Sustainability of Global Fund Supported Programs: What Happened Before and After the Global Fund Left Brazil? 
Brazil Country Case Study

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Executive Summary

This report summarizes the policies, programs and levels of investment in malaria, tuberculosis (TB) and HIV/AIDS in Brazil linking these to overall Brazilian health care initiatives and to both general and specific investments. It provides the necessary background to understanding the contribution of the Global Fund (GF), and the country’s transition away from that support once funding for malaria and tuberculosis ended. Brazil’s strong commitment to health, early establishment of excellence, its depth of technical expertise, and an ability to implement complex health programs has translated into a level of independence that relies on outside support for only part of its agenda. That in turn facilitates adapting to declining external transfers, and an understanding that transition means establishing functioning and funded institutions.

Brazilian Historical Context

Brazil’s commitment to health care and to control of communicable diseases dates to the 1920s with the establishment of Fundação Oswaldo Cruz (FIOCRUZ) that both engaged in research into parasitic and communicable diseases and produced vaccines and other pharmaceuticals. These functions persist today providing the backbone of technical and production capacity in the fight against infectious diseases, including malaria, TB and HIV/AIDS.

At the same time, disease control efforts have defined the functions of the public health sector, and particularly of the Ministry of Health (MOH), where priorities have shifted as disease incidence patterns changed, but the political commitment has remained constant across both time and disease priorities.

The country spearheaded global health agendas as in the establishment of universal health care (UHC), a right enshrined in the 1988 Constitution. Combined with both public and private spending targeted investments have served to curb communicable diseases and extend health care services to the population. Though the government spends less than half of all health care expenditures its delivery system encompasses multiple programs run by some combination of federal, state and local authorities. The individual state-run Family Health Care Program (Saúde da Família) is based on outreach services to low-income households that can identify, prevent and treat infectious and other diseases. The Single Unified System (SUS) pays public and private hospitals as well as ambulatory and diagnostic providers and provides diagnosis and treatment at no cost for many diseases including malaria, tuberculosis, and HIV/AIDS.

As a result Brazil’s track record in addressing HIV/AIDS, TB and malaria has been largely consistent in terms of both resource allocation and public priorities. What has set Brazil apart from many countries, even middle income countries, is its focus on public goods such as disease control, its establishment of centers of excellence for research into the epidemiology and control of infectious diseases, and a willingness to innovate in addressing emerging infections. Officials have also sought support and partnerships with external sources of funding and technical assistance and a strong cadre of home grown talent has consistently led the programs benefiting from those external inputs.

Effective infectious disease management depends on domestic and international partnerships. Brazil has drawn on both throughout the last decades. AIDS benefited from strong domestic advocacy and international support, and TB has intermittent support and engagement by the government. However malaria has limited civil society support and has remained a purview of government. Partnerships with the World Bank helped underwrite infectious disease control in the 1980s and 90s, and provided
significant support to the fledgling HIV/AIDS Program throughout the 1990s and 2000s. The four Global Fund grants represent the only recent support for communicable diseases.

Global Fund Grants to Brazil

Brazil received four grants from the Global Fund: two for TB in round 5 for $21.3 million, and two for malaria in round 8 for $17.2 million with disbursement rates. HIV proposals submitted in Rounds 8, 9 and 10 were rejected, as were TB proposals submitted in Rounds 8 and 9.

The intent of the Ministry of Health was to add Global Fund resources to the existing budget allowing more flexibility in spending and targeted at implementing decentralization of the control and management of infectious diseases. GF funds were not used to purchase TB drugs as these are provided by the MOH. Instead, the additional funds were instrumental in strengthening of advocacy and social mobilization especially in periphery of large cities where stigma and poor training undermined efforts to reach the target population. In addition, it lifted the profile of the national TB program and provided much needed visibility to a disease that has traditionally not been on the radar of public health efforts, in part, because it is associated with low income populations.

The grant for TB had a largely smooth implementation though data quality issues surfaced in epidemiological surveillance and weak financial reporting created difficulties. Part of this can be traced to multiple institutional responsibilities within the Brazilian government that did not align with the Global Fund grant expectations. Specifically, responsibility for data collection was split between the different implementing organizations. Fundação para o Desenvolvimento Científico e Tecnológico em Saúde (FIOTEC), Fundação Ataulpho de Paiva (FAP), and the national surveillance systems operated by the National TB program were all collecting part of the data required by the monitoring mechanisms of the GF rendering appropriate data quality control efforts quite difficult.

The malaria grant was plagued by delays and logistics challenges in Brazil, which raised costs and caused disbursement delays. In addition, the audit firm was replaced half way through the grant due to mismanagement. Together these placed strains on both the national program and on Global Fund management.

Malaria

The Ministry of Health’s malaria control agenda in the 1970s and 1980s prioritized control of disease transmission and provision of treatment through public clinics scattered throughout affected areas concentrated largely in the Amazon. With military precision all inhabited structures throughout the Amazon were sprayed on a defined schedule, each hut or building numbered and recorded. With the onset of decentralization fragmented responsibilities and uneven technical capacity saw the malaria program deteriorate leading to a resurgence of malaria in the 1990s and 2000s with spikes in new cases, as shown in the graph below. Since 2005 malaria incidence has plummeted and in 2014 a mere 41 deaths from malaria were recorded (in contrast to 1,000 due to dengue fever). There are multiple explanations for the rapid decline in malaria incidence including improved diagnosis and treatment, decentralization of malaria management, clearing of mosquito habitat, urbanization and behaviors that mitigate human exposure to mosquito bites. Of diagnosed cases 60 percent receive treatment within 24 hours demonstrating the high capacity of the Brazilian health system and contributing to the decline in malaria deaths.
Implementation of the GF grant entailed an awkward arrangement between the Secretary of Disease Surveillance at the federal Ministry of Health for policy, the University of São Paulo Medical School for logistics and the Amazon Tropical Foundation for implementation, though as a new entity the Foundation required significant support.

Brazil’s partnership with the Global Fund was a double-edged sword. On the one hand it encouraged a policy of malaria eradication rather than simply control, which shifted the policy focus but also raised the stakes and the costs. On the other hand, experiences from Africa often did not apply and strategies ignored the very different context and behaviors in Brazil. For example, GF indicators were more relevant to Africa than Brazil where malaria is both a rural and urban illness. GF support may well have played a role in reducing the country’s malaria burden, but the program failed to produce the necessary data to attribute impact. The focus on monitoring and the virtual absence of evaluation and funding for research to understand the impact and marginal contribution of different aspects of the program imply that the underlying channels of impact are not well understood. A stronger focus on data-driven evidence would have allowed policymakers and program implementers to learn from their experiences and to adjust investments accordingly.

**Tuberculosis**

Tuberculosis benefited from civil society organizations (CSO) pressing for greater public funding and action in the early years of the HIV/AIDS epidemic as a common co-morbidity. The Stop TB campaign bolstered interest in disease control. However, TB control requires intense medical intervention and supervision of medication use under DOTS, unlike HIV/AIDS or malaria.

The GF grant provided some needed funding to bolster knowledge and advocacy around TB in decentralized municipalities. It addressed known problems and developed useful, relevant indicators to track progress. However, given the strong service delivery element in TB control the GF grant did not produce any significant leadership expansion. Efforts succeeded in integrating TB into metropolitan Health Care Plans that set local priorities and actions. As with malaria, the lack of evaluation and research reduced the impact of the GF grant and represents a missed opportunity.
HIV/AIDS

Brazil managed its HIV/AIDS efforts from the 1980s, partnering with the World Bank for over a decade to build and finance the institutions that have effectively managed a spiraling epidemic in the early 1990s with the dubious distinction at the time of having the world’s highest rates of HIV transmission that threatened wide swaths of Brazilian society. In close partnership with non-profits Brazil reached high risk groups and complemented that with highly effective media and school-based information campaigns. The country led the challenge to pharmaceutical companies demanding concessions from pharmaceutical companies for HIV treatment for low and middle-income countries. The resulting low levels of incidence, prevalence (see graph above) and deaths from the disease are a testament to well managed and resourced efforts.

The Transition from Global Fund Support

The transition from Global Fund has been relatively smooth.

First, the grants represented a modest proportion of all spending on both malaria and TB, but provided a boost to ongoing decentralization programs equipping municipalities with the capacity to intervene effectively in malaria and TB. By mutual agreement Brazil and the Global Fund chose to cease requesting funds from the Global Fund given Brazil’s emerging status as a donor and the relatively small contributions available given Brazil’s overall spending on malaria and TB.

Second, key institutions were already well established and GF support continued and augmented their functions. Through various channels the Global Fund served as a catalyst. The malaria initiatives bolstered municipal capacity to establish and manage malaria programs. The government invested the malaria grant funds in supporting select municipalities to take responsibility for malaria surveillance, prevention and treatment. They provided technical assistance in hiring epidemiologists at the municipal level, obtaining inputs, instituting drainage projects in urban areas and data collection training. At the termination of the grant the federal government took on the financing of the municipal epidemiologists thereby ensuring continuity.

Third, Brazil’s technical community in disease control benefited from the Global Fund initiatives but addressed shortcomings through other partnerships. For example, the TB community is working with the Fogarty International Center of the National Institutes of Health (NIH) on a collaborative research program jointly with a number of US universities to strengthen research and impact measurement. The initiative allows Brazil to problem solve and test alternative approaches rather than simply track performance.

Similarly, malaria control efforts draw on the expertise of the United States Centers for Disease Control and Prevention periodically to fill gaps. Brazil has partnered with outside organizations to address particular needs and takes advantage of technical and financial opportunities, which improves performance. Given the country’s advanced technical and financial capacity none of these partners define activities or set priorities. Instead, they complement existing programs. As a result, transition is less of a problem.

Fourth, while the GF support triggered renewed thinking in malaria it had less of an impact in TB, possibly because TB is largely a treatment program that must expand existing infrastructure and institutions, and requires long term patient commitment.
Fifth, both disease communities expressed frustration at the lack of attention to and funding for research as both view Brazil’s next step as taking responsibility and bolstering its research program to guide policy, programs and projects. Filling that gap would enhance sustainability and certainly deserves to be on the agenda for middle-income countries.

Lessons Learned

What were key Lessons Learned that can be considered by those countries to transit in future?

1. Prepare for the phase out from the onset, and if resources are scarce decide how the temporary funds contribute and how they can be used for either short term or one-time investment;
2. design interventions that are narrowly defined so not to increase government commitments excessively after GF funding ceases;
3. build or strengthen existing institutions for inputs and activities so that these can then be the building blocks that long term programs are built upon;
4. make data collection a fundamental public function and use these to track progress and monitor progress. This also helps in preparing for change;
5. invest in education of professionals whose technical expertise raise the competence in and pride in high quality work. Community assistants are useful but under the direction of someone technically capable strengthens performance and relies on intrinsic motivation to improve performance and outcomes.

Conclusions

Brazil has demonstrated commitment to disease control over time. It has shown that when it establishes priorities that are backed by political will, and often extraordinary leadership as in HIV/AIDS, it translates into strong programs and outcomes that provide benchmarks for other countries. Its traditional focus on infectious diseases ensured a smooth transition and sustainability, and as a middle income country Brazil’s priorities and concerns differ from those in other parts of the developing world. As a result it was in a strong relative position to manage the transition away from GF monies, and it has done so successfully.
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
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<tr>
<td>ANS</td>
<td>Agência Nacional de Saúde Suplementar</td>
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<tr>
<td>ART</td>
<td>Antiretroviral Therapy</td>
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<tr>
<td>CDC</td>
<td>United States Centers for Disease Control and Prevention</td>
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<tr>
<td>CCM</td>
<td>Country Coordination Committee</td>
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<tr>
<td>CMR</td>
<td>Child Mortality Rate (under five years)</td>
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<td>CSO</td>
<td>Civil Society Organization</td>
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<tr>
<td>DAB</td>
<td>Departamento de Atenção Básica</td>
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<tr>
<td>DHS</td>
<td>Demographic and Health Survey</td>
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<tr>
<td>DOTS</td>
<td>Directly Observed Treatment, Short-course</td>
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<tr>
<td>FAP</td>
<td>Fundação Ataulpho de Paiva</td>
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<tr>
<td>FHS</td>
<td>Family Health Strategy (formerly Family Health Program)</td>
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<tr>
<td>FIOTEC</td>
<td>Fundação para o Desenvolvimento Científico e Tecnológico em Saúde</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GF</td>
<td>The Global Fund to Fight AIDS, Tuberculosis and Malaria</td>
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<tr>
<td>HDI</td>
<td>Human Development Index</td>
</tr>
<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<tr>
<td>HMO</td>
<td>Health Maintenance Organization</td>
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<tr>
<td>IBGE</td>
<td>Brazilian Institute for Statistics and Geography</td>
</tr>
<tr>
<td>IDB</td>
<td>Inter-American Development Bank</td>
</tr>
<tr>
<td>IMR</td>
<td>Infant Mortality Rate</td>
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<tr>
<td>INAMPS</td>
<td>Instituto Nacional de Assistência Médica da Previdência Social</td>
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<tr>
<td>LAC</td>
<td>Latin America and the Caribbean</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>NHA</td>
<td>National Health Accounts</td>
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<tr>
<td>NIH</td>
<td>National Institutes of Health</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
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<tr>
<td>OOP</td>
<td>Out-of-Pocket Payment</td>
</tr>
<tr>
<td>PAB</td>
<td>Piso de Atenção Básica</td>
</tr>
<tr>
<td>PACM</td>
<td>Ministry of Health’s Action Program to Control Malaria</td>
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<tr>
<td>PAHO</td>
<td>Pan American Health Organization</td>
</tr>
<tr>
<td>PNAD</td>
<td>Pesquisa Nacional por Amostra de Domicílios</td>
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<tr>
<td>PR</td>
<td>Principal Recipient</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<tr>
<td>SINAN</td>
<td>National Health Information Surveillance System</td>
</tr>
<tr>
<td>SUS</td>
<td>Sistema Único de Saúde, Unified Health System</td>
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<tr>
<td>THE</td>
<td>Total Health Expenditure</td>
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<tr>
<td>UHC</td>
<td>universal health care</td>
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<tr>
<td>WDI</td>
<td>World Development Indicators</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Part A - Overview of Country and Global Fund Grants

Section 1: Macroeconomic, Social and Political Context

The Federative Republic of Brazil is an upper-middle income country with approximately 200 million inhabitants (as of 2013). The largest country in South America and the world’s fifth largest country, it is organized in 26 states, the Federal District, and 5,570 municipalities. These administrative divisions have special and standing commissions, shared responsibilities, as well as political, fiscal, and administrative autonomy. After several decades of unfulfilled economic potential, Brazil has ranked among the top ten world economies by GDP since 2005. Currently, the country is ranked 7th. The country weathered the recent downturn of the world economy quite well due to steady domestic demand and diversified trade partnerships. GDP growth averaged 3.4% over the period from 2000 to 2013 (see Figure 1 below).

More remarkably, perhaps, growth was pro-poor, as it disproportionally benefitted the lower income strata: over a 10-year period Barros et al. (2010) attest sustained Germany-like growth rates for the top tenth of the income distribution, combined with Chinese-like growth rates for the bottom tenth. In addition, several income transfer programs geared to families - such as Programa Bolsa Família (Family Grant Program), Benefício da Prestação Continuada (Continued Payment Benefits), and Previdência Rural (Rural Social Welfare) – helped translate economic growth into improvement in the living conditions of the poorest sectors of the population. Combined, these programs explain more than 20 percent of the decline in household income inequality (Lustig et al. 2011). GDP per capita (in current US$) increased from 7,194 in 2007 to 11,320 in 2012, and all demographic variables suggest modest improvements over the five year period (see Table 1).
Table 1: Demographic Data prior to and after Global Fund transition

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2007</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN Human Development Index Ranking</td>
<td>70/177</td>
<td>85/186</td>
</tr>
<tr>
<td>Population</td>
<td>189,996,976</td>
<td>198,656,019</td>
</tr>
<tr>
<td>Urban Population</td>
<td>83.4%</td>
<td>84.9%</td>
</tr>
<tr>
<td>Poverty headcount ratio at national poverty lines (% of population)</td>
<td>16.1%</td>
<td>9.0%</td>
</tr>
<tr>
<td>GINI Index</td>
<td>55.2</td>
<td>52.7</td>
</tr>
<tr>
<td>GDP per capita (current US$)</td>
<td>7,194</td>
<td>11,320</td>
</tr>
<tr>
<td>Literacy rate, adult total (% of people ages 15 and above)</td>
<td>90.0%</td>
<td>91.3%</td>
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Source: WDI database, HDI Reports

The share of the population living below the national poverty line declined steadily from 16.1% to 9.0% over the same five-year time period. As a result, inequality has dropped over the past few years, but remains high compared to international standards. In 2012, the GINI index, a widely used measure of income concentration, was 52.7 in Brazil.

The falling income inequality contributed to the expansion of the middle class (Ferreira et al. 2012). About half of all households in Brazil can now be considered middle class (Neri 2010). This increased affluence has raised demands for quality health care and instigated reform efforts. As in other countries, the state of the Brazilian health care system is a constant “work in progress”.

Despite important improvements in leading health indicators over the last decades, Brazil is lagging behind on some health indicators. One major impediment to a faster “catch-up” is its huge socioeconomic and regional disparities. Historically, Brazil has been characterized by a very unequal internal income distribution. In 2012, income share held by the highest income decile was 41.7% while the share held by the lowest 10% was 1%. This unequal income distribution has repercussions on the Brazilian health care system and affects financing, access, and quality of care.

Another development that will have resounding repercussions on Brazil’s ability to maintain and expand services financed under SUS (the country’s Unified Health System, see detailed discussion in next section) are the recent macroeconomic developments. The stable economic outlook has dramatically changed in the last year. In fact, economists warn that given several structural problems, including a commodity-driven economy, overdependence on Chinese demand and missing investments in infrastructure, the abysmal growth estimate for 2015, currently at -0.3% (Morgan Stanley, 2015), is just the beginning of a prolonged economic downturn. Worse even, parastatal energy corporation, Petrobras, finds itself mired in a multi-million dollar corruption scandal.

Brazil is no stranger to fiscal crises, in fact, the country spent much of the 1980s and 1990s battling a series of severe currency crises. It was only with the Plano Real that the currency, and with it the economy, was able to get back on track. The recent devaluation of the Brazilian Real, the increase in inflation (see Figure 2) and the dire growth prospects, therefore, awaken unpleasant memories. For the
health system these development imply that over the medium run the government will have to reassess how much it can afford to spend on health.
Section 2: An overview of the health system and comparing the program prior to the Global Fund transition and after Global Fund investment

2.1 Historical Background

Revising the insertion of health principles in the Brazilian constitutions, no health provision is found in the 1824 (Empire of Brazil) and 1891 (Republic) Constitutions. Historically, the first Constitution that establishes some reference to public health was the Magna Carta of 1934 and the subsequent ones (1937, 1946, 1967), which defined responsibilities of the federal government to establish fundamental health and education standards. It is worth to point out that the public health legal principles in Brazil were first established in 1808 when the Portuguese royal family moved to Rio de Janeiro (fleeing from the occupation of Lisbon by Napoleon) and settled in the city the headquarters of the Portuguese empire (Constitution of Brazil 1988, Brazil Pharma News 2013).

After different health subsystems co-existed for decades, mainly based on labor categories organized through associations, they were replaced by two major federal structures. At that time, health intervention and sanitation were the responsibility of the states. The health reform in 1974 defined two main national structures: One for care and treatment (the National Institute of Medical Assistance and Social Security – INAMPS, which includes former pension and social security funds and the Ministry of Health, in charge of prevention and health promotion as well as medical assistance to few diseases of public health interest and health care of indigents, that is, who had no access to care by INAMPS – citizens outside of the social security system (Marques 2008, MoH 2015). However, the most important and remarkable progress occurred during the National Constituent Assembly in 1988 by the approval of the new Constitution under the inspiration of freedom and human rights principles.

The Brazilian Unified Health System (UHF) was created in 1990 by Law 8080 and Law 8142/90, inspired by the National Constitution approved in 1988 and defines “health as a right of every citizen and a duty of the State.” This principle, based on the VIII National Health Conference held in 1986, is the most important milestone in the formulation and consolidation of the Brazilian public health system, aiming at universal and free access. The vision of the system was a dramatic commitment to the ideals in the 1978 Alma-Ata declaration of “health for all” (WHO 2008). Major goals of the SUS include: (i) quality health care provision for all citizens (inclusiveness), (ii) decentralization, and (iii) integrated care.

An additional and relevant aspect was the formal establishment of community participation in the management of the system at all levels through councils comprised by community and government representatives. According to Law No. 8080, in its Art.4 "the Unified Health System (SUS) " [...] is the set of actions and health services provided by agencies and public institutions at Federal, State and Municipal levels, and Foundations maintained by the Government” (Planalto 1990). Brazil became an important reference point being among few countries outside the OECD to incorporate the goal of universal health coverage in its legislation.

2.2 The Brazilian Health System

The SUS represents an important step towards equity and universal access. Figure 3 shows that 71 percent of Brazilians rely on the state insurance program, SUS, for health care. The continuous roll-out of initiatives such as the Family Health, Organ Transplant, Immunization, and HIV/AIDS Programs have had a significant positive impact on health indicators, disproportionally benefitting those previously falling through the cracks of the national health system.
The focus on primary and ambulatory care in the early years of the SUS was strategically very important to the success of the UHC strategy in Brazil. The Family Health Program has helped increase the health coverage of poor populations cost-effectively over the last couple of years. Importantly, the SUS has been operating about 30,000 health posts all over the Amazon region since the mid-90s. Nowadays, the majority of the Brazilian population, even in remote areas, is covered through this primary care program (see Figure 4). Starting about ten years ago, team members of the Family Health Program also help to identify cases of malaria and take the necessary steps to supply infected individuals in remote areas with treatment.

The SUS is a complex decentralized public system. It involves community participation, aiming at providing universal and comprehensive health care, prevention and health promotion. In addition to these functions, the SUS is responsible for health surveillance, disease control, and regulation of the health sector. With very few exceptions, municipalities are responsible for notification of reportable disease cases - including malaria, tuberculosis, and HIV/AIDS - to the Ministry of Health’s health information systems. According to data from PAHO (2013) the SUS administers a network of over 6,000 hospital facilities, with more than 400,000 beds, and 60,000 outpatient centers. Every year, it provides approximately 11.3 million hospitalizations, 2.3 million outpatient procedures, 215,000 heart surgeries,
and 16,000 organ transplants – making Brazil the second-largest provider of organ transplants after the United States. Between 2004 and 2008, the SUS helped ensure that 48% of women over the age of 25 had mammograms and 87.1% of women aged 25 to 59 received cervical cancer screenings.

Since the creation of the SUS in 1988, significant improvements have been observed in epidemiological indicators, health coverage and utilization of health facilities. Life expectancy at birth increased from 66.5 to 73.6 years between 1990 and 2012, the infant mortality rates were reduced from 51.4 to 12.9 per 1000 live births during the same time period (see Table 2). Infectious and parasitic diseases decreased their weight in the proportional mortality. In 2010, basic health indicators were much better than those existing at the time of the creation of the SUS. These achievements are attributed to some fundamental changes introduced with the new system (see Box 1). However, rising incomes, improved education, higher rates of hospital births and other shifts have contributed as well.

**Table 2: Improvements in key health indicators, 1990-2012**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>1990</th>
<th>2007</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality rate, infant (per 1,000 live births)</td>
<td>51.4</td>
<td>17.8</td>
<td>12.9</td>
</tr>
<tr>
<td>Mortality rate, under-5 (per 1,000 live births)</td>
<td>61.5</td>
<td>20</td>
<td>14.5</td>
</tr>
<tr>
<td>Maternal mortality ratio (modeled estimate, per 100,000 live births)</td>
<td>120</td>
<td>73 (2005 estimate)</td>
<td>69 (2013 estimate)</td>
</tr>
</tbody>
</table>

**Box 1: Main achievements of the SUS**

The introduction of the Unified Health System has deeply changed the modus operandi of the Brazilian health care system. Among other accomplishments, relevant changes include:

- Decentralization of responsibility for health care provision to municipalities and states
- Block grants from the federal government to states and municipalities, and Increasing own funding from state and local governments for health care
- Better coordination of functions and priorities across federal, state and municipal governments leading to less overlap and reduced waste as well as rational use of tertiary services
- Greater involvement of citizens and communities on health care priorities and delivery
- Improved information systems at all levels

The SUS is far from being the only source of health care. Brazil has a vibrant private health sector. Health services are delivered by for-profit, non-profit and public health providers with financing from some combination of public and private sources. There is a growing private health insurance market, which covers approximately 25% of the Brazilian population (Ribeiro 2009, Bossert et al. 2014), which brings into question the actual coverage by public programs. Figure 5 summarizes the public and private sources of funding for health.
Brazil has also tested alternative arrangements for hospital care drawing on public-private partnerships. Like Family Health Care, creative experiments such as the OSS (Social Organizations for Health) in São Paulo state have demonstrated that alternative models can have dramatically positive effects on access, quality, efficiency and patient satisfaction. And these experiments are now being adopted elsewhere in Brazil. Box 2 summarizes the performance of OSS managed hospitals in comparison with traditional publicly managed facilities.

While the introduction of the SUS has deeply transformed access to health care in Brazil, the national health system faces significant challenges. The existence of over 5,500 municipalities in the country represents an important challenge to efficient service delivery. In some cases, due to poor technical and administrative capacity at local level, the existence of insulated areas related to communication and geographic isolation and lack of priority to health area. This aspect is reinforced when there is a demotivated or politically demobilized community. On the other hand, at the federal level some key health initiatives are discontinued due to political interference, lack of evaluation, financial problems or establishment of a fresh initiative by the new administration.

In national surveys, the health system is regularly singled out as one of the most pressing problems to be faced by the government. According to a 2013 national survey, 58% of respondents state that health is a major problem in Brazil. Public safety and violence (39%), drugs (33%), education (31%) and corruption (27%) appear also on the list of major concern to Brazilians (CNI 2014). A similar study covering more than 3,800 individuals in 210 Brazilian cities found that 87% of the respondents declared the improvement of health services should be a priority (IPEA 2013). More than three quarters of the population are not at all or not very satisfied with the services they receive in public hospitals (see Figure 6 below). Mounting dissatisfaction results from declines in the quality of health care delivery, long waiting lists for medical specialists and lack of basic medicines and commodities are the main reasons why millions of protestors took the streets in Brazil in 2013 demanding “FIFA hospitals”. Indeed, the level of disapproval with the government’s health policy has been rising from 53% in March 2011 to 77% in March of 2014 (CNP, 2014).
Box 2: Hospital Concessions in Brazil

The Brazilian state of São Paulo launched an ambitious Public Private Partnership management contracting program in the late 1990s and it now includes 30 hospitals as well as 100 diagnostic and treatment centers across the state of São Paulo. The facilities were provided by the government, but managed by independent non-profit organizations, the so-called Organizações Sociais de Saúde (OSS), or the Social Organizations for Health.

The measurement of the successful São Paulo initiative is based on a comparison of 12 concession and 12 traditionally managed and financed hospitals. Table 3 below summarizes the results showing that the OSS hospitals outperformed traditional hospitals in every category – efficiency, quality and lower unit costs, and patient satisfaction. Traditional hospital required nearly 60% more resources than PPP hospitals to produce a comparable output. The OSS model gives hospital managers control over hiring and firing of all staff with direct effects on staff composition, compensation and management. Unlike either public or private hospitals, the OSS provide monthly reports of their quality and performance indicators, which are then posted online. OSS hospital managers are given a global budget with complete freedom to spend as needed. OSS hospitals used about one third fewer physicians and one third more nurses than traditional hospitals. Patient satisfaction heavily favored the concession hospitals. The OSS hospitals in the study were accredited compared to the traditional hospitals that were far less likely to have achieved accreditation (La Forgia and Harding 2009, La Forgia and Couttolenc 2008).

Comparison of Performance Indicators, São Paulo State

<table>
<thead>
<tr>
<th>Indicator</th>
<th>OSS hospitals (n=12)</th>
<th>Direct administration hospitals (n=12)</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality (mortality rate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>3.3</td>
<td>5.3</td>
<td>-37.7</td>
</tr>
<tr>
<td>Surgical</td>
<td>2.6</td>
<td>3.6</td>
<td>-27.8</td>
</tr>
<tr>
<td>Clinical</td>
<td>11.6</td>
<td>12</td>
<td>-3.3</td>
</tr>
<tr>
<td>Pediatric</td>
<td>2.8</td>
<td>2.6</td>
<td>7.7</td>
</tr>
<tr>
<td>Allocative efficiency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physician</td>
<td>143</td>
<td>203</td>
<td>-29.6</td>
</tr>
<tr>
<td>Nurse</td>
<td>54</td>
<td>41</td>
<td>31.7</td>
</tr>
<tr>
<td>Auxiliary</td>
<td>234</td>
<td>257</td>
<td>-8.9</td>
</tr>
<tr>
<td>Efficiency: descriptive statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bed turnover rate</td>
<td>5.2</td>
<td>3.3</td>
<td>57.6</td>
</tr>
<tr>
<td>Bed substitution rate</td>
<td>1.2</td>
<td>3.9</td>
<td>-69.2</td>
</tr>
<tr>
<td>Bed occupancy rate</td>
<td>81</td>
<td>63</td>
<td>28.6</td>
</tr>
<tr>
<td>ALOS</td>
<td>4.2</td>
<td>5.4</td>
<td>-22.2</td>
</tr>
<tr>
<td>ALOS surgery</td>
<td>4.8</td>
<td>5.9</td>
<td>-18.6</td>
</tr>
<tr>
<td>Technical efficiency (discharges/bed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>60</td>
<td>46</td>
<td>30.4</td>
</tr>
<tr>
<td>Surgical</td>
<td>71</td>
<td>44</td>
<td>61.4</td>
</tr>
<tr>
<td>Clinical</td>
<td>86</td>
<td>53</td>
<td>62.3</td>
</tr>
<tr>
<td>GYN/OB</td>
<td>96</td>
<td>58</td>
<td>65.5</td>
</tr>
<tr>
<td>Annual spending (R$ thousands)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenditures/bed</td>
<td>177</td>
<td>187</td>
<td>-5.3</td>
</tr>
<tr>
<td>Expenditures/discharge</td>
<td>2.9</td>
<td>4.3</td>
<td>-32.6</td>
</tr>
</tbody>
</table>

Most priority areas are the result of huge cumulative gaps over time. Looking into the future, the economic crisis that the country is facing currently poses a sizeable obstacle to accomplish urgent goals related to public health; among them the reduction of inequity between the north and the south of the country in terms of health promotion, prevention and mainly access to diagnosis, care and treatment as well as improvement of quality of care all over the country. Most pressing however is the rise of chronic disease, notably diabetes, cardiovascular disease and cancers. These imply costly care but also a need to restructure the separate public health programs to better integrate hospital and outpatient care, and manage the behavioral issues embedded in these shifts.

2.3 Health Care Financing

The SUS is predominantly financed through taxes and social contributions. A legal framework defines to what extent each level of government (federal government, states, and municipalities), is to provide financial resources and establishes levels of technical, administrative and political authority and responsibility. Many of the difficulties mentioned in the previous section are related to financing and management of the SUS. The participation of the Federal Government in the overall health expenditure, for example, has been decreasing proportionally in the past decade. This scenario along with the expanding demand for new technologies and social pressure for better services are obligating states and municipalities to increase their participation in the health budget, as shown in Figure 7 below. Federal financial contribution to the UHS declined from almost 60% in the 2000s to 45% in 2012. During the same time, proportional contributions of states and municipalities increased – a reflection of the decentralization process.
Table 3 below summarizes main health finance indicators for Brazil. According to the National Health Accounts data, total health expenditures (THE) per capita have jumped from USD 608 in 2007 to USD 1078 in 2012 totaling expenditures of 115.5 billion in 2007 to 214.2 billion in 2012. While government expenditures on health have increased steadily, they remain below 50% of the THE. In fact, Brazil is one of the countries with highest levels of private spending (out-of-pocket and private insurance spending) in Latin America. Out-of-pocket payments (OOP) have accounted for about 30% of the THE over the last couple of years. As of 2013, THE has reached 9.7% of GDP. Government health expenditure relative to total government expenditure has not followed a consistent trend over the last couple of years. In 2007 it made up 5.4% of THE, rose to 10.7% in 2010, only to fall back to 6.9% in 2013, the latest year for which data are available.

<table>
<thead>
<tr>
<th>Table 3: Health Finance Indicators</th>
<th>2000</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE per capita (in USD at official exchange rate)</td>
<td>265</td>
<td>608</td>
<td>728</td>
<td>744</td>
<td>989</td>
<td>1154</td>
<td>1078</td>
<td>1085</td>
</tr>
<tr>
<td>Total health expenditure (THE, in million current USD)</td>
<td>46,189</td>
<td>115,594</td>
<td>139,602</td>
<td>143,970</td>
<td>193,049</td>
<td>227,208</td>
<td>214,151</td>
<td>217,308</td>
</tr>
<tr>
<td>General government expenditure on health</td>
<td>18,616</td>
<td>48,233</td>
<td>61,202</td>
<td>63,942</td>
<td>90,770</td>
<td>107,646</td>
<td>101,709</td>
<td>104,717</td>
</tr>
<tr>
<td>Private expenditure on health</td>
<td>27,573</td>
<td>67,362</td>
<td>78,400</td>
<td>80,028</td>
<td>102,279</td>
<td>119,562</td>
<td>112,442</td>
<td>112,591</td>
</tr>
<tr>
<td>General government expenditure in health (GGHE) as % of THE</td>
<td>40.3</td>
<td>41.7</td>
<td>43.8</td>
<td>44.4</td>
<td>47.0</td>
<td>47.4</td>
<td>47.5</td>
<td>48.2</td>
</tr>
<tr>
<td>Out-of-pocket expenditure as % of THE</td>
<td>38.0</td>
<td>34.1</td>
<td>31.5</td>
<td>31.8</td>
<td>30.6</td>
<td>30.4</td>
<td>30.3</td>
<td>30.0</td>
</tr>
<tr>
<td>THE as % of GDP</td>
<td>7.2</td>
<td>8.5</td>
<td>8.4</td>
<td>8.9</td>
<td>9.0</td>
<td>9.2</td>
<td>9.5</td>
<td>9.7</td>
</tr>
<tr>
<td>GGHE relative to Total Government Expenditure</td>
<td>4.1</td>
<td>5.4</td>
<td>6.0</td>
<td>6.1</td>
<td>10.7</td>
<td>9.3</td>
<td>7.9</td>
<td>6.9</td>
</tr>
<tr>
<td>Government Health Expenditure relative to GDP</td>
<td>2.9</td>
<td>3.5</td>
<td>3.7</td>
<td>3.9</td>
<td>4.2</td>
<td>4.3</td>
<td>4.5</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: National Health Accounts, Brazil

Compared to its regional peers, total government expenditure is high as a percentage of GDP (67%), but the share of government spending allocated to health is comparatively low (6.9%) (WHO, 2013). As an upper-middle income country, Brazil is able to finance almost all its health expenditures from internal funding. Only a negligible proportion of resources for health is external: in 2009, only 0.02% of total expenditure on health came from ODA.
The high decentralization of the Brazilian health system gives rise to complex institutional financing arrangements (illustrated in Figure 8). The SUS is financed through a combination of contribution from all three levels of government (Federal, State and Municipal). National investments for the National Malaria and National Tuberculosis Programs fall under the budget of the Ministry of Health. Since the mid 1990s, the Brazilian Government has allocated more than $35.2B (R$60B) to the Ministry of Health. This figure increased to USD$46.72B in 2011. Direct service delivery to the population in terms of detection, diagnosis, treatment and follow up for malaria and tuberculosis is covered within this budget.

**Figure 8: Financing Flows in the Brazilian Health Sector**

Source: Couttolenc and Dmytraczenko, 2013
Section 3: Epidemiological Characteristics of HIV, TB and Malaria in the Country

Background on AIDS, TB and Malaria in Brazil

Despite substantial decreases in mortality rates since the mid-1990s, tuberculosis and malaria continue to constitute major public health problem in many regions of the country. The burden of disease of AIDS has remained low for over 20 years. Figure 9 shows the number of new cases for the three diseases over the last 24 years.

![Figure 9: Number of new cases of AIDS, Malaria and Tuberculosis in Brazil, 1990-2014](image)

### 3.1 Malaria

Malaria has been a major public health problem in Brazil throughout 20th century. In the 1940s and 1950s, 5 million new cases were registered every year. With the initiation of the malaria eradication program in the early 1960s, the yearly number cases decreased rapidly. This decline reversed itself when the Amazon became an attractive destination for new settlers. Malaria transmission was controlled elsewhere in Brazil by 1980, except in the Amazon Basin where cases continued to increase until the late 1980s.

Starting in 1989 the Brazilian MOH implemented the Amazon Basin Malaria Control Project with financial support from the World Bank and technical support from the Pan American Health Organization. The focus of the program, which ended in 1996, was originally on vector control activities, including indoor residual spraying and environmental management, with less attention given to case management and disease surveillance. This changed when Brazil aligned its national malaria control strategy to WHO’s global strategy. The new strategy featured targeted control efforts in high-risk municipalities in the Amazon Basin. The new strategy also shifted emphasis from vector control activities to better management of clinical cases, including use of artemisinin drug treatments.
Similar to the experiences of the National AIDS Control Program, the reorganization of the Brazilian health care system had large repercussions on the malaria program. Decentralization provided municipalities for the first time with the financial resources to invest in malaria control activities and generated local ownership of these efforts. Active local involvement in malaria prevention and treatment is considered to be one of the major success factors of malaria control in Brazil.

The malaria burden in Brazil is very unevenly spread with 70 percent of the total number of cases reported in 2007 concentrated in just 47 municipalities. Figure 10 shows that the areas most affected by malaria are very remote. In addition, these areas have sizable tribal or indigenous populations. The two GF malaria grants were targeted to marginalized groups, following the World Bank’s approach in previous decades.

**Figure 10: Malaria Map 2013**

The main intervention measure currently practiced by the NMCP is the early diagnosis and timely treatment. The combination of an extensive network of laboratories and the provision of drugs free of charge makes it possible that treatment is initiated within 48 hours of the onset of symptoms for most malaria patients in Brazil. This practice has been very effective in reducing the incidence of new malaria cases, malaria-related hospitalizations as well as the total number of deaths caused by the disease.

In recent years, cases for both malaria types have fallen dramatically. While in 2007 there were 364,916 reported cases of P. vivax and 93,598 cases of P. falciparum, the numbers had dropped to 206,953 and 35,699, respectively, by 2012. Hence, while the malaria incidence is much lower today than in the last century, roughly 150,000 new cases are registered every year (see Figure 11).
Case rates for both P.vivax and P. falciparum followed a similar trend until the end of the 1980s when P.vivax infections started to spike, while the number of P.falciparum cases began to decline as a result of increased epidemiological surveillance and diagnosis and timely treatment (Tauil, 2015). Following WHO standards, uncomplicated cases of P. falciparum are treated with artemisinin-based combination therapies (ACTs) since 2006 in Brazil accelerating the reduction of P.falciparum cases. Between 2006 and 2014, falciparum cases were reduced by over 80%. In 2014, the share of P.falciparum of total malaria cases in Brazil is estimated to be about 16% (see Figure 12).

There has not only been a reduction of malaria cases but also a rapid decline in malaria-related hospitalizations indicating that early treatment prevents serious complications requiring hospital visits. Since 2006 the number of malaria-related hospitalizations has been well below 10,000 (see Figure 13). Equally important, the total number of malaria death has been reduced drastically. While malaria claimed more than 1,000 lives yearly in the late 1980s, in the past decade it was only a tenth or less of that (see Figure 14).
3.2 Tuberculosis

Tuberculosis was introduced in Brazil in the early days of Portuguese colonization by Jesuits and settlers, carriers of "the white plague". Through their contact with Brazil’s previously unexposed native population, the disease spread quickly killing large numbers of natives, in some areas even causing the decimation of entire tribes.

During the mid-19th century, it is estimated that mortality from tuberculosis reached nearly 1 in 150 inhabitants (Campos and Pianta 2001). Given this adverse reality, the Parliament approved a series of sanitary control measures proposed by the Hygiene Central Board focusing on tackling the hygiene conditions of the "tenements" - community housing that was very common at the time and predominantly sheltering low-income populations. At the same time, health measures were adopted to combat the epidemics of smallpox, yellow fever, and dysenteries (Ruffino-Netto and Pereira 1981).

In the late nineteenth century and early twentieth century, tuberculosis came to be considered the leading cause of death in Rio de Janeiro. Patients typically received care in the Holy Houses of Mercy, which were gradually replaced by dispensaries and sanatoriums (Nascimento 2005, Belculfiné 2009). While these initial control efforts produced some effect, the disease remained a public health problem throughout the 19th century with incidence at about 700 per thousand inhabitants.

It was not until the twentieth century, however, that the disease came to be viewed as a major public health problem especially among those disadvantaged economically. Several initiatives were established by civil society and health professionals in response to government inertia. The Brazilian League Against Tuberculosis in Rio de Janeiro, the most prominent actor at the time, was founded in 1899 and continues its operation under the current name Ataulpho de Paiva Foundation. The late 20th century also saw the formation of the São Paulo League Against Tuberculosis (Atunes et al 2000). The leagues promoted the creation of sanatoriums, preventoriums and dispensaries, disseminated information on treatment methods and prophylaxis common in Europe, organized health education campaigns, and provided services to the low income population. Under the coordination of the League, a BCG vaccination campaign targeting newborns was initiated in 1927.

Tuberculosis control efforts intensified in 1946, when the National Campaign Against Tuberculosis (CNCT) was created. It played a critical role in subsequent decades as coordinating the previously scattered activities of governmental and private actors related to tuberculosis control in the country. The creation of the Campaign produced a radical change in the attention to the disease as a public health problem since services began to expand and technical guidelines were uniformly established throughout
the country (Hijar et al. 2007). The landmark of treatment however occurred in 1946 with the discovery of streptomycin as therapeutic indication, which definitely has changed the course of the disease in the world and in Brazil.

Currently Brazil has the highest tuberculosis prevalence in Latin America. When Brazil applied for GF funding, it ranked 16th out of 22 countries in TB burden. During the 1980s, the incidence of tuberculosis was high, largely because of the high prevalence of HIV infections, and by the 1990s 30% of individuals with HIV also had TB. After the introduction of ARVs it dropped to 10%. While TB control efforts have dramatically improved, successful TB treatment as of 2012 (72%) lags behind the average for other upper middle-income countries (86%).

Brazil provides access to free tuberculosis diagnosis, prevention, and treatment to the entire population through the Unified Health System (SUS). Since 2010, Brazil’s Family Health Program has substantially increased the number of patients receiving DOTS.

Despite official policy and successes in other areas, TB treatment experience has limitations specifically in the prison system where transmission is easy and medical care less consistent than elsewhere. Indeed at best access to TB diagnosis and treatment in the prison system is uneven largely due to inadequate program implementation. Treatment capacity and execution vary according to geographic location. Prison overcrowding and the presence of undiagnosed patients with active TB make the prison system an enabling space for the transmission of the disease. Access to and the quality of medical care also varies by region, but in general falls short in prisons. The irregularity of prescription drug compliance is associated with the emergence of drug resistance and the spread of the disease. As a result TB prevalence and incidence rates are high in the prison system reflecting important gaps in the public health system.

3.3 HIV/AIDS

In the 1980s Brazil experienced a rapid rise in HIV infection rates urgently requiring the development of a national response. Following mass civic mobilization, the HIV/AIDS problem received considerable political attention and led to creation of a comprehensive national AIDS program. The civic engagement followed a long-standing tradition of social health movements (starting with the Movimento Sanitarista). The Brazilian AIDS program highlights the benefits of a participatory approach to disease control, but also benefited from remarkable leadership in the MOH and in the AIDS Program.

In the early 1990s Brazil obtained significant loans from the World Bank targeted at prevention and implemented through NGOs serving high-risk groups. Brazil led the development of generic HIV treatment that allowed infected citizens access to fully subsidized ARV treatment. Brazil operates the largest free ARV program in the world, and its response to the HIV epidemic is considered a model for other countries. As a result, a highly specialized and strong AIDS bureaucracy developed in Brazil. Despite an early rapid rise in incidence, prevalence levels have remained low for over 20 years.

3.4 Government Regulation and Surveillance

The Brazilian National Health Surveillance Agency (ANVISA) requires registration of any pharmaceutical, medical device or other compound used for health care treatment in either the public or private health care system. Its rules parallel those of the US Food and Drug Administration and for the most part are strictly enforced.
Surveillance (especially sentinel surveillance) has been traditionally strong in Brazil for all three diseases. There is knowledge of the concentration of TB and the associated behaviors, which has contributed to identifying the infected. Malaria has focused on prevention and treatment based on existing data, which as shown has been highly successful.

First generation surveillance relied solely on data on AIDS cases and some sentinel studies on HIV prevalence. In 2000, a new strategy named second generation surveillance (SGS) was designed to tailor surveillance systems to the nature of each country’s epidemic. More specifically, the strategy proposed the following:

• Concentrate strategic information resources where they will yield information that is useful in reducing the spread of HIV and in providing care for those affected;
• Focus data collection in key populations with high levels of risk behavior that places them at increased risk or young people at the start of their sexual lives;
• Compare information on HIV prevalence and on the behaviors that spread infection to build up an informative picture of changes in the epidemic over time.
• Make the best use of other sources of information, such as communicable disease surveillance and reproductive health surveys, to increase understanding of the HIV epidemic and the behaviors that spread it.

1 Size of economy measured as total GDP in current USD.
2 A Gini coefficient of 1 would reflect absolute income inequality due to absolute income concentration. A coefficient of 0 reflects absolute equality.
3 The lower and upper-thresholds for the definition of middle class used for this calculation are aproximately USD 6.1 and 26.1 a day per capita.
4 Brazil’s tax collection capacity is very high: in 2010, Brazil’s total tax revenues were 33.6 percent of GDP (Ferreira et al. 2013).
5 Evidence is provided by letters of Inacio de Loyola (1555) and Jose de Anchieta (1583) describing signs and symptoms compatible with the disease: "indigenous, in the catechesis process, get sick, mostly with sputum, cough and fever, many spitting blood, most dying with desertion of the villages "

20
Section 4: Global Fund Grant Overview

GF grant disbursements to Brazil represented a rather small proportion of overall funding channeled to malaria and TB (see Figures 15 and 16). Most of the resources spent on these diseases came from internal sources. Compared to other aid flows to Brazil, however, the GF grant disbursements have been quite large. In 2009-2010, GF resources accounted for 32.1% of all disbursements for health ODA.

In total, there were 4 grants in the Brazil portfolio amounting to $48,351,548. Brazil had two Round 5 TB grants with an end date of 30 April 2012 and two Round 8 Malaria grants which finished the Phase 1 on 30 November 2011. The details are provided below in Table 4.
Table 4: Global Fund Grant Overview

<table>
<thead>
<tr>
<th>Component</th>
<th>Round</th>
<th>Grant</th>
<th>Principal Recipient</th>
<th>Grant Start Date</th>
<th>Latest Disbursement</th>
<th>Total Grant Amount ($)</th>
<th>Latest FPM Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria</td>
<td>8</td>
<td>BRA-809-G03-M</td>
<td>Fundação Faculdade de Medicina</td>
<td>1-Dec-09</td>
<td>4-Sep-12</td>
<td>4,996,769</td>
<td>C (2011)</td>
</tr>
<tr>
<td>Malaria</td>
<td>8</td>
<td>BRA-809-G04-M</td>
<td>Fundação de Medicina Tropical Doutor Heitor Vieira Dourado</td>
<td>1-Dec-09</td>
<td>4-Apr-13</td>
<td>12,229,078</td>
<td>B2 (2011)</td>
</tr>
</tbody>
</table>

The TB grants were implemented by two Principal Recipients (PRs), namely Fundação Ataulpho de Paiva (FAP) and Fundação para o Desenvolvimento Científico e Tecnológico Em Saúde (FIOTEC). FIOTEC was responsible for implementing Objectives 1 and 2 of the Program:

1. to strengthen the DOTS strategy for early diagnosis and timely treatment among vulnerable populations in 10 metropolitan areas and in Manaus; and
2. to strengthen social mobilization, Behaviour Change Communication (BCC), and Information Exchange Communication (IEC) activities in 10 metropolitan areas and in Manaus.

FAP was responsible for Objectives 3 and 4 of the Program:

3. to strengthen the laboratory network in 10 metropolitan areas and in Manaus by improving quality guarantees and the laboratory information system; and
4. to strengthen actions aimed at reducing TB/HIV based on the HIV/AIDS Program experiences in 10 metropolitan areas and in Manaus.

Combined, the regions covered by these grants accounted for about 45% of the national TB burden.

The Malaria grants were implemented by two Principal Recipients (PRs), namely Fundação Faculdade de Medicina of São Paulo and Fundação de Medicina Tropical Doutor Heitor Vieira Dourado in Manaus. Jointly their objective were:

1. to ensure prompt treatment with artemisinin-based combination therapy, using rapid diagnostic tests;
2. to strengthen the diagnostic network and improving drug management;
3. to attain high levels of prevention coverage with long-lasting insecticidal nets; and
4. to strengthen local capacities in health services and increasing understanding of the dynamics of malaria transmission.

The interventions were focused on 47 municipalities in the Amazon region where 70 percent of Brazil’s reported cases occurred in 2007.
The Brazilian case illustrates that GF support goes well beyond the financial contributions. On the one hand, the GF brought increased visibility to the public health issues of TB and malaria. On the other hand, grant requirements defined by the GF have been instrumental in refocusing Brazil’s response to these diseases. Brazil’s initial request for GF funding in 2004 was in part denied because the grant proposal did not include adequate representation of civil society in the CCM. Subsequent proposals reversed this.

As a requirement for the TB grants, the GF required that Brazil address the TB/HIV co-infection problem in a more integrated and effective manner. The 1990s saw constant tension between the AIDS and TB programs, with the latter attracting more political support and funding. While coordination has since increased, GF engagement further incentivized cooperation between health agencies. For example, part of the additional funding from the GF went toward hiring new staff for the National Tuberculosis Program. Many recruited staff previously served in the national AIDS program, facilitating a knowledge transfer between the two programs. The Brazilian health authorities can therefore draw on years of experience from the successful National AIDS Control Program.

Tuberculosis benefited from the organizations pressing for greater public funding and action in the early years of the HIV/AIDS epidemic as a common co-morbidity. The Stop TB campaign bolstered interest in disease control. But TB control requires intense medical intervention and supervision of medication use under DOTS, unlike HIV/AIDS or malaria. The GF grant provided some needed funding to bolster knowledge and advocacy around TB in decentralized municipalities. It built on known problems, developed useful, relevant indicators to track progress, but given the strong service delivery element in TB control fell short of useful leadership expansion in this area. Efforts succeeded in integrating TB into metropolitan Health Care Plans that set local priorities and actions. As with malaria, the lack of evaluation and research reduced the impact of the GF grant and represents a missed opportunity.

The Ministry of Health’s malaria control agenda in the 1970s and 1980s prioritized control of disease transmission and provision of treatment through public clinics scattered throughout affected areas concentrated largely in the Amazon. With military precision all inhabited structures throughout the Amazon were sprayed on a defined schedule, each hut or building numbered and recorded. With the onset of decentralization fragmented responsibilities and uneven technical capacity saw the malaria program deteriorate leading to a resurgence of malaria in the 1990s and 2000s with spikes in new cases, as shown in the graph below.

Implementation of the GF grant entailed an awkward arrangement of the Secretary of Disease Surveillance at the federal Ministry of Health for policy, the Fundação Faculdade de Medicina of São Paulo for logistics and the Fundação de Medicina Tropical Doutor Heitor Vieira Dourado for implementation, though as a new entity the Amazon Fundação required significant support on logistics and technical issues. Brazil’s partnership with the Global Fund was a double-edged sword.

On the one hand it encouraged a policy of malaria eradication rather than simply control, which shifted the policy focus but also raised the stakes and the costs. On the other hand, experiences from Africa often did not apply and strategies ignored the very different context and behaviors in Brazil. For example, GF indicators were more relevant to Africa than Brazil where malaria is both a rural and urban illness. More serious was the focus on monitoring and the virtual absence of evaluation and funding for research to understand the impact and marginal contribution of different aspects of the program which would have allowed policymakers and program implementers to learn from their experiences and to adjust investments accordingly.
Section 5: Partnerships

The major partnership in HIV/AIDS was the World Bank. It helped underwrite infectious disease control in the 1980s and 90s, and provided significant support to the fledgling HIV/AIDS Program throughout the 1990s and 2000s. In the early 1990s Brazil obtained significant loans from the World Bank targeted at prevention and implemented through NGOs serving high-risk groups. Brazil led the development of generic HIV treatment that allowed infected citizens access to fully subsidized ARV treatment. Brazil operates the largest free ARV program in the world, and its response to the HIV epidemic is considered as a model for other countries. As a result, a highly specialized and strong AIDS bureaucracy developed in Brazil. Despite an early rapid rise in incidence, prevalence levels have remained low for over 20 years.

The role of partnerships cum advocacy is mixed in part owed to the differences in disease profile. Given that malaria mostly affects low-income rural residents it does not lend itself very easily to partnerships. In contrast, victims of HIV/AIDS cross all levels of society facilitating the organization of advocacy groups. In addition, the HIV/AIDS movement in Brazil has benefitted from highly organized and focused leadership. TB advocacy, which was effectively an outgrowth of HIV/AIDS activism, has waned with the decline in HIV infections but the GF resources gave civil society a boost to rekindle activism and advocacy for diagnosis and treatment. The hierarchical nature of TB and its treatment, and its concentration in existing treatment venues make advocacy less effective when compared to HIV/AIDS, where diagnosis and treatment access were key and complemented other advocacy efforts to raise awareness and lobby funding. Neither of these is as relevant in TB.

Advocacy and activism are somewhat muted partly due to the lack of engagement by the federal government, and partly to the improvements in overall performance. Some suggest that advocacy needs to be come more professional in its approach. Indeed, even political support is waning for malaria due to its dramatic decline.

The four Global Fund grants represent the only recent external support for communicable diseases.
Part B: Evaluation of Transition and Sustainability

Due to extensive experience and capacity, Brazil could manage the program, though there were glitches along the way. The Secretary of Health Surveillance chaired the CCM and coordinated the preparation of the grant and orchestrated implementation. Hence the process was integrated and planned to coincide with government priorities. The issues facing Brazil differ greatly from lower income countries with limited capacity and resources. As a result the transition and sustainability are quite different and many of the GF Framework concerns don’t really apply. This section reviews some of the questions raised in the GF Framework. The concluding section reiterates the major issues for Brazil.

Accountability lies with the Ministry of Health and performance is monitored annually with outside groups paying attention to TB, though less so to malaria. Given the long term nature of the disease control programs in Brazil no dramatic shifts occurred under the GF program, it simply provided flexible, additional funding that bolstered ongoing efforts and made a particularly valuable contribution to moving the decentralization agenda forward in a number of states and municipalities.

While the Ministry of Finance needed to approve any external funding, it played a limited role in the GF program. Moreover, the drugs provided for both malaria and TB were and are free to users. Since the GF resources were not used for procurement of drugs, this issue is not relevant to the sustainability agenda.

Procurement of bed nets were an issue largely due to the awkward arrangement between the São Paulo Faculdade de Medicina, which was responsible for logistics, and the Manaus based Fundação, which implemented the program in the Amazon region. Further complicating the arrangement was the policy and coordination function of the federal Ministry of Health in Brasilia. Delays in moving nets through customs, combined by the removal of the audit firm created set backs involving both additional funding and delays. Sustainability, however, is not an issue as procurement of supplies such as bed nets will be handled by the federal government and existing supply chains harnessed where necessary. “High treatment coverage for key infections such as HIV/AIDS, tuberculosis, and leprosy has been achieved, with exclusive distribution of free drugs through the SUS on the basis of protocols derived through expert consensus.” (Victora et al. 2011). This commitment and coverage continues.

New information systems were not part of the GF program and the government continued use of its existing systems and expanded their use in municipalities at risk for malaria. The TB surveillance system in Brazil is organized on the federal level with departments and states submitting data. There are stark differences in M&E capacity between departments and states. In the 57 municipalities where the Global Fund financed programs were implemented, the TB M&E system relied completely on the National Health Information Surveillance System (SINAN) however with different flows of information. There are considerable delays in reporting as it takes 9 months for TB cases to be entered in the Health Units and an additional 3 months (in total 12 months) for all cases to be entered in the Municipal Surveillance system. This, however, is a system challenge that will require attention, but it was not an artifact of the GF Program. As discussed there was some modest analysis produced under the GF program and consistent monitoring, but some have lamented the lost opportunity to ramp up serious research and evaluation. Brazil’s level of sophistication in technical research exceeds that of most GF donors and therefore could benefit from more sophisticated support to enhance and extend research in infectious diseases.

Political commitment for infectious disease control dates to the 1920s and has not diminished. A cadre of well trained researchers, policymakers and advocates already existed and continue to play critical
roles in maintaining a focus on the issues and solutions. A risk is complacency where the disease is waning, which history suggests is a dangerous circumstance. However, strong commitment persisted well after the grant terminated so this is a longer term concern apart from the Global Fund concern about sustainability. Advocacy for HIV/AIDS remains strong, TB advocacy is uneven but strongest where it is linked to HIV/AIDS. There has never been advocacy for malaria and currently does not exist, but public sector commitment is sufficient to produce impressive declines that the government intends to maintain.

Finally, Brazil viewed GF support as narrow, focused and temporary, meant to help them over the hump of decentralization of infectious disease management. The problems of fiscal space, ring-fencing or long term planning for post-GF management were never relevant for Brazil. GF resources were too small and only available for a defined period of time, so the government strategically deployed funds to complement their ongoing, long term program, which meant transition was planned for from the onset. Hence the lack of issue with sustainability of programs.

The impacts of the GF program were likely different from those in other recipient countries given the nature of the country and the specificity of the GF grant objectives, which were to complement the broader disease control program. These impacts are summarized here.

**Malaria**

*The GF helped introduce new, or slightly modified technologies.* Use of mosquito nets was common in Brazil prior to Global Fund entry, but the Fund introduced impregnated mosquito nets. While the imported nets needed to be adjusted for local needs given the wide use of hammocks for sleeping, the nets provided a new way to combat malaria.

*The GF malaria funding catalyzed renewed efforts at malaria control and introduced the concept of eliminating rather than controlling malaria.* As the discussion above shows, malaria is experiencing a sharp drop in incidence. The evidence as to why is not at all clear, but improved diagnosis and prompt treatment, decentralization of malaria management, rising levels of education, urbanization, and clearing of mosquito habitats complement investments in prevention, and enhancing access to diagnosis and treatment. The latter entails dedicated malaria initiatives (see Box 3), raised awareness among health care professionals, and expansion of the health care system, especially the state Family Health Programs where health teams in high risk areas are trained to identify and treat malaria. In their regular contact with low income households they are essential to the success of the malaria program. Community health workers have helped increase the health coverage of poor populations cost-effectively over the last couple of years. Importantly, the SUS has been operating about 30,000 health posts all over the Amazon region since the mid-90s. Nowadays, the majority of the Brazilian population, even in remote areas, is covered through this primary care program. Starting about ten years ago, team members of the Family Health Program also help to identify cases of malaria and take the necessary steps to supply infected individuals in remote areas with treatment.

*The government has effectively ensured the smooth transition of the malaria program.* Partly this is due to the already considerable public budget for malaria. The flexible GF resources were used to upgrade state and municipal capacity to fight malaria, and the GF processes allowed removal of log jams in public management of malaria by requiring external purchases of goods and services. Box 2 summarizes a particularly effective program in Para state that demonstrates the extent of investment and the integration of various components of malaria control.

*The GF activities translated into more effective advocacy, and more attention to tracking outputs and
conducting assessments. These changes had already been embraced in the HIV/AIDS program through its partnership with the World Bank. The epidemiologists hired under the GF program have become federal officials dedicated to municipal malaria control. The mosquito net distribution program also continues with nets purchased by the government. In this case malaria efforts received a boost from the GF and the government has continued the move forward toward eradication.

**Tuberculosis**

The intent of the Ministry of Health was to add Global Fund resources to the existing budget allowing more flexibility in spending and targeted at implementing decentralization of the control and management of infectious diseases. Since the MOH provides all TB drugs GF investments the funds underwrote strengthening of advocacy and social mobilization especially in periphery of large cities where stigma and poor training undermined efforts to reach the target population.

The grant for TB had a largely smooth implementation though data quality issues surfaced in epidemiological surveillance and weak financing reporting created difficulties. Part of this can be traced to multiple institutional responsibilities within the Brazilian government that did not align with the Global Fund grant expectations. Specifically, the division between project implementation institutions, FIOtec and FAP, and the national surveillance systems operated by the National TB program meant that the implementation organizations did not have responsibility for or control over data collection. It had some impact on encouraging monitoring and assessing TB projects though it fell short in terms of building capacity for evaluation and research. In Middle Income Countries like Brazil it is important to identify and help address weaknesses in disease control efforts. The basics of diagnosis and treatment exist. The GF again provided a catalyst for renewed examination of TB, and because there is both technical capacity and adequate levels of public funding the changes can and are being integrated and therefore the program is being sustained.
Box 3: Integrated Strategies for Malaria Control in High Risk-Low Capacity Areas

The decline in malaria incidence in the areas around the Belo Monte area in Para state is a study in effective public health initiatives combined with sound environmental management policy and public private partnerships.

Between 2011 and 2014 Belo Monte and Pacajá municipality experienced a 92 percent drop in malaria cases. The Ministry of Health’s Action Program to Control Malaria (PACM) established a systematic and comprehensive attach on the prevention, treatment and control of malaria across one of highest risk areas of malaria incidence in Brazil. Led by the federal government in partnership with Para State and six municipalities, five of which are part of the mitigation actions required by the Ministry of Environment of Norte Energia, the company constructing the Belo Monte dam the project, PACM attached malaria from multiple vantage points.

Led by a well regarded technocrat and supported with funding from federal and state resources, the Global Fund and R$36 million (US$ 18 million) from Norte Energia the PACM devised nine systematic and reinforcing steps:

1. Political sustainability aimed at ensuring strong, visible and consistent state and municipal leadership in malaria control efforts by elected officials;
2. Strengthening municipal services through the hiring of 154 professionals, providing equipment and expanding laboratory services in strategic areas;
3. Training of 24 managers, 14 municipal data managers, and existing malaria agents to upgrade capacity and strengthen the network of responders;
4. Strengthening disease surveillance through improved data collection and analysis, producing monthly reports, and targeting municipalities and communities with low case registration;
5. Modernizing diagnosis and treatment to meet global targets;
6. Selective vector control including distribution and use of impregnated nets
7. Research into the effectiveness of impregnated mosquito nets, which proved invaluable in showing the positive impact and the decision to embrace their use;
8. Health education campaigns regarding the transmission and prevention of malaria aimed at children, at risk households and the community at large;
9. Monitoring progress in all aspects of the program, and doing so jointly with municipal technical teams, all levels of government and community stakeholders.

The joint effort encompassed involvement of local groups, community mobilization, education campaigns, media blitzes, and highly effective technical support, the municipalities received epidemiological support, training in improved diagnosis and modern treatment protocols and monitoring was achieved as a joint effort across municipalities. The success reflects the value of targeted, integrated efforts aimed at behavior change and improved public sector performance.
Part C Lessons from the Transition and Summary of Main Messages

The transition from Global Fund has been smooth.

First, the grants represented a modest proportion of all spending on both malaria and TB, but provided a boost to ongoing decentralization programs equipping municipalities with the capacity to intervene effectively in malaria and TB. Notably, Brazil chose to refrain from applying for more funding from the Global Fund.

Second, key institutions were already well established and GF support continued and augmented their functions. Through various channels the Global fund served as a catalyst. The malaria initiatives bolstered municipal capacity to establish and manage malaria programs. The government invested the malaria grant funds in supporting select municipalities to take responsibility for malaria surveillance, prevention and treatment. They provided technical assistance in hiring epidemiologists at the municipal level, obtaining inputs, instituting drainage projects in urban areas and data collection training. At the termination of the grant the federal government took on the financing of the municipal epidemiologists thereby ensuring continuity.

Third, Brazil’s technical community in disease control benefited from the Global Fund initiatives but addressed shortcomings through other partnerships. For example, the TB community is working with the Fogarty International Center of National Institutes of Health (NIH) on a collaborative research program jointly with a number of US universities to strengthen research and impact measurement. The initiative allows Brazil to problem solve and test alternative approaches rather than simply track performance.

Similarly, malaria control efforts draw on the expertise of the United States Centers for Disease Control and Prevention periodically to fill gaps. The continuity inherent in the Brazilian system allows partnering with outside organizations to address particular needs and takes advantage of technical and financial opportunities, which improves performance but does not define activities or set priorities. As a result, transition is less of a problem.

Fourth, while the GF support triggered renewed thinking in malaria it had less of an impact in TB, possibly because TB is largely a treatment program that must expand existing infrastructure and institutions, and requires long term patient commitment.

Fifth, both disease communities expressed frustration at the lack of attention to and funding for research as both view Brazil’s next step as taking responsibility and bolstering its research program to guide policy, programs and projects. Filling that gap would enhance sustainability and certainly deserves to be on the agenda for middle-income countries.

Brazil has demonstrated commitment to disease control over time. It has shown that when it establishes priorities that are backed by political will, and often extraordinary leadership as in HIV/AIDS, it translates to strong programs and outcomes that provide benchmarks for other countries. As a result it was in a strong relative position to manage the transition away from GF. Box 4 below summarizes the main takeaways from this study.
Lessons from the Brazil Experience

The lessons in summary are the following:

1. Prepare for the phase out from the onset, and if resources are scarce decide how the temporary funds contribute and how they can be used for either short term or one-time investment;
2. Design interventions that are narrowly defined so not to increase government commitments excessively after GF funding ceases;
3. Build or strengthen existing institutions for inputs and activities so that these can then be the building blocks that long term programs are built upon;

Box 4: Main Take-Aways and summary of lessons from this study

These points summarize many of the issues and insights from the text. We viewed these as more accessible to readers.

- The Global Fund succeeded in introducing new technologies in Brazil (impregnated mosquito nets) and also brought new perspective to a malaria program focused on control rather than elimination of the disease.
- Most importantly it provided support to decentralization, specifically to local leaders and administrators.
- The interventions funded by the Global Fund needed to be adapted to the local context. The mosquito nets purchased with grant money in Brazil turned out to be of little use in areas where it is customary to sleep in hammocks during the night.
- Another issue regarding the mosquito nets is that they require some degree of maintenance in order to be effective. It is not sufficient to distribute the mosquito nets, there needs to be some kind of instruction of how to use and take proper care of them. Therefore, training of distributing teams to explain and demonstrate the use of the mosquito nets is critical to success.
- There was considerable heterogeneity in the distribution of mosquito nets. In some cases, logistical problems delayed or precluded the distribution altogether.
- It is unclear how the impact of the malaria program will be evaluated given the multiple shifts going on in those areas, shifts in diagnosis and treatment, rising education, urbanization, clearing of mosquito habitats, all of which confounds the ability to attribute progress solely to public interventions.
- Malaria is very diverse in Brazil: transmission rates vary widely across municipalities; therefore, program impact is also quite uneven, but the overall trend is dramatically downwards.
- Falciparum reductions were beyond the goals set by the Global Fund, but has been embraced by the government.
- When the Global Fund left, the government continued funding for malaria and TB.
- Various sources highlighted the need for more research. As an international body the Global Fund is well-equipped to stimulate research and should make use of its convening power to focus on research gaps that pose a serious threat to the success of future treatment and control efforts for all three of the diseases.
- Part of TB control efforts involves research and evaluation to measure impact of the investment. An important bi-product would be bolstered capacity to track indicators and adapt programs to improve effectiveness. As a short term investment these institutional improvements could have left a strong legacy complementing the ongoing efforts of governments and advocacy groups. In particularly it could have provided the government with the evidence to promote greater improvements and action in TB.
(4) make data collection a fundamental public function and use these to track progress and monitor progress. This also helps in preparing for change;

(5) invest in education of professionals whose technical expertise raise the competence in and pride in high quality work. Community assistants are useful but under the direction of someone technically capable strengthens performance and relies on intrinsic motivation to improve performance and outcomes.
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Appendices

Appendix 1: List of completed Interviews Key Informant interviews of relevant stakeholders

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<tr>
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Appendix 2. Questionnaire for Expert Interviews in Brazil

Pedido de informações aos expertos na área de HIV/AIDS, tuberculose e malária

Dado sua profunda experiência profissional na área, gostaríamos de pedir sua contribuição para um estudo de caso sobre o Global Fund no Brasil. Como explicado no email introdutório buscamos entender o que aconteceu antes e depois do Fundo Global ter deixado de apoiar o Brasil. As seguintes perguntas reflectam vários aspectos que são de interesse para o Global Fund começando pelo processo de seleção até assuntos de sustentabilidade.

Agradecemos muito sua colaboração!

1. Na sua opinião, por que é que o Brasil se candidatou ao financiamento do Fundo Global? (Recursos financeiros? Conhecimento técnico? Visibilidade?)

2. Até que ponto as ONGs são ou têm sido envolvidas na discussão sobre as três doenças? Crê que o Fundo influenciou esse processo?

3. Na sua opinião as iniciativas do Global Fund complementaram programas já existentes no país ou eram novas estratégias e programas?

4. Como você percebe o desempenho das subvenções? Você acha que o Fundo Global atingiu seus objetivos no Brasil? Por favor, explique e forneça evidências, sempre que possível.

5. Será que a atividade do Fundo Global no Brasil produziu quaisquer resultados inesperados e/ou indesejáveis?

6. Como você pessoalmente avalia o legado da presença do Fundo Global no Brasil? (Positivo, negativo, misto?)

7. Poderia falar com mais detalhe sobre os pontos fortes e as limitações do Fundo Global no contexto brasileiro?

8. Houve uma exposição a novas ideias, tecnologias, experiências e / ou abordagens através do trabalho com o Fundo Global? Você acha que elas podem ser mantidas?
9. Segundo sua experiência em que medida foram os programas iniciados pelo Global Fund sustentados após a transição?

10. Na sua opinião é válido constatar que o envolvimento do Fundo Global influenciou processos de políticas públicas no Brasil? É dizer, houve alguma mudança na política de saúde nacional ou no compromisso do governo em relação às três doenças? Por favor explique.

11. Você saberia dizer alguma coisa sobre os desafios o Brasil tem enfrentado em lidar com a transição do Fundo Global?

12. Da sua experiência quais seriam as lições aprendidas do Fundo Global no Brasil para apoiar o engajamento futuro de países em transição?