,000	1,021,620	-	\$ 71	-
Total BRICS	\$248,122,489	\$1,594,822,489	7,898,393	\$9	\$118	12%

Twelve of the 17 HBC non-BRICS countries have between 35% and 65% of their total expenditure coming from the Global Fund.

The BRICS HBC Countries: With Russia not shown, the rest of the HBC BRICS results are given in Tables 2 and 3. We dropped Russia

from Figure 2 as the other four BRICS countries would barely show up in relative terms (see above for explanation). The total expenditure reported by the NTPs per case notified for this group ranges between \$28 (India) and \$264 (Brazil), with an average of \$118. The high number of cases in India is one probable

driver of the low per notified case cost, but this begs further analysis. The other three countries vary by \$150 per case. India, China and Brazil all received some funding from Global Fund during this period. South Africa

did not receive any funds during this period for TB. The average cost per case of in terms of Global Fund support ranges between \$7 and \$19, with an average of \$12 for the four countries with grants (excluding Russia).

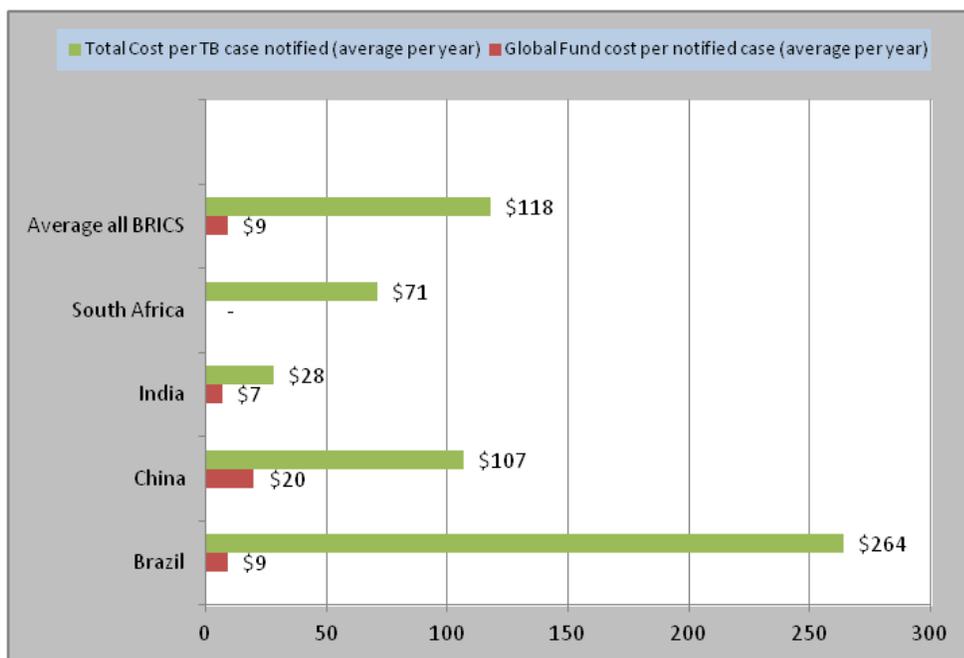


Figure 2: Total cost per notified case compared to Global Fund cost per notified case for HBCs - BRICS (2010 - 2012), excluding Russia

Discussion From Afghanistan, with 85,000 cases, to India, with 3.9 million notified cases during the years 2010 – 2012, these 22 HBCs carry a significant proportion of the world's TB.

Given the diversity of the countries which differ by their wealth and by how their health systems are funded and managed, it is not surprising that their costs per case notified cover a range greater than two orders of magnitude. There are results that may show economies of scale – ie the greater the notified numbers, the lower the average costs. But further analysis is needed to explain this variation. There may also be differences in how the countries are allocating their (fixed and variable) expenditure data, and this may

be transferred onwards into the WHO system. Efforts are made each year to make this as uniform a reporting system as possible, but variation in data content and practice may well mean that some of the variation is due to the data system rather than anything else.

These average total costs per case notified also appear relatively modest given the resources needed to run, manage, supply and monitor these programs. We know that these costs do not reflect the total costs to the health care systems – i.e., the NTPs do not, in general, report the total in-patient care costs or even the out-patient costs to the health system. Nor are the costs of technical assistance, supplies and equipment for X-rays,

budget for high-risk groups, infection control and childhood TB reported by most countries. Finally, this basic estimate of costs does not take into account household or indirect costs as borne by patients and their families.

But we also know that the notified cases are not the whole burden of TB. In 2012, there were an estimated further 3 million cases globally that were not reported for several reasons: they died before being diagnosed, they are lost to follow up, they are misdiagnosed or they are treated outside of the NTP and data not captured by the programme.

In this basic expenditure estimation, where we use total cost in the numerator and patients presenting for treatment in the denominator, we believe that there should be higher numbers on both sides of the equation, but probably much higher numbers in the numerator (the cost component) relative to the cases missed. Overall, we believe that these results may indicate an under-estimation of the average cost per TB case notified that these countries bear.

The proportion that the Global Fund is contributing to these NTPs, particularly in the 17 non-BRICS countries, is large. But one of the limitations of our study is that we have assumed that the total disbursements from the Global Fund are largely "spent" by the NTPs either as PRs or as SRs who eventually receive the funding. Some PRs are CSOs who both receive and spend funds on TB, and while this is not a large figure, it is worth noting that we have probably overestimated the Global Fund proportion.

On average, therefore, approximately a third to a half of the costs of the NTPs' programs are the responsibility of a single agency – the Global Fund. From the perspective of a planner or policymaker, this is a high-risk

scenario. The finance flows have been disrupted and delayed for many reasons and in many countries over the past few years. In several instances, the Global Drug Facility has had to step in, and purchase medicines to prevent major disruptions to programmes. Should anything happen to the Global Fund, TB programs in these high burdened countries would be at risk of collapse, or they would become a significant drain on domestic budgets.

In several of the HBCs, the amounts allocated to TB by the Global Fund under its new funding model (NFM) increased. Of the \$14.8 billion allocated to the 16 eligible HBCs, excluding Brazil, China and Russia, \$1.3 billion was allocated to TB for the period 2014-2017.

If there is no significant change in the notification rates of disease among the 19 eligible HBCs over the next Global Fund allocation period, they will be responsible for diagnosing, treating and caring for approximately 10 million cases in the next three years. Global Fund support per case will hover around a \$43 per case per year. This is a relatively small increase from the period of analysis of this paper. If one compares the non BRICS average cost for 2010 – 2012 of \$31 per case then this is an increase of \$12 per case for the period 2014 – 2017: or an average of 38% increase.

Recommendations Will this increase in funding bring down the numbers infected by TB in the short- or even medium-term? It is beyond the scope of this paper to analyze the trends of TB disease in these countries, but while some programmes appear to have slowed their epidemics, many are still experiencing stubbornly high disease rates. What these results suggest is that at many areas of the TB support system, both domestic and foreign, more resources in total may be needed to bring these epidemics under

control.

- **At global and national levels: The data used in this report are available, free and public. It is somewhat surprising that these data are not better used and better publicized. They should be.**
- **At national levels: Many others have said this, but alternative sources of money to the Global Fund may be needed for two reasons. They could be necessary as**

alternate to the Fund, should the Global Fund not be able to raise the resources in the next replenishment cycle. But other sources may also be needed now to supplement / fully fund the national programs.

- **Given the size of Fund's role in financing of these TB programs, one might expect the Fund to have a bit more leverage with other players and stakeholders.**

References

- Aidspan – grant portfolio pages for Global Fund data for grant portfolio data on Tuberculosis – June 2014 <http://www.aidspan.org/page/global-fund-overview>
- Barter DM, Agboola SO, Murray MB, Bärnighausen T. , 2012, Tuberculosis and poverty: the contribution of patient costs in sub-Saharan Africa--a systematic review. *BMC Public Health*. 2012 Nov 14;12:980.
- Floyd, K, C Fitzpatrick , A Pantoja, M Raviglione, 2013, Domestic and donor financing for tuberculosis care and control in low-income and middle-income countries: an analysis of trends, 2002—11, and requirements to meet 2015 targets, *Lancet*, [Vol 1, Issue 2](#), pp e105 - e115,
- Floyd K, Blanc L, Raviglione M, Lee JW. Resources required for global TB control. *Science* 2002; 295: 2040-2041.
- Floyd K, Pantoja A, Dye C. Financing tuberculosis control: the role of a global financial monitoring system. *Bull World Health Organ* 2007; 85: 334-340.
- Fitzpatrick C, Floyd K. A systematic review of the cost and cost-effectiveness of treatment for multi-drug resistant tuberculosis. *Pharmacoeconomics* 2012; 30: 63-80.
- Glassman A and V Fan, Does the Money match the message: current practice in allocation of aid for TB and implications for the US Government, Working paper Feb 2014, Center for Global Development, Washington DC.
- WHO. Planning and budgeting for TB control activities. www.who.int/tb/dots/planning_budgeting_tool/ (accessed May 1, 2014).
- Revised National TB Control Programme (RNTCP), India, Summary of national programme, 2003 – 2009 <http://www.tbcindia.nic.in/rntcp.html> , accessed 18.06.14.
- Tanimura T, Jaramillo E1, Weil D, Raviglione M, Lönnroth K. 2014, Financial burden for tuberculosis patients in low- and middle-income countries: a systematic review. *Eur Respir J*. 2014 Jun;43(6):1763-74.
- The London TB Plan, 2012, a case for change and model of care, <http://www.londonhp.nhs.uk/services/tuberculosis/> accessed 18.06.14.
- Ukwaja KN, Modebe O, Igwenyi C, Alobu I, 2012, The economic burden of tuberculosis care for patients and households in Africa: a systematic review. *Int J Tuberc Lung Dis*. 2012 Jun;16(6):733-9.
- United States Government (USG): Congressional Budget Justification and Reports, 2010, 2011 and 2012, Washington DC. USA.
- Vassall A, M Remme, 2013, Financing TB control: promising trends and remaining challenges, comment, *Lancet Global Health*, vol 1, e62-63
- 2014: *WHO TB data collection form and variables v1.0 2014-05-13*
- WHO. Global tuberculosis control 2012. Geneva: World Health Organization, 2013
- WHO. Global tuberculosis control 2011. Geneva: World Health Organization, 2012
- WHO. Global tuberculosis control 2010. Geneva: World Health Organization, 2011

Appendix A

Table 4: Spending by the United States Government as recorded through the congressional reports

UNITED-STATES GOVERNMENT AMOUNTS				
Non-BRICS				
Country	2010	2011	2012	Total for Non-BRICS per Country All Yrs
Afghanistan	\$ 4,986,000	\$ 6,500,000	\$ 6,302,000	\$ 17,788,000
Bangladesh	\$ 4,400,000	\$ 10,000,000	\$ 11,000,000	\$ 25,400,000
Cambodia	\$ 3,860,000	\$ 5,000,000	\$ 5,000,000	\$ 13,860,000
Congo, Dem. Rep.	\$ 4,770,000	\$ 10,000,000	\$ 12,100,000	\$ 26,870,000
Ethiopia	\$ 4,000,000	\$ 10,000,000	\$ 12,000,000	\$ 26,000,000
Indonesia	\$ 7,080,000	\$ 13,700,000	\$ 16,600,000	\$ 37,380,000
Kenya	\$ 3,150,000	\$ 4,000,000	\$ 7,000,000	\$ 14,150,000
Mozambique	\$ 4,250,000	\$ 5,000,000	\$ 6,000,000	\$ 15,250,000
Myanmar				\$ -
Nigeria	\$ 5,800,000	\$ 10,100,000	\$ 12,000,000	\$ 27,900,000
Pakistan	\$ 8,970,000	\$ 14,000,000	\$ -	\$ 22,970,000
Philippines	\$ 6,900,000	\$ 10,000,000	\$ 12,000,000	\$ 28,900,000
Thailand				\$ -
Uganda	\$ 3,500,000	\$ 4,000,000	\$ 6,000,000	\$ 13,500,000
Tanzania	\$ 3,700,000	\$ 4,000,000	\$ 6,000,000	\$ 13,700,000
Vietnam				\$ -
Zimbabwe	\$ 2,000,000	\$ 3,000,000	\$ 5,000,000	\$ 10,000,000
Total Non-BRICS	\$ 67,366,000	\$109,300,000	\$117,002,000	\$293,668,000
BRICS				
Country	2010	2011	2012	Total for BRICS per Country All Yrs
Brazil	\$ 3,700,000	\$ 5,000,000	\$ -	\$ 8,700,000
China				\$ -
Russian Federation	\$ 7,500,000	\$ 9,804,000	\$ 11,000,000	\$ 28,304,000
India	\$ 11,000,000	\$ 13,700,000	\$ 15,000,000	\$ 39,700,000
South Africa	\$ 8,500,000	\$ 13,000,000	\$ 15,000,000	\$ 36,500,000
Total for BRICS	\$ 30,700,000	\$ 41,504,000	\$ 41,000,000	\$113,204,000
Total HBC Amount	\$ 98,066,000	\$ 150,804,000	\$158,002,000	\$406,872,000

Appendix B

Table 5: From WHO TB data reporting form _May 2014

		Actual expenditure ^a	RECEIVED funding ^b			
			Government	Loans	Global Fund	Other grants
4.27	First-line TB drugs	exp_fld	rcvd_fld_gov	rcvd_fld_loan	rcvd_fld_gf	rcvd_fld_grnt
4.28	Staff working for TB control (central unit staff and subnational TB staff)	exp_staff	rcvd_staff_gov	rcvd_staff_loan	rcvd_staff_gf	rcvd_staff_grnt
4.29	Routine programme management and supervision activities	exp_prmgt	rcvd_prmgt_gov	rcvd_prmgt_loan	rcvd_prmgt_gf	rcvd_prmgt_grnt
4.30	Laboratory supplies and equipment for smears, culture, DST, line probe assays, Xpert MTB/RIF	exp_lab	rcvd_lab_gov	rcvd_lab_loan	rcvd_lab_gf	rcvd_lab_grnt
4.31	PAL (Practical Approach to Lung Health)	exp_pal	rcvd_pal_gov	rcvd_pal_loan	rcvd_pal_gf	rcvd_pal_grnt
4.32	PPM (Public-Public, Public-Private Mix-DOTS)	exp_ppm	rcvd_ppm_gov	rcvd_ppm_loan	rcvd_ppm_gf	rcvd_ppm_grnt
4.33	Collaborative TB/HIV activities	exp_tbhiv	rcvd_tbhiv_gov	rcvd_tbhiv_loan	rcvd_tbhiv_gf	rcvd_tbhiv_grnt
4.34	Second-line drugs for MDR-TB	exp_sld	rcvd_sld_gov	rcvd_sld_loan	rcvd_sld_gf	rcvd_sld_grnt
4.35	Management of MDR-TB (budget excluding second-line drugs)	exp_mdrmt	rcvd_mdrmt_gov	rcvd_mdrmt_loan	rcvd_mdrmt_gf	rcvd_mdrmt_grnt
4.36	Community involvement	exp_ctbc	rcvd_ctbc_gov	rcvd_ctbc_loan	rcvd_ctbc_gf	rcvd_ctbc_grnt
4.37	ACSM (Advocacy, communication and social mobilization)	exp_acsm	rcvd_acsm_gov	rcvd_acsm_loan	rcvd_acsm_gf	rcvd_acsm_grnt
4.38	Operational research	exp_or	rcvd_or_gov	rcvd_or_loan	rcvd_or_gf	rcvd_or_grnt
4.39	Surveys to measure TB burden and impact of TB control	exp_srvy	rcvd_srvy_gov	rcvd_srvy_loan	rcvd_srvy_gf	rcvd_srvy_grnt
4.40	All other budget lines for TB (e.g., technical assistance)	exp_oth	rcvd_oth_gov	rcvd_oth_loan	rcvd_oth_gf	rcvd_oth_grnt
4.41	TOTAL	exp_tot	rcvd_tot_gov	rcvd_tot_loan	rcvd_tot_gf	rcvd_tot_grnt

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