COUNTRY PROFILE: BRAZIL

Overview of Brazil's health system

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CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
ANVISA	*Agência Nacional de Vigilância Sanitária*, or National Agency for Health Surveillance
ANS	Supplementary Health Agency
BRICS	Brazil, Russia, India, China, South Africa
HDI	Human development index
HIV	Human Immunodeficiency Virus
MDG	Millennium Development Goal
OOP	Out of pocket
PAHO	Pan American Health Organization
PSF	*Programa Saúde da Família*, or Family Health Programme
SUS	*Sistema Único de Saúde,* or Unified Health System
US$	United States dollar
WHO	World Health Organization

EXECUTIVE SUMMARY

Brazil dominates Eastern South America, bordering the Atlantic Ocean. Most of the population of 206 077 898 live in urban areas and the official language is Portuguese. Over half of the population are of European descent, with approximately two-fifths mulatos (mixed African and European ancestry) and mestiço (mixed Indian and European ancestry), and about two-thirds of Brazilians practise Roman Catholicism, with the remainder mostly protestant Christians. Brazil is a federal republic with 26 states and a Federal District that includes the capital Brasília. Brazil contains five major regions, comprised of a variety of rivers, wetlands, mountains, plateaus, and notably the Amazon River and rainforest. Brazil has the largest economy in South America and is part of the BRICS group of rising economic powers. The middle class has grown steadily, but geographic and socioeconomic disparities persist, with the Gini-coefficient remaining high at 54.7 as of 2013. Numerous health outcomes and social conditions have improved due in large part to the Unified Health System (SUS) that provides free care to all citizens at all levels. With declining child mortality, Brazil is expected to meet Millennium Development Goal (MDG) 4, while maternal mortality has not declined as expected. Some communicable diseases such as HIV have been well controlled, while others like leprosy, dengue fever, malaria, Chagas' disease, visceral leishmaniasis, schistosomiasis, and tuberculosis still present significant challenges. Non-communicable diseases remain a significant burden of disease, in addition to violence. Brazil's SUS is a unique healthcare model in Latin America with many innovative features.

1. COUNTRY AT A GLANCE

Component	Details/indicator/year	Data
Population	Total population (2014)	206 077 898[a]
	Percentage of urban vs. rural (2014)	Urban: 85, rural: 15[a]
Geography	Brazil contains five main geographic areas, or Grandes Regiões (Major Regions): Norte (North), Nordeste (Northeast), Centro-Oeste (Central-West), Sudeste (Southeast), and Sul (South), and these regions are comprised of a variety of rivers, wetlands, mountains, and plateaus. The Amazon River forms part of the most extensive river system in the world and flows into the Amazon rainforest, the world's most ecologically diverse and extensive rainforest. Brazil's climate is largely humid tropical or subtropical, except for the dry Nordeste.[b]	
Ethnic composition	More than half of the population are of European descent, with approximately two-fifths mulatos (mixed African and European ancestry) and mestiço (mixed European and Indian ancestry). People of African, Afro-Indian, Asian, and Indian descent comprise small proportions. A significant amount of the population have some Indian ancestry.[b]	
Government	Brazil is a federal republic with 26 states and a Distrito Federal (Federal District) that includes the capital Brasília. The last constitution was implemented in 1988, eliminating traces of the previous military regime and outlining the functions of the executive, legislative, and judicial branches. The bicameral Congresso Nacional (National Congress) is composed of the Câmara dos Deputados (Chamber of Deputies) and the Senado Federal (Federal Senate); members of the former and latter serve four-year terms and eight-year terms, respectively. The president serves as head of state and government and is directly elected to four-year terms, for up to two terms. The judicial system is divided into the ordinary branch, comprised of state and federal courts, and the special branch, comprised of labour, electoral, and military courts. The Supremo Tribunal Federal (Supreme Federal Court) is the highest court.[b]	
Economic and infrastructure data	GDP per capita (purchasing power parity) (2014)	US$ 15 893.2 (current international dollars)[a]
	Economic growth as percentage of GDP (2014)	0.1[a]
	Gini-index (2013)	54.7[c]
	HDI (2014)	0.755 (ranked 75)[d]
	Percentage of people below national poverty line (2014)	7.4[a]
	Percentage of unemployment (2014)	6.8[a]
	Percentage of adult literacy (2013)	91[a]
	Education gender parity index (2005)	1.03[a]
	Percentage of population with access to sanitation (2015)	Access to improved drinking water: 98 (urban: 100, rural: 87)[a] Access to improved sanitation facilities: 83 (urban: 88, rural: 52)[a]
	Percentage of population with access to electricity (2012)	99.5[a]

Health system	Health expenditure as percentage of GDP (2014)	8.3[a]
	Annual public expenditure on health as percentage of total health expenditure (2014)	46.0[a]
	Health expenditure per person (2014)	US$ 947 (current US$)[a]
	Number of physicians per 1 000 population (2013)	1.9[a]
	Number of nurses and midwives per 1 000 population (2013)	7.6[a]
	Percentage of births with skilled attendants (2012)	98[a]
	Average life expectancy in years (2014)	74[a]
Disease burden	HIV prevalence as percentage among adults aged 15–49 (2014)	0.4-0.7[e]
	Deaths due to AIDS (2014)	9 900-23 000[e]
	Deaths due to non-communicable diseases (2012)	978 200[f]
	Deaths due to homicide (2012)	64 357[f]
	Maternal mortality rate per 100 000 births (2015)	44[a]
	Infant mortality rate per 1 000 births (2015)	15[a]
	Under-five mortality rate per 1 000 births (2015)	16[a]
Top five causes of mortality as percentage of deaths (2012)[g]	1. Ischaemic heart disease 2. Stroke 3. Lower respiratory infections 4. Diabetes mellitus 5. Interpersonal violence	10.5 9.3 6.1 5.6 4.8
Top five causes of DALYs (2012)[g]	1. Cardiovascular diseases and diabetes 2. Neuro-psychiatric conditions 3. Other non-communicable diseases 4. Cancers 5. Unintentional injuries	ND ND ND ND ND

GDP: gross domestic product; gini-index: measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution; HDI: human development index; DALYs: disability-adjusted life years.
Sources: [a] World Bank (2015b); [b] James et al. (2016); [c] UNDP (2013); [d] UNDP (2015); [e] Joint United Nations Programme on HIV and AIDS (2014); [f] WHO (2012); [g] WHO (2015a).

2. COUNTRY CONTEXT

2.1 COUNTRY HISTORY AND POLITICAL SYSTEM

Originally claimed by the Portuguese in 1500, Brazil gained its independence on 7 September 1822, when the son of King Dom João VI of Portugal, Prince Dom Pedro, took the title of Emperor of Brazil, followed by a brief war for independence that lasted just two years and ended with Portuguese defeat. Brazil subsequently continued as a monarchy until 1889, when the military overthrew the

government to establish a federal republic largely controlled by coffee exporters. Control by coffee interests ended in 1930, when Getúlio Vargas led a successful revolt to head a provisional government. He became a dictator backed by the military in 1937, placing the economy under highly centralised state control and initiating reforms in social welfare and industry (BBC, 2015b).

Soon after the end of World War II, Vargas was forced to step down by a military coup, with a new constitution returning power from the national government to Brazilian states. Vargas won presidential elections in 1951, but committed suicide three years later when forced to either resign or be ousted in another military coup. After a brief period of turmoil, Juscelino Kubitschek de Oliveira became president in 1956 and is credited with catalysing rapid economic growth and moving the capital to the newly founded Brasília. In 1961, Kubitschek was succeeded by Jânio da Silva Quadros, who resigned and was succeeded by leftist João Goulart. Goulart himself was ousted a few years later by a military coup, leading to the establishment of a new military regime (BBC, 2015b).

The new government implemented state-ownership of numerous industries, leading to rapid economic growth accompanied by repressive rule. Limited freedom was granted when General Ernesto Geisel became president in 1974 and introduced reforms that allowed limited political activity and elections. In 1985, the military-backed regime set up an electoral college system and peacefully allowed civilian elections. Tancredo Neves won the elections but died shortly afterward and was succeeded by vice-president José Sarney. A new constitution in 1988 reduced the powers of the president and Fernando Collor de Mello was elected to office the following year through newly implemented direct elections. After his resignation, amidst accusations of corruption and an impeachment trial, vice-president Itamar Franco came to power (BBC, 2015b).

In 1994, Fernando Henrique Cardoso was elected and introduced new reforms to control inflation and redistribute land amongst the poor. After a constitutional change permitting the president to run for an additional term, Cardoso was re-elected in 1998 and thereafter Luíz Inácio Lula da Silva, popularly known as Lula, won elections in 2002 on pledges to implement reforms to combat poverty and hunger. In spite of corruption allegations against and resignations from Lula's Workers' Party, Lula was re-elected in 2006 and went on to preside over expansion of Brazil's role in international diplomacy and development and controversial economic projects in the Amazon. Dilma Rousseff of the same party became the country's first female president in 2010 (BBC, 2015b) and her administration has recently been plagued by protests over inadequate government services, bloated expenses due to the 2014 World Cup and 2016 Olympic games, an anticipated recession, and allegations of corruption (BBC, 2015a).

2.2 POPULATION

Most of Brazil's population of 206 million (World Bank, 2015b) live in urban areas and two-fifths are mulatos (mixed African and European ancestry) and mestiço (mixed European and Indigenous ancestry), with people of African, Afro-Indian, Asian, and Indigenous descent present in smaller numbers (James et al., 2016). The official language is Portuguese, though indigenous people still speak a number of languages, such as those from the Tupian/Tupí-Guaraní language group. About two-thirds of Brazilians practise Roman Catholicism and one-third are protestant Christians. An increasing number of Brazilians practise religions such as Buddhism, Islam, and syncretic religions that combine Christian beliefs with those from Africa or other spiritual practices (James et al., 2016). Life expectancy is 74 years (World Bank, 2015b) and the median age is just under 30 years (United Nations, 2015).

2.3 ECONOMY

Table 1. Economic measures of Brazil

Indicator/year	Data
GDP per capita (purchasing power parity) (2014)	US$ 15 893.2 (current international dollars)[a]
Economic growth as percentage of GDP (2014)	0.1[a]
Debt as percentage of GDP (2014)	65.2[b]
Gini-index (2013)	54.7[c]
HDI (2014)	0.755 (ranked 75)[d]
Percentage of people below national poverty line (2014)	7.4[a]
Percentage of unemployment (2014)	6.8[a]

GDP: gross domestic product; gini-index: measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution; HDI: human development index.
Sources: [a] World Bank (2015b); [b] IMF (2015); [c] UNDP (2013); [d] UNDP (2015).

As part of the class of nations rising as economic powers termed BRICS (including Russia, India, China, and South Africa), Brazil's economy is the largest in South America. The country has rich natural resources and is self-sufficient in oil reserves due to its offshore fields (BBC, 2015a). Furthermore, more than 26 million people were lifted out of poverty from 2003 to 2013 as a result of the government's economic and social reforms (World Bank, 2015a).

While the middle class has grown steadily, geographic and socioeconomic disparities persist, with wealth concentrated in the South and Southeast regions (World Bank, 2015a). Though it has declined, the Gini-coefficient remains high at 54.7 as of 2013 (UNDP, 2013). A significant number of people reside in city slums known as favelas (BBC, 2015a) and the currently robust workforce is expected to age and begin shrinking around 2025. Much of the country's development of the Amazonian interior has occurred at the expense of the environment, though deforestation has decreased in recent years. Brazil's prospects in the medium-term will likely depend on increasing productivity, competitiveness, and investment (World Bank, 2015a).

2.4 ENVIRONMENT

Brazil dominates Eastern South America, bordering the Atlantic Ocean and most other South American countries except Chile and Ecuador. The country's terrain is immense and complex, with a wide variety of rivers, wetlands, mountains, and plateaus. There are five main geographic areas: Norte (North), Nordeste (Northeast), Centro-Oeste (Central-West), Sudeste (Southeast), and Sul (South). The Amazon River forms the heart of Brazil's river system and flows into the Amazon rainforest that features the world's most diverse, extensive ecosystem. Brazil's climate is humid tropical or subtropical, with the exception of the dry Nordeste. Much of the country receives 1 000 to 1 800 mm of annual precipitation, though the so-called drought quadrilateral in the Nordeste receives only 375 to 750 mm, while parts of the Amazon basin and the rim of the Serra do Mar, an escarpment along the Atlantic coast, receive heavier precipitation (James et al., 2016). Extreme weather events are believed to have increased in frequency in recent years, affecting the dynamics of vector-borne diseases such as dengue fever and malaria. Slash-and-burn practices have increased pollution and decreased air quality in urban areas (PAHO, 2012).

3. HEALTH SYSTEM

3.1 OVERVIEW

Due in large part to Brazil's Unified Health System (SUS), a number of health outcomes have improved, in addition to improvements in the social conditions of the Brazilian population. The SUS provides all citizens with free care at all levels (Victora et al., 2011). Brazil is expected to meet Millennium Development Goal (MDG) 4, having achieved significant declines in child mortality, and some communicable diseases like HIV have also been well controlled. However, improvements in maternal mortality have been modest and a number of non-communicable diseases such as cardiovascular diseases, respiratory diseases, diabetes and cancer persist. Violence is also a significant contributor to Brazil's burden of disease (PAHO, 2012a). Though millions no longer live in extreme poverty and there is a more equitable income distribution, Brazil is still considered one of the most unequal countries in the world (PAHO, 2012a). Certain diseases are generally more prevalent in the poorer North and Northeast, for instance, while the wealthier Southeast enjoys higher concentrations of health facilities and resources (Paim et al., 2011; PAHO, 2012a).

3.2 ORGANIZATION

The public subsector of the Brazilian health system is largely based on the SUS, which was implemented in 1990. SUS services are financed and provided at the federal, state, and municipal levels by the Ministry of Health, the state health authority, and the municipal health authority, respectively. Under the umbrella of SUS services, the Ministry also launched the Family Health Programme (PSF), a national HIV/AIDS prevention and control programme, tobacco control efforts, the National Supplementary Health Agency, a model of care for Indigenous health, the Mobile Emergency Care Service, and the National Oral Health Policy. To assist with decentralisation of services, the Ministry has set up national health conferences as well as health councils and intermanagerial committees at the state and federal levels. The private subsector includes specialist diagnostic and therapeutic clinics, private hospitals, and private health insurance companies. The private subsector provides services contracted out by the SUS as well as out-of-pocket (OOP) hospital services, ambulatory services, drugs, and private health insurance plans (Paim et al., 2011).

The health system is also organized into three levels (Paim et al., 2011):

1. **Primary care**: aims to provide universal access to comprehensive health care and coordinate coverage to higher levels of care. The PSF and Community Health Agents Programme spearhead primary care as implemented by SUS. PSF emphasises reorganising primary clinics to focus on families and communities and integrate medical care with health promotion and public health initiatives. PSF uses family healthcare teams at PSF clinics assigned to specific areas and populations of 600-1 000 families, with each team comprised of a doctor, a nurse, an auxiliary nurse, and four to six community health workers. Since 2004, PSF has also included oral health teams. Expansion of the PSF is complicated by the existence of traditional primary care facilities in place before the PSF and in the same areas as PSF clinics, with lack of integration between the two.

2. **Secondary care**: service supply for this level is restricted and generally given to patients with private health plans. High-cost procedures are often favoured over medium-complexity procedures. SUS depends highly on outsourcing to the private sector, particularly for diagnostic and therapeutic services. Specialised centres for dental care, counselling for HIV/AIDS and other

sexually transmitted diseases, workers' health and rehabilitation services, and 24-hour emergency care have been integrated into secondary care.

3. **Tertiary and hospital care**: SUS funds some high-cost procedures, performed generally by private providers or public teaching hospitals. The system lacks effective regulatory and referral mechanisms, though some policies for high-cost care have been implemented as well as networks for certain specialties. The Ministry of Health has attempted to strengthen the PSF and implement Integrated Health Care Territories, though structural, procedural, and political obstacles have hindered these efforts. Residents in wealthier municipalities are also favoured over those in poorer municipalities for admission to hospitals.

3.3 CAPACITY

Table 2. Number of facilities and health workers per population, Brazil

Indicator/year	Data
Health posts and health centres/% public (2010)	41 667/98.7[a]
Specialist outpatient clinics/% public (2010)	29 374/10.7[a]
Polyclinics/% public (2010)	4 501/26.0[a]
Diagnosis and therapy centres/% public (2010)	16 226/6.4[a]
General and specialised emergency units/% public (2010)	789/77.9[a]
Hospitals/% public (2010)	6 384/31.9[a]
Family health teams (2010)	30 996[b]
Oral health teams (2010)	19 609[b]
Community health agents (2010)	238 304[b]
Number of beds per 1 000 population (2012)	2.3[b]
Physicians per 1 000 population (2013)	1.9[b]
Nurses and midwives per 1 000 population (2013)	7.6[b]

Sources: [a] Paim et al. (2011); [b] World Bank (2015b).

The primary care workforce experiences high turnover due to differing wage structures and employment contracts in different municipalities. Primary care clinics and emergency units are largely public, while hospitals, outpatient clinics, and diagnostic and therapeutic services are generally private. Decentralisation led to new hospitals with an average of 35 beds being set up, which have generally been found to be less effective than larger hospitals, many of which are located in the wealthiest (southeast) region of the country. Private universities have increasingly offered undergraduate places in health profession courses, resulting in an increase in the number of health professionals, such as nurses, the number of which increased by 260% between 1999 and 2004. Prestigious research institutes, such as the Oswaldo Cruz Foundation, and world-class public universities have also supported health research and technology development (Paim et al., 2011).

3.4 POLICY ENVIRONMENT

The Pan American Health Organization (PAHO)/World Health Organization (WHO) (2014) states:

> The National Health Policy has been developed taking into account the 1988 Federal Constitution, which established health as a right for all citizens and a duty of the State. In order to translate this basic right to practice, the Brazilian Unified Health System (SUS) was created, based on the principles of universal and egalitarian access to comprehensive care, to ensure promotion, protection and recovery of health, integrated into a regionalized and hierarchical network of services under the responsibility of the three levels of government (Federal, State and Municipal).
>
> The private healthcare sector contributes to and supplements this effort.
>
> The Brazilian health system is composed of a complex network of public and private institutions dedicated to:
>
> - Rendering, financing and the management of services;
> - The research, production and distribution of health products and technologies;
> - Human resource capacity building;
> - The regulation, legislation and oversight of the system.
>
> The purpose of the principle network of public institutions is to provide, finance and manage health services; the SUS provides complete coverage for 75% of the Brazilian population. The remaining 25% of the population – covered by the Supplementary System – also has the right to access services provided by the SUS. In addition, the SUS is responsible for the provision of collective services such as sanitation, disease control and regulation of the sector.
>
> Services of the SUS are provided through federal, state and municipal public networks, including private or philanthropic entities contracted by the system. The Supplementary System consists of private companies, units and professionals, who provide services and/or health care to their clients.
>
> The SUS is directed at the Federal level by the Minister of Health, and at the State and Municipal level by the respective Secretaries of Health. To facilitate the negotiation and agreement of policies and programs, the SUS has associate agencies: the National, State and Municipal Health Councils. Different spheres of the government, besides representatives from segments of the health sector and civil society participate in these councils. In addition, there are Bipartite (involving the Municipal and State spheres of each unit of the Federation) and Tripartite Inter-managerial Commissions (involving the three spheres at a national level).
>
> The regulatory function is performed by the National Agency for Health Surveillance (ANVISA, dedicated to regulating health products, food, ports, airports and borders) and the Supplementary Health Agency (ANS, dedicated to regulating health insurance and private health care). States and Municipalities are responsible for the execution of regulatory functions in their respective spheres, in coordination with the Federal agencies.

WHO (2014) lists the following as strategic priorities for Brazil:

1. To collaborate in consolidating the SUS as the base political project in health in Brazil, aligned with the development of health systems and based on the values of the Primary Health Care Strategy.

2. To support strengthening social participation in health development, building national awareness of the social determinants in health, enhancing the focus on rights, equality, justice and social oversight of these determinants, meeting the targets of the Millennium Development Goals.

3. To promote a systematic and integrated approach with regard to public health policies and the other sectors of development, geared towards improving the level of social inclusion and protection.

4. To promote the acknowledgment of health as a productive sector by means of policies and processes supporting the development of the health industrial complex.

5. To accompany Brazil in international initiatives, political processes and fora related to health, promoting the development of partnerships based on shared principles of equity, universality, social participation and integrality and on the strengthening of public health.

6. To contribute to the strengthening of Brazil's capacity to cooperate in the development of health systems in the Americas and in Portuguese speaking countries of Africa, within the framework of South-South Cooperation.

3.5 HEALTH FINANCING

Table 3. Health financing data for Brazil, 2014

Indicator	Data
Total health expenditure (current US$)	US$ 195 243 908 000
Public expenditure on health as percentage of total expenditure	46.0
Public expenditure on health as percentage of general government expenditure	6.8
OOP expenditure on health as percentage of total private expenditure	47.2
Private insurance expenditure on health as percentage of total private expenditure	49.7
Expenditure of non-profit institutions serving households as percentage of total private expenditure	3.1
External funding (current US$)	US$ 262 766 000
Health expenditure as percentage of GDP	8.3

OOP: out of pocket; GDP: gross domestic product.
Source: WHO (2015b).

Public funding sources for the Brazilian health system include taxes, social contributions (taxes for specific programmes), OOP spending, and employers' healthcare spending. Private sources include OOP and employer spending. Tax revenue has been less than revenue from social contributions, resulting in underfinancing of the SUS. Notably, proceeds from a social contribution introduced in 1997

to finance the health sector have been used mostly towards paying interest and public debts (Paim et al., 2011).

Private sources mostly fund private health care plans, insurance policies, and drug purchases. While OOP spending as a proportion of total spending is low across socioeconomic classes (5-9%), poorer patients tend to spend mostly on medications, while wealthier patients tend to spend more on private health plans and insurance. Although the SUS was intended to establish a universal and equitable health system financed mainly by public funds, it has not yet achieved its vision, with contributions from public funds falling from 68% in 1981 to 56% in 2003, where it has stayed, and with contributions from private health insurance and OOP spending steadily increasing up until 2008 (Paim et al., 2011).

3.6 COUNTRY DISEASE PROFILE

Table 4. Disease profile for Brazil

Indicator/year	Data
Age-standardized DALYs per 100 000 for communicable diseases (2012)	4 804[a]
Age-standardized DALYs per 100 000 for non-communicable diseases (2012)	22 160[a]
Age-standardized DALYs per 100 000 for injuries (2012)	4 668[a]
Under-five mortality rate per 1 000 live births (2015)	16[b]
Infant mortality rate per 1 000 live births (2015)	15[b]
Maternal mortality rate per 100 000 live births (2015)	44[b]
Estimated cases of malaria (2013)	230 000[a]
Estimated deaths due to malaria (2013)	< 50[a]
Prevalence of TB per 100 000 (2014)	110 000[a]
Incidence of TB per 100 000 (2014)	44[a]
Deaths due to TB among HIV-negative people per 100 000 (2014)	2.6[a]
Prevalence of HIV as percentage among adults aged 15–49 (2014)	0.4-0.7[c]
Deaths due to AIDS (2014)	9 900-23 000[c]
Deaths due to non-communicable diseases (2012)	978 200[a]
Deaths due to homicide (2012)	64 357[a]
Percentage of top five causes of mortality (2012)[d]	
1. Ischaemic heart disease	10.5
2. Stroke	9.3
3. Lower respiratory infections	6.1
4. Diabetes mellitus	5.6
5. Interpersonal violence	4.8
Top five causes of DALYs (2012)[d]	
1. Cardiovascular diseases and diabetes	ND
2. Neuro-psychiatric conditions	ND
3. Other non-communicable diseases	ND
4. Cancers	ND
5. Unintentional injuries	ND

DALYs: disability-affected life years; TB: tuberculosis; ND: not determined.
Sources: [a] WHO (2015c); [b] World Bank (2015a); [c] Joint United Nations Programme on HIV and AIDS (2014); [d] WHO (2015a).

Brazil enjoys universal access to skilled birth attendance and has seen declines in all leading causes of maternal death, such as hypertension and haemorrhage. MDG 5 has not been met, with maternal mortality remaining higher than expected. Brazil achieved MDG 4, with declines in mortality in children under five and infants. Disparities in these indicators remain, with non-white populations and those living in the Northeast suffering higher mortality rates (PAHO, 2012a).

Brazil has been able to control vaccine-preventable diseases and HIV/AIDS, though other communicable diseases such as dengue fever remain prevalent. Malaria tends to occur in the Amazon region; and while yellow fever has not occurred in urban areas in decades, it persists in the wild. Outbreaks of Chagas' disease and visceral leishmaniasis have also occurred in recent years. Although leprosy is on the decline, it has not met the "elimination" goal of 1 per 10 000. Schistosomiasis is broadly distributed, though concentrated in the Northeast. Tuberculosis is the leading cause of death among those with AIDS and the third leading cause of death of all infectious diseases (PAHO, 2012a).

Non-communicable diseases affect impoverished and vulnerable populations and the vast majority of the country's DALYs are due to non-communicable diseases rather than communicable diseases or injuries (WHO, 2015c). Cardiovascular diseases are the leading cause of mortality and morbidity and respiratory diseases, diabetes, and other non-communicable diseases are also problematic. Mortality due to cardiovascular and respiratory diseases decreased between 1991 and 2009, while mortality due to diabetes and cancer has increased (PAHO, 2012a).

External causes were the third leading cause of death in 2009, with violence accounting for most of this mortality. The majority of homicides occurred in black or brown men with low education levels. Motor-vehicle accidents were also a leading external cause of death, with motorcycle accident mortality rising by 224% over a nine-year period (PAHO, 2012a).

Brazil remains one of the most unequal countries in the world and this has consequences for disease distribution as described above. However, social inequality and extreme poverty has decreased in recent years, with improvement in the living conditions of the poorest. The Programa Bolsa Família has been used to transfer cash to families to encourage completion of secondary education and utilisation of health services and is responsible for much of the decline in social inequality (PAHO, 2012a).

4. INNOVATION ECO-SYSTEM

Brazil's SUS is a unique model in Latin America with many innovative features. For instance, all citizens are granted free health care at the primary, secondary, and tertiary levels, with funding pooled from tax and social contributions. Brazil's health outcomes have benefited from investment in primary care, in contrast to the selective primary care offered by many other countries. Social participation is a cornerstone of the SUS and occurs in Brazil's one national, 27 state, and over 5 500 municipal health councils. Laypeople, health workers, health managers and providers participate in formulating health strategies, resulting in a bottom-up, inclusive decision-making process. Participatory budgeting, by which populations can vote for how to spend funds, is also an innovative feature unique to the SUS. The government has also made innovative use of mass media to promote health behaviours. Soap operas, for instance, have promoted particular healthy behaviours and lifestyles; and radio stations have promoted health campaigns (Victora et al., 2011).

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