

Transforming the Health Sector: Building Health Capacity. Focus on Emerging Economies

The Case of Brazil

Mauricio L. Barreto



Scientific Conference 'PROMOTING HEALTH' and General Assembly

Beijing, 27-28 September 2016

Life Expectancy at Birth

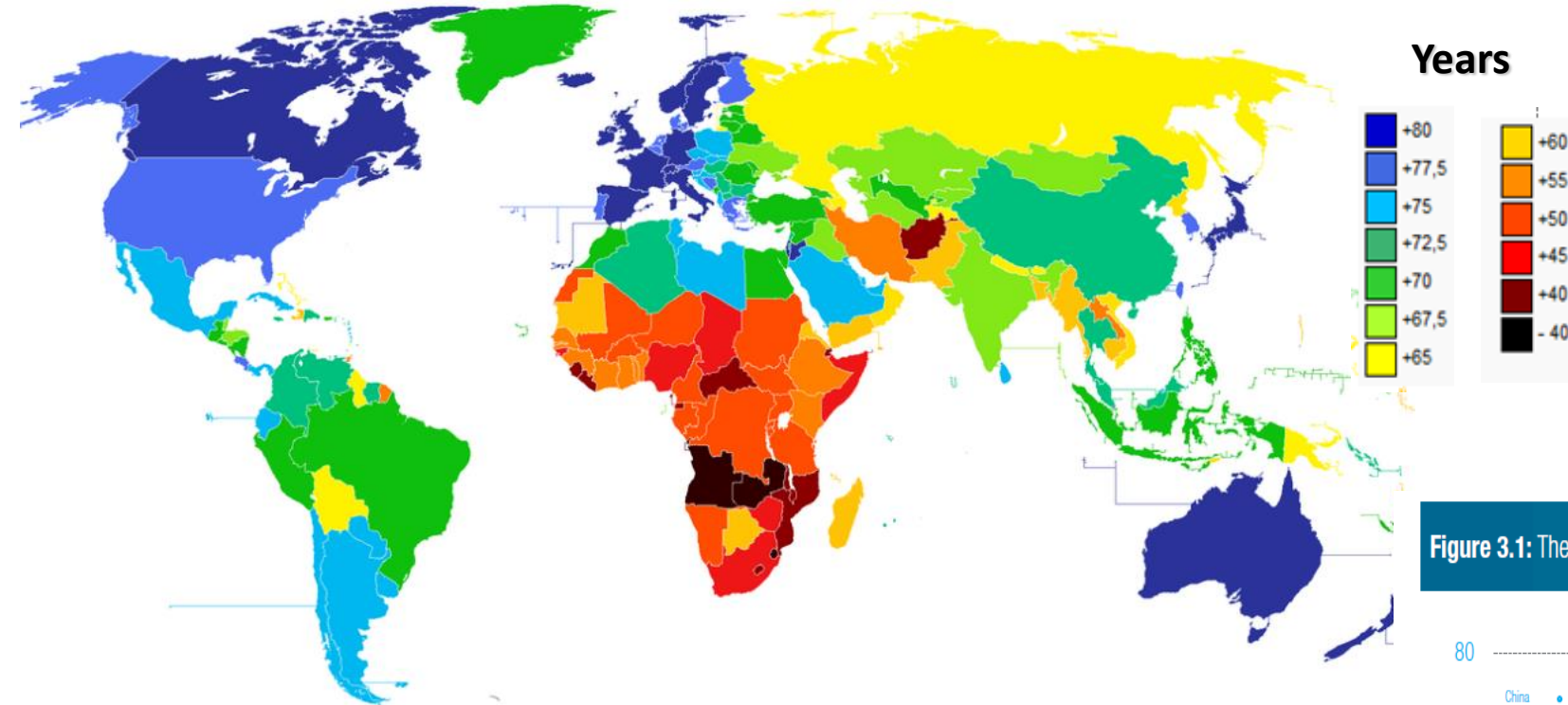
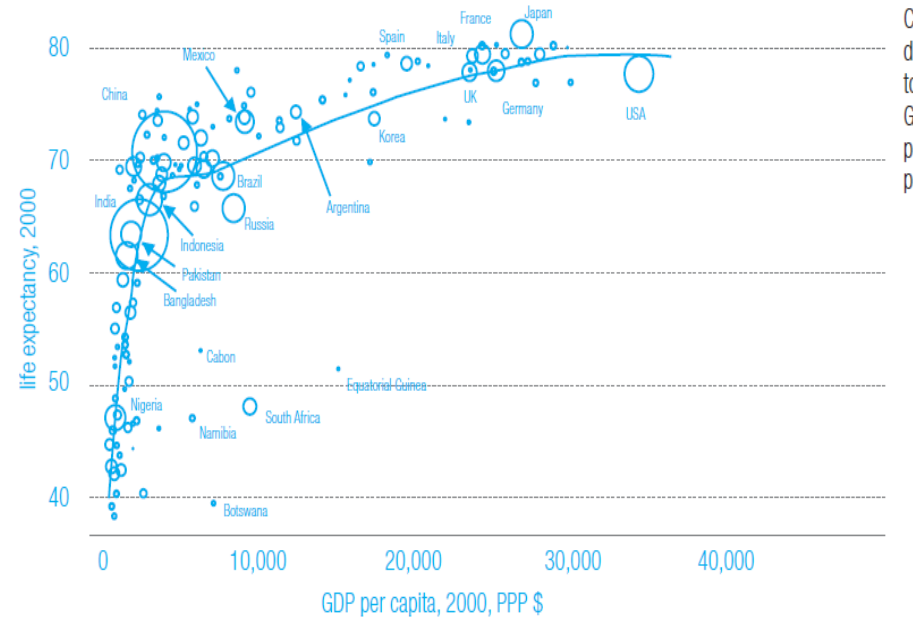
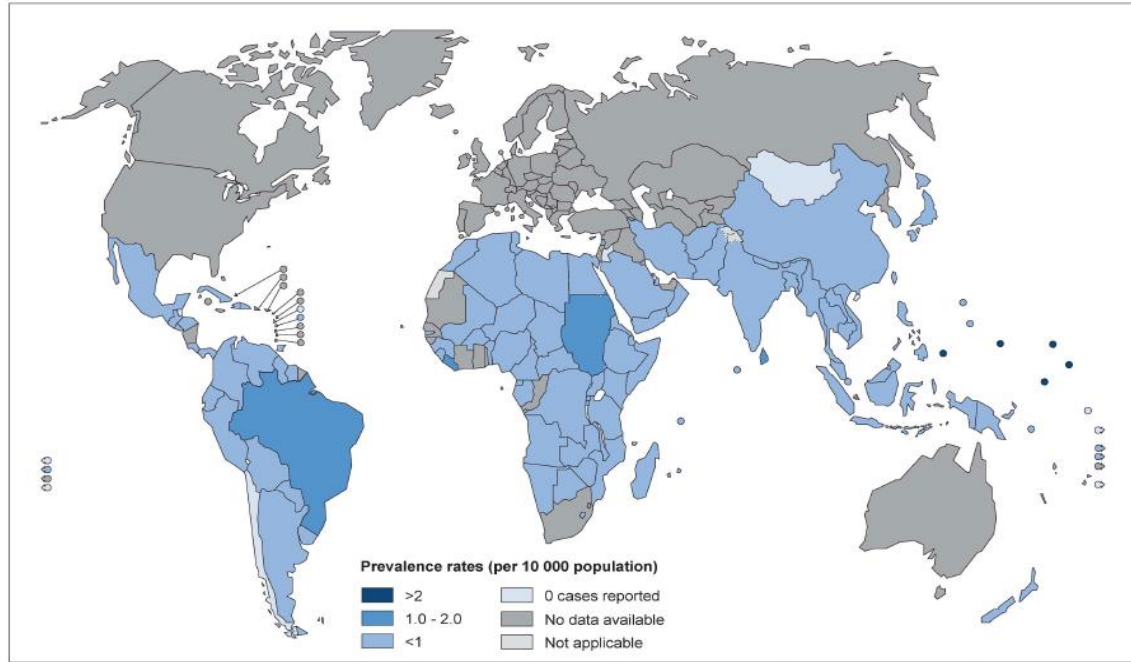


Figure 3.1: The Preston Curve in 2000.

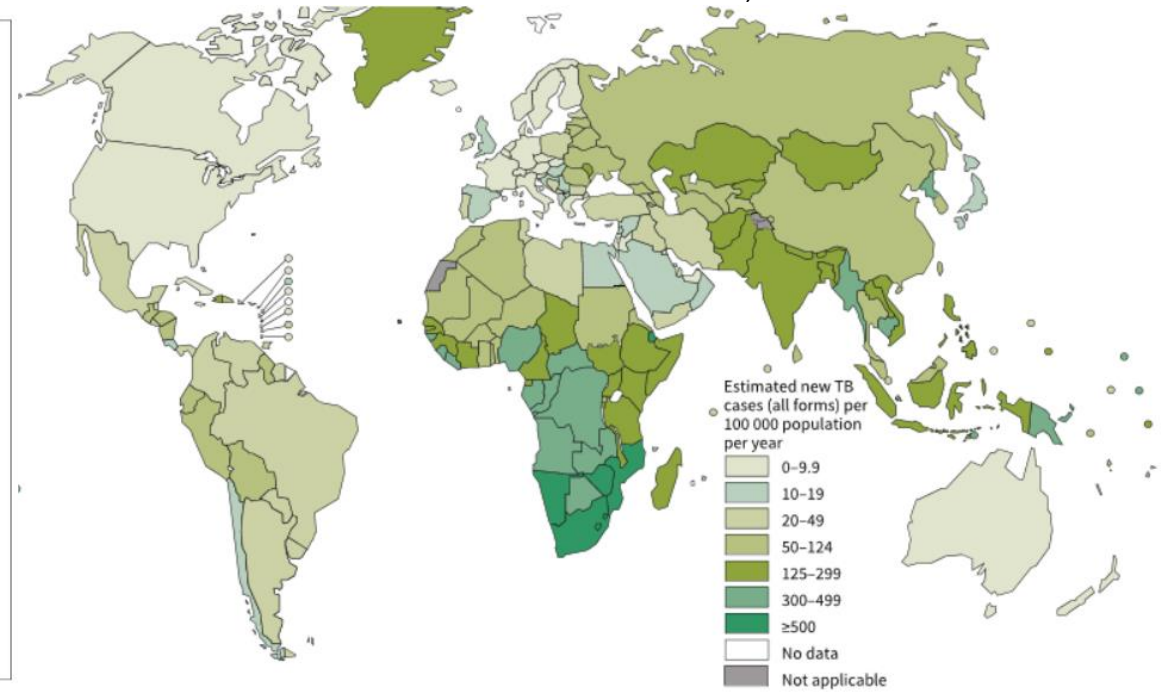


Circles have a diameter proportional to population size. GDP per capita is in purchasing power parity (PPP) dollars.

Leprosy prevalence rates, data reported to WHO as of beginning January 2011



Estimated TB incidence rates, 2013

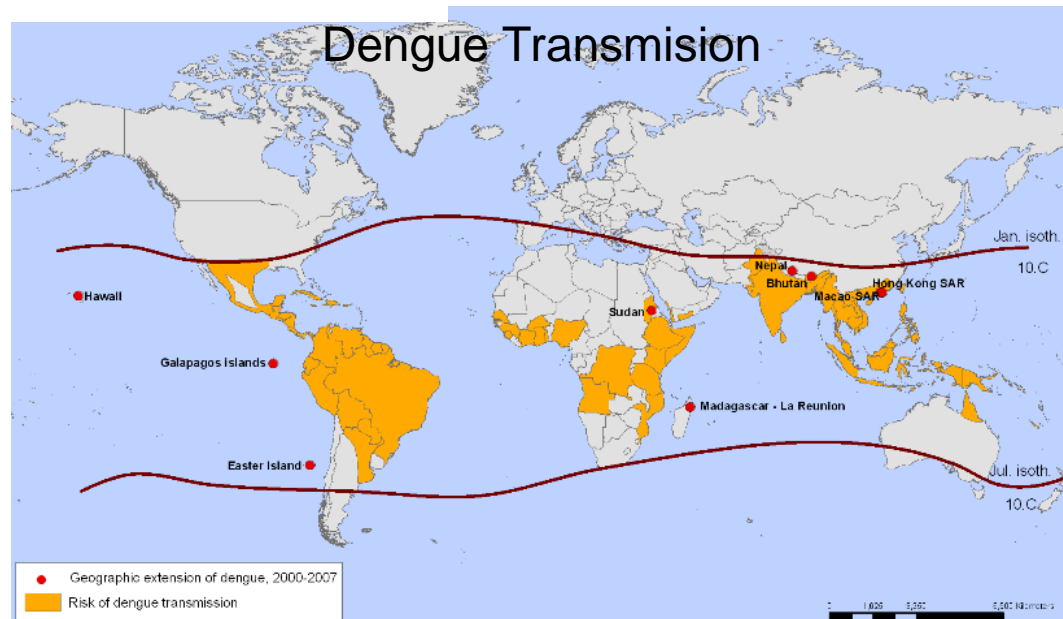


The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2011. All rights reserved

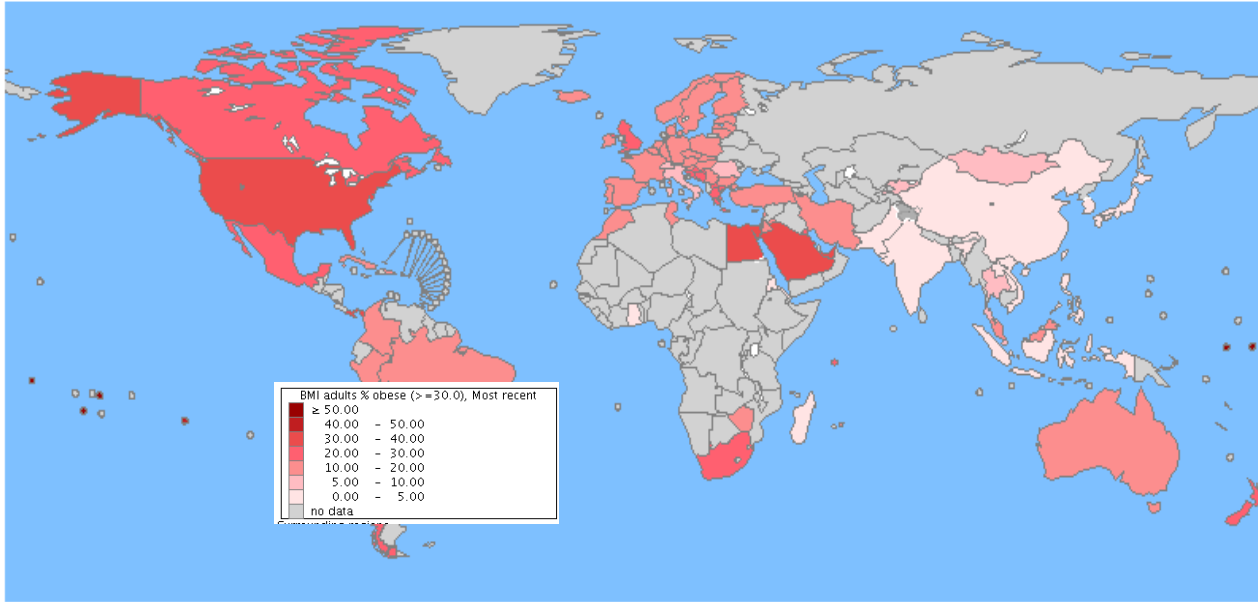
Data Source: World Health Organization
Map Production: Control of Neglected Tropical Diseases (NTD)
World Health Organization



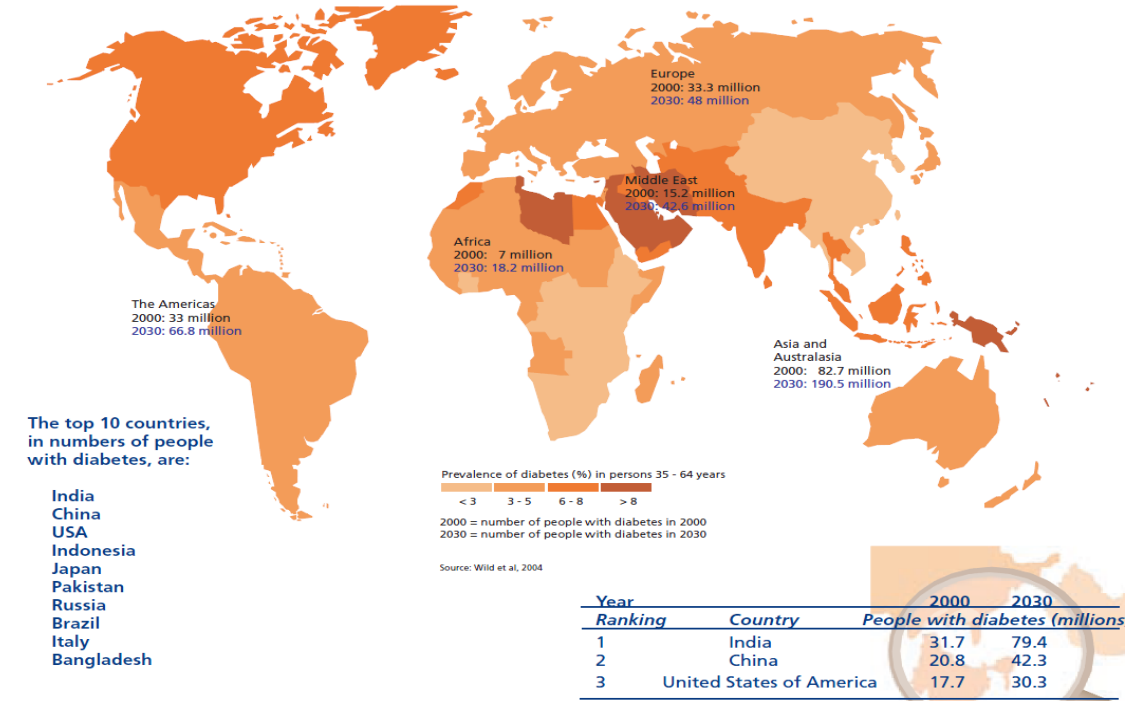
Dengue Transmission



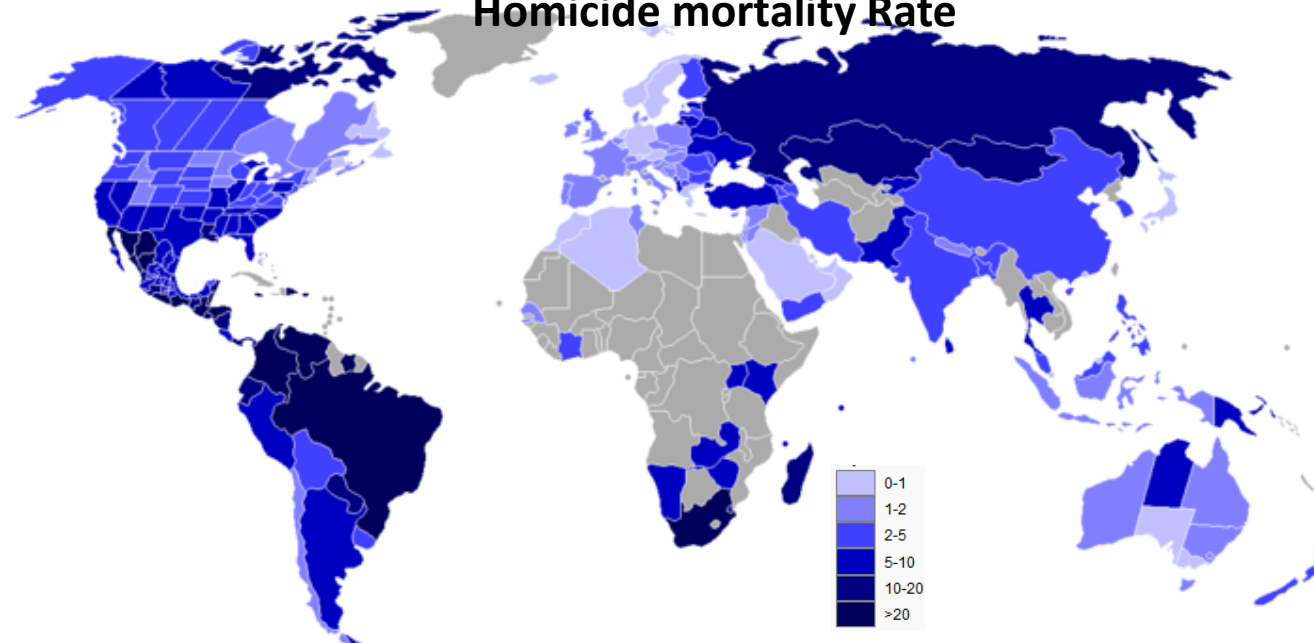
Obesity in the World



Prevalence of diabetes



Homicide mortality Rate



An assessment of progress towards universal health coverage in Brazil, Russia, India, China, and South Africa (BRICS)

Robert Marten, Diane McIntyre, Claudia Travassos, Sergey Shishkin, Wang Longde, Srinath Reddy, Jeanette Vega

Lancet 2014; 384: 2164-71

Overview of financial health protection programmes in BRICS countries

	Brazil	Russia	India	China	South Africa
Out-of-pocket spending on health (% of total health expenditure, 2011) ⁵²	57.8%	35%	59%	35%	7%
Gini index (year) ⁵³	54.7 (2009)	40.1 (2009)	33.4 (2005)	47 (2007)	63.1 (2009)
GNI per head (US\$, 2011) ⁵⁴	\$11 420	\$20 560	\$3590	\$8390	\$10 710
Annual GDP growth rate (5 year average; 2007–11) ⁵⁵	4.4%	2.8%	7.8%	10.4%	2.8%
Public expenditure on health (% of GDP, year) ⁵²	3.3% (2005), 4.1% (2011)	3.2% (2005), 3.7% (2011)	0.9% (2005), 1.2% (2011)	1.8% (2005), 2.9% (2011)	3.4% (2005), 4.1% (2011)
Private expenditure on health (% of GDP, 2009) ⁵²	4.9%	1.9%	2.8%	2.3%	5.1%
Health expenditure (% total of GDP, 2010) ⁵²	9%	5.1%	4.1%	5.1%	8.9%

BRICS=Brazil, Russia, India, China, and South Africa. GNI=gross national income. GDP=gross domestic product.

Marten et al, 2014

The BRICS countries show substantial, and often similar, challenges in moving towards UHC. On the basis of a review of each country, the most pressing problems are:

- raising insufficient public spending;**
- stewarding mixed private and public health systems;**
- ensuring equity;**
- meeting the demands for more human resources;**
- managing changing demographics and disease burdens;**
- addressing the social determinants of health.**

THE LANCET

Health in Brazil · May, 2011

www.thelancet.com



“The challenge is ultimately political, requiring continuous engagement by Brazilian society as a whole to secure the right to health for all Brazilian people”

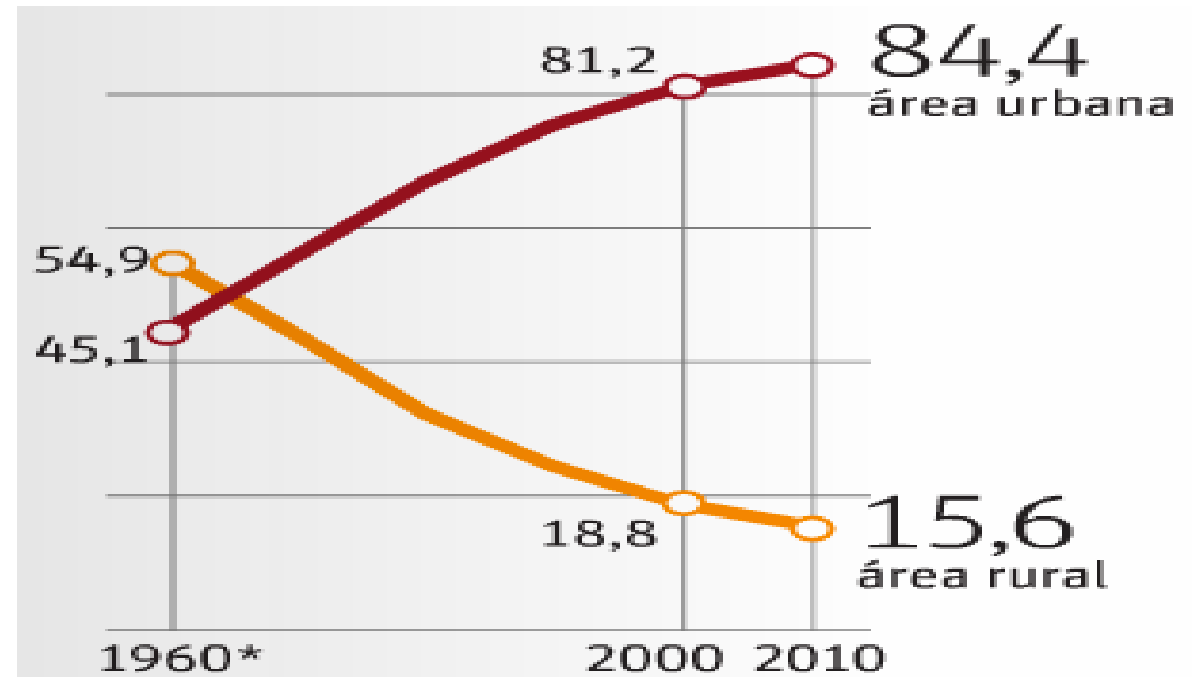


Brazil

Federative Republic (27 States and 5570 municipalities)

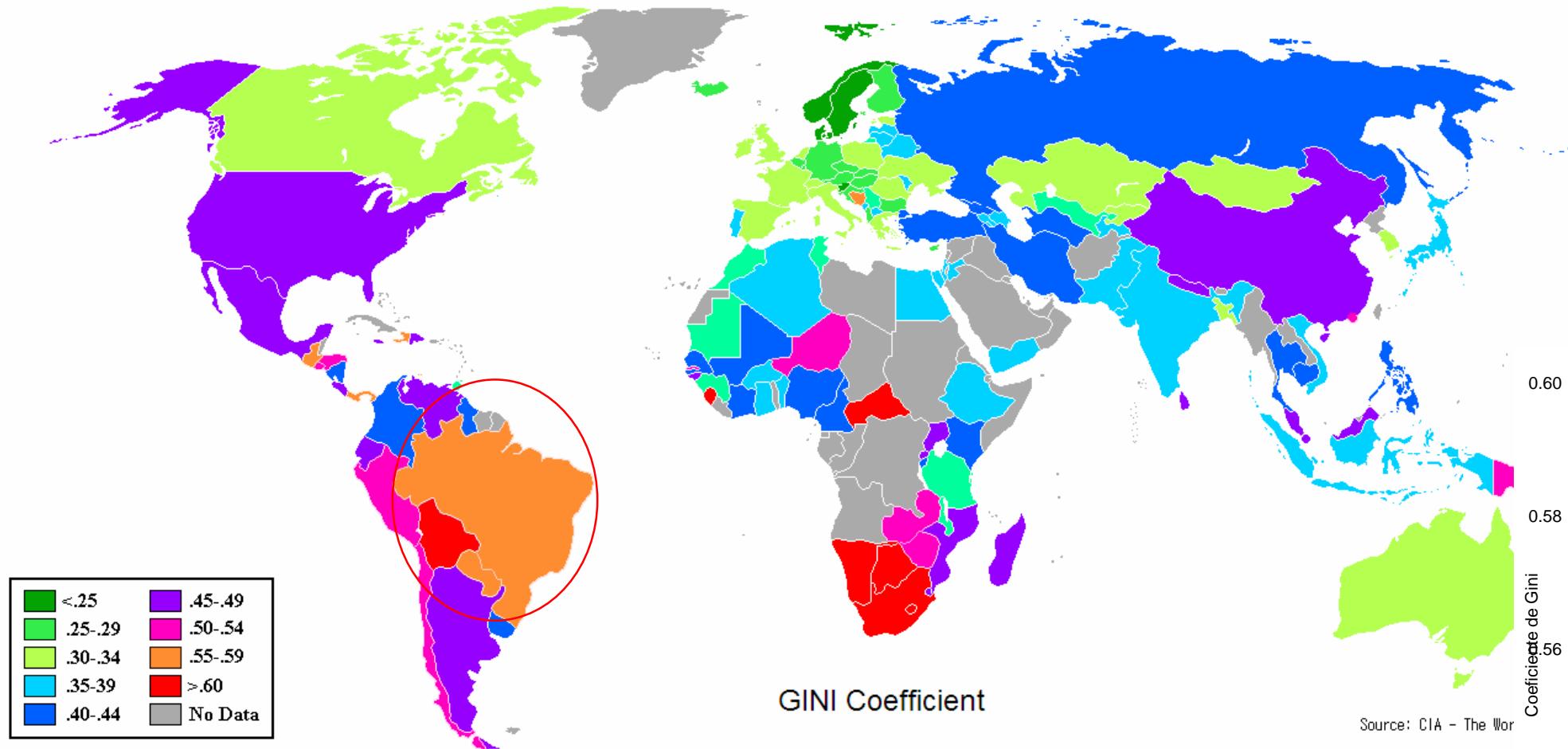
8,5 million Km²

203 million inhabitants



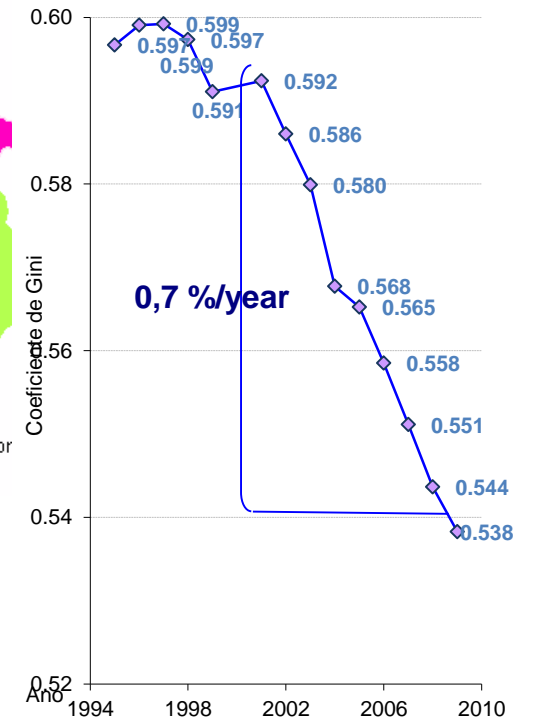
Brazil – Trends Urban-Rural population

GINI Index – Social Inequalities

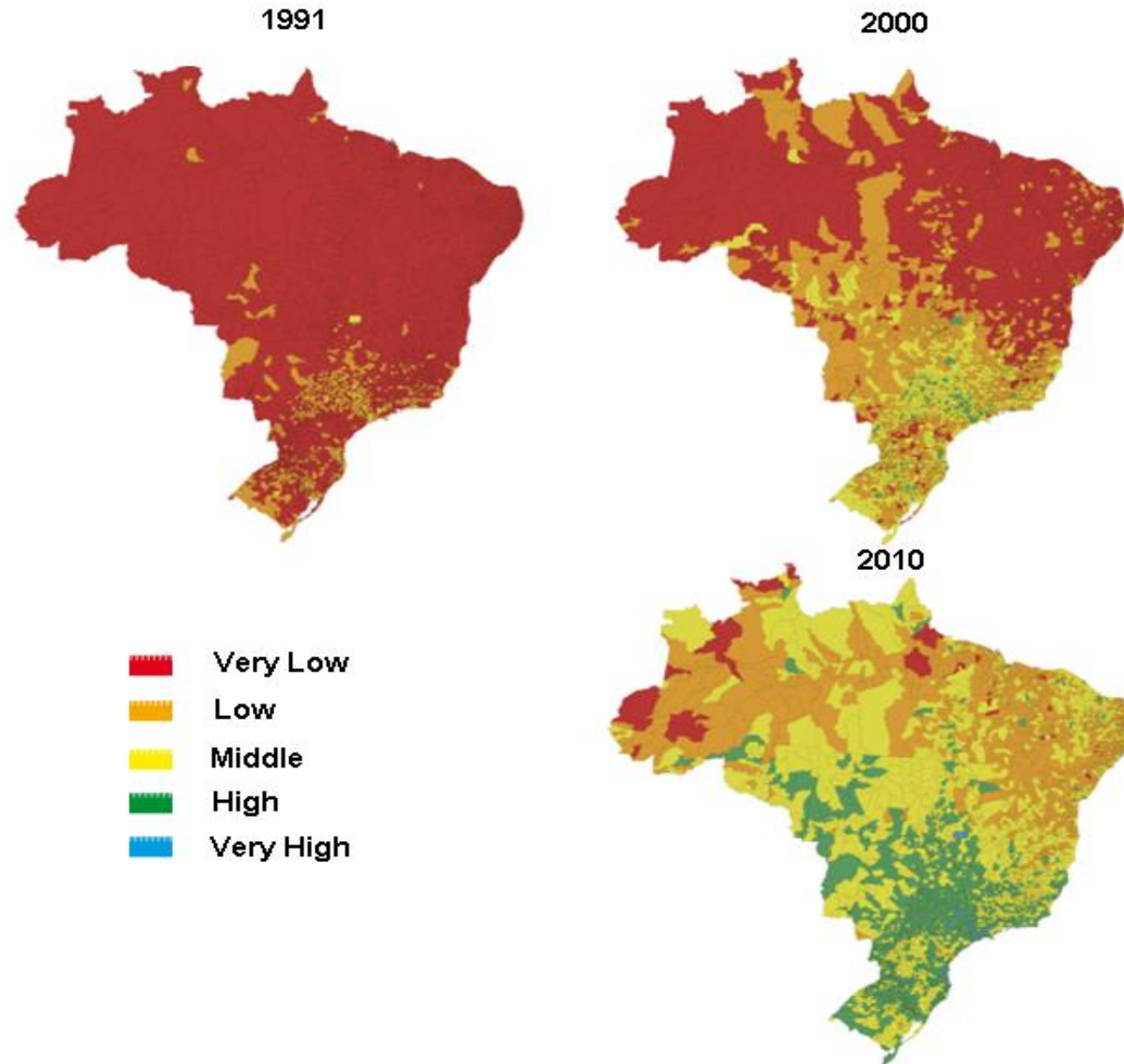


Source: CIA - The Wor

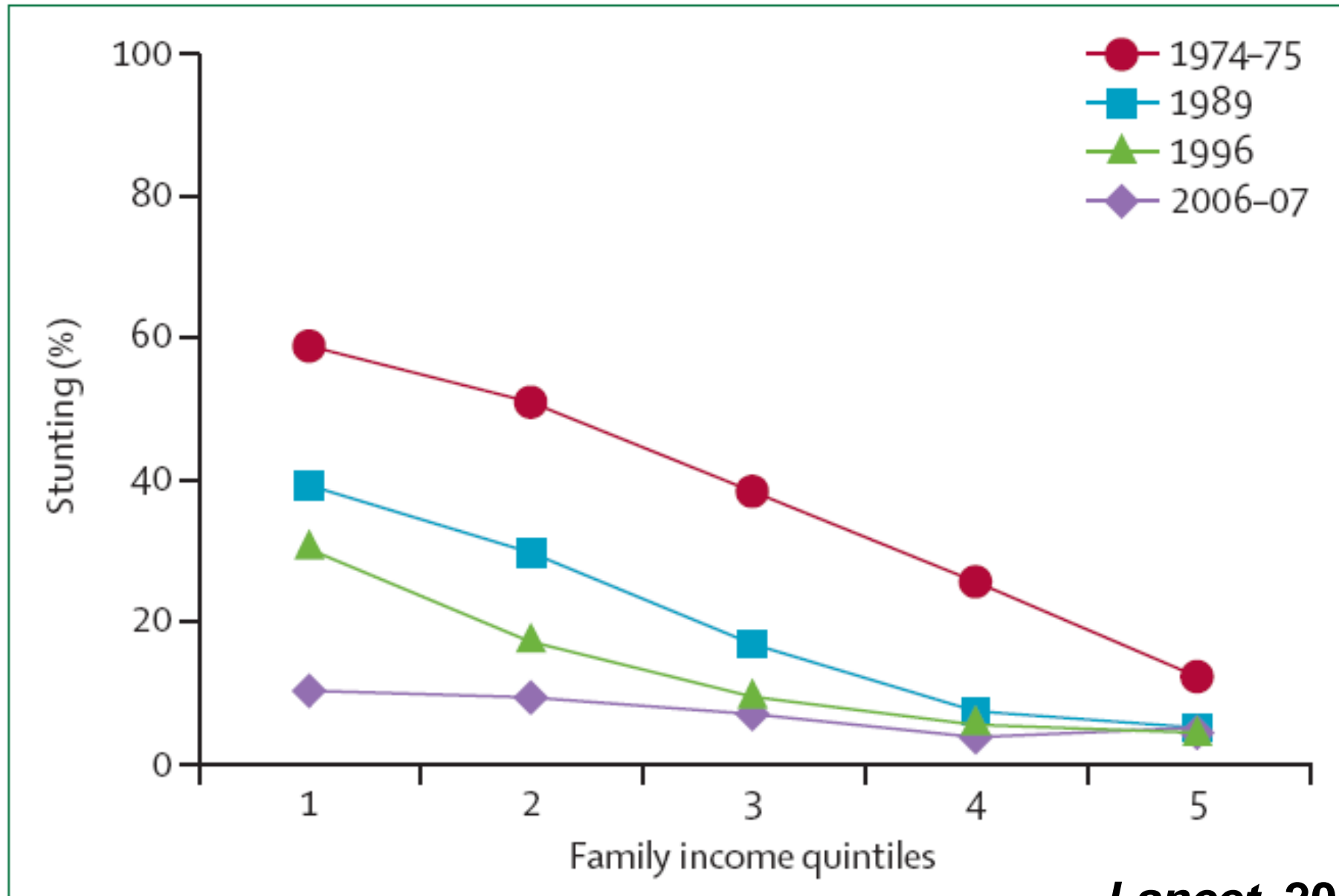
The Gini index is a measure of statistical dispersion and is used as a measure of inequality of wealth (eg. income) distribution. It varies from 0 to 1, where a value of 0 corresponds to perfect equality and a value of 1 corresponds to perfect inequality



Human Development Index of Brazilian Municipalities 1991-2000-2010.



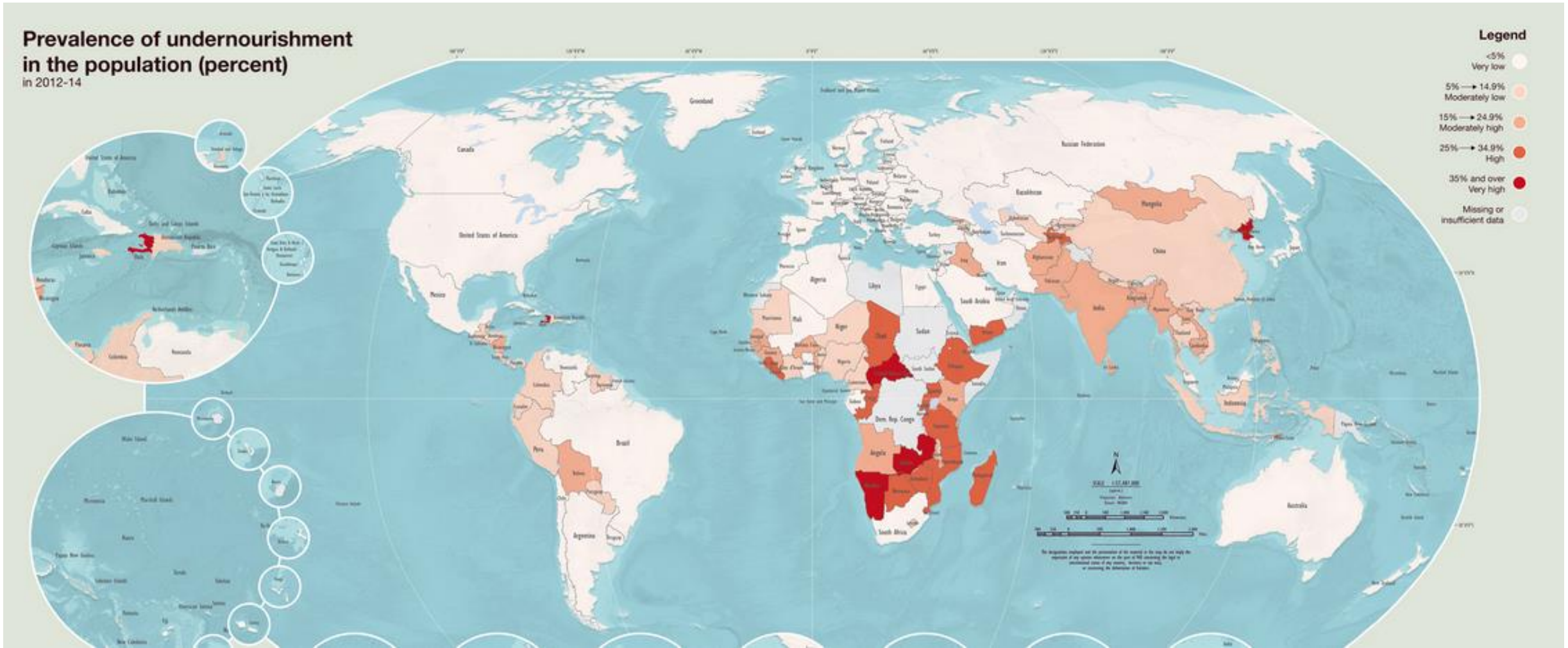
Prevalence of undernutrition- height deficit (<5 years) by family income, 1974/5 - 2006/7



Lancet, 2011

FAO
HUNGER
 MAP 2014

**Prevalence of undernourishment
 in the population (percent)**
 in 2012-14



Important Factors of Change

- Economic Growth
- Sustainable Increases in the Minimum Wage
- Low unemployment rates
- Improvement in Education
- **Development of a comprehensive and equitable Health System**
- **Strong Social Protection Programs**

The Health System - Introduction

- Since 1988, Brazil has developed a dynamic, complex health system (the Unified Health System; SUS), which is based on the principles of **health as a citizen's right and the state's duty**.
- **The SUS aims to provide comprehensive, universal, preventive and curative care** through decentralized management and provision of health services, and promotes community participation at all administrative levels.
- **The Brazilian Health Sector Reform occurred at the same time as democratization**, and was spearheaded by health professionals and individuals in civil society movements and organisations.

Federal Constitution, art. 196 (1988)

- “health is a right of all citizens and a duty of the state, granted by social and economic policies aimed to reduce the risk of diseases and the universal and equitable access to actions and services to its promotion, protection and recovery”.



Some special features of the Brazilian Unified Health System - SUS

- Social Participation
- Expansion of human manpower in health
- The “mix” public-private
- Capacity building for health research
- Mass media and health promotion
- Regulation and medicines
- **Effective and equitable Primary Health Care – The Family Health Program**

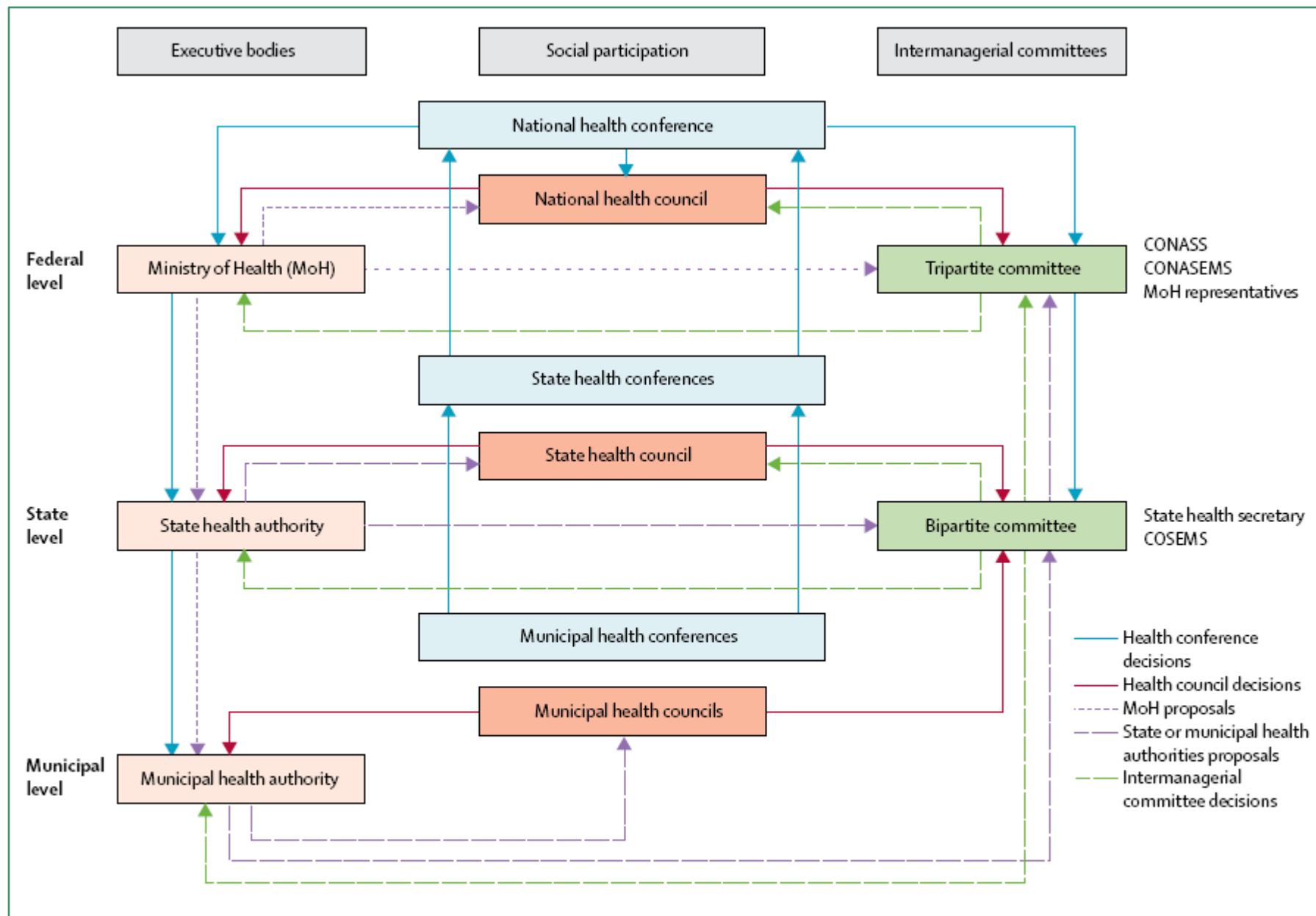


Figure 4: SUS policy-making and social participation process

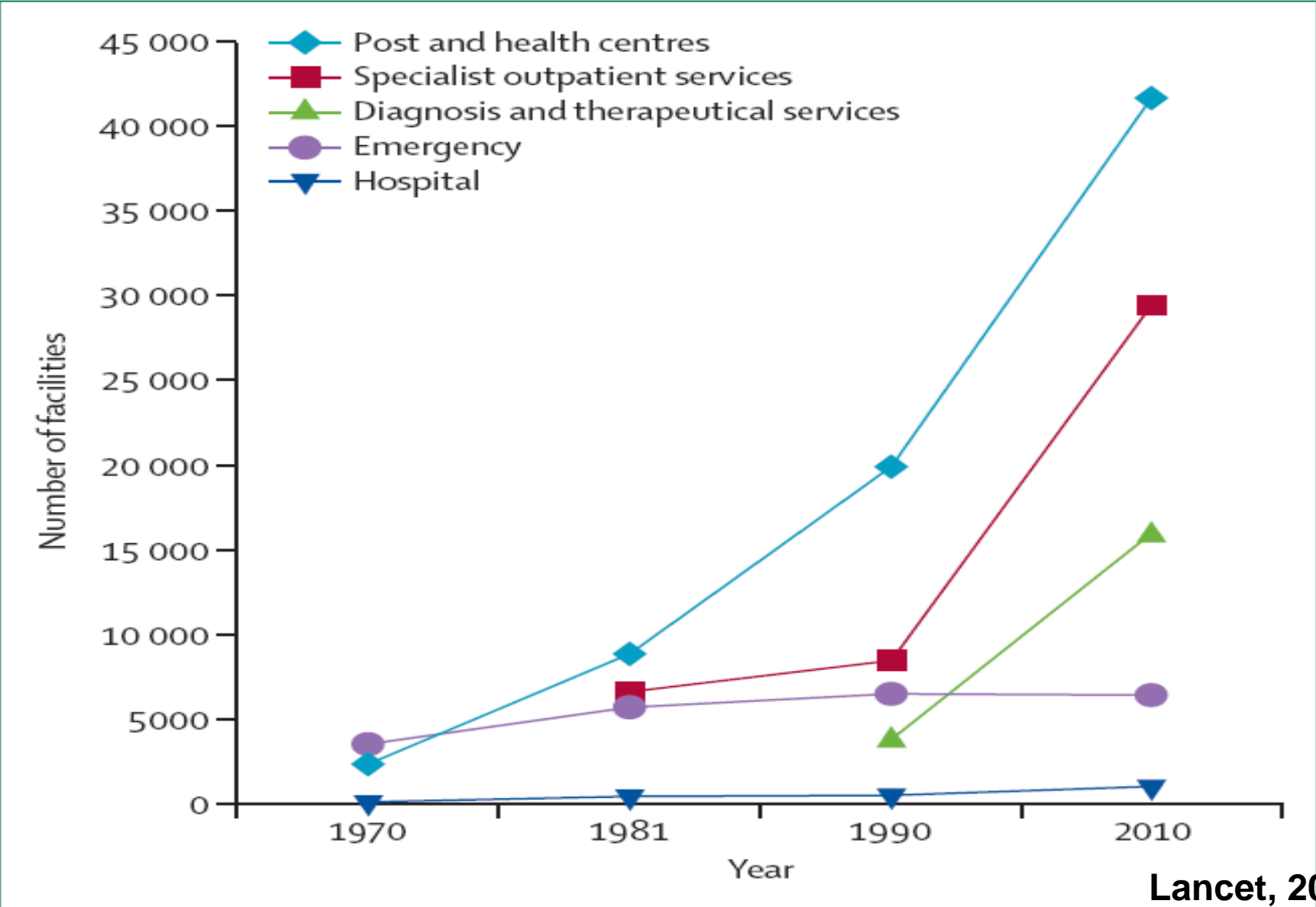
CONASS=national council of state officers. CONASEMS=national council of municipal health secretaries. CONSEMS=state council of municipal officers. Data from reference 47.

	R\$m (%)	% GDP
Taxes and social contributions	53 329 (39.05%)	3.14
Federal	27 181 (19.90%)	1.6
States	12 144 (8.89%)	0.7
Municipalities	14 003 (10.25%)	0.8
Private	83 230 (60.95%)	4.89
Family spending ^{66*}	65 325 (47.84%)	3.84
Employer company spending ^{60†}	17 905 (13.11%)	1.05
Total	136 559 (100%)‡	8.03

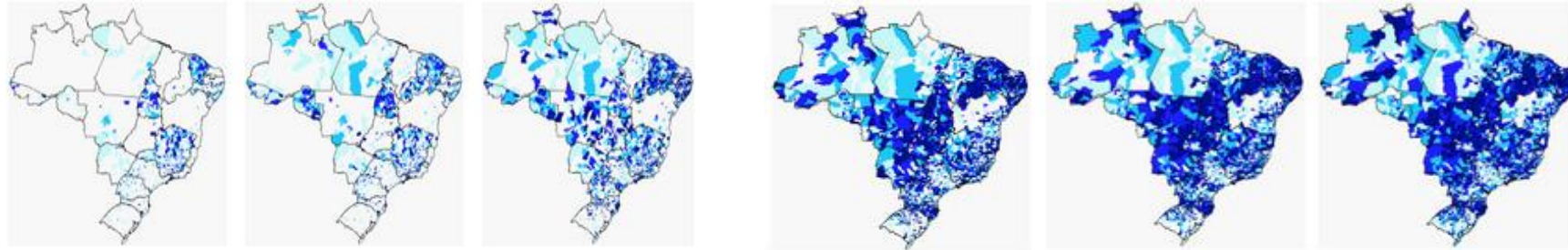
Data from references 6 and 7, unless otherwise stated. GDP=gross domestic product. *Estimated from the national household expense survey 2002-03 (corrected by the consumer-price inflation index). †Estimated from information on private health plan and insurance billing provided to the national health insurance regulatory agency. ‡GDP in 2006=R\$1.7 trillion.

Table 4: Estimated health spending in 2006

Expansion of the health-care facilities in Brazil, 1970-2010



Family Health Program



1998

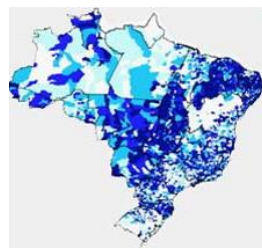
1999

2000

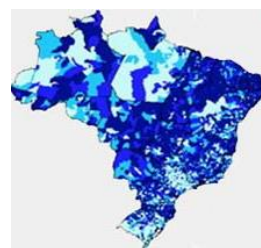
2002

2003

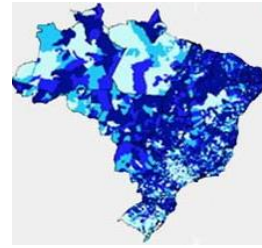
2004



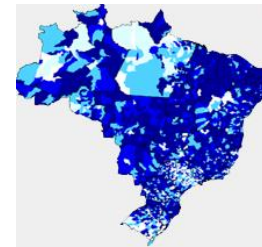
2005



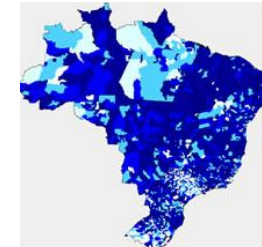
2006



2007



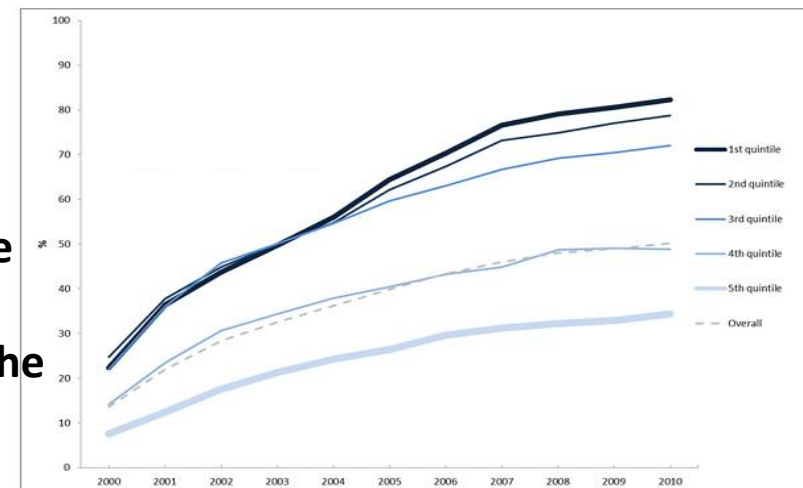
2008



2010



Average family health program coverage according to the municipal human development index (HDI-M) quintiles of the 5,507 Brazilian municipalities



Family Health Program (FHP)

FHP teams

- physician (1)
 - nurse (1)
 - nursing staff (2)
 - community health workers (CHW) (6)
 - oral health professionals (1)
- ▣ 1 team – 1,000 families
 - ▣ 1 CHW – 150 families

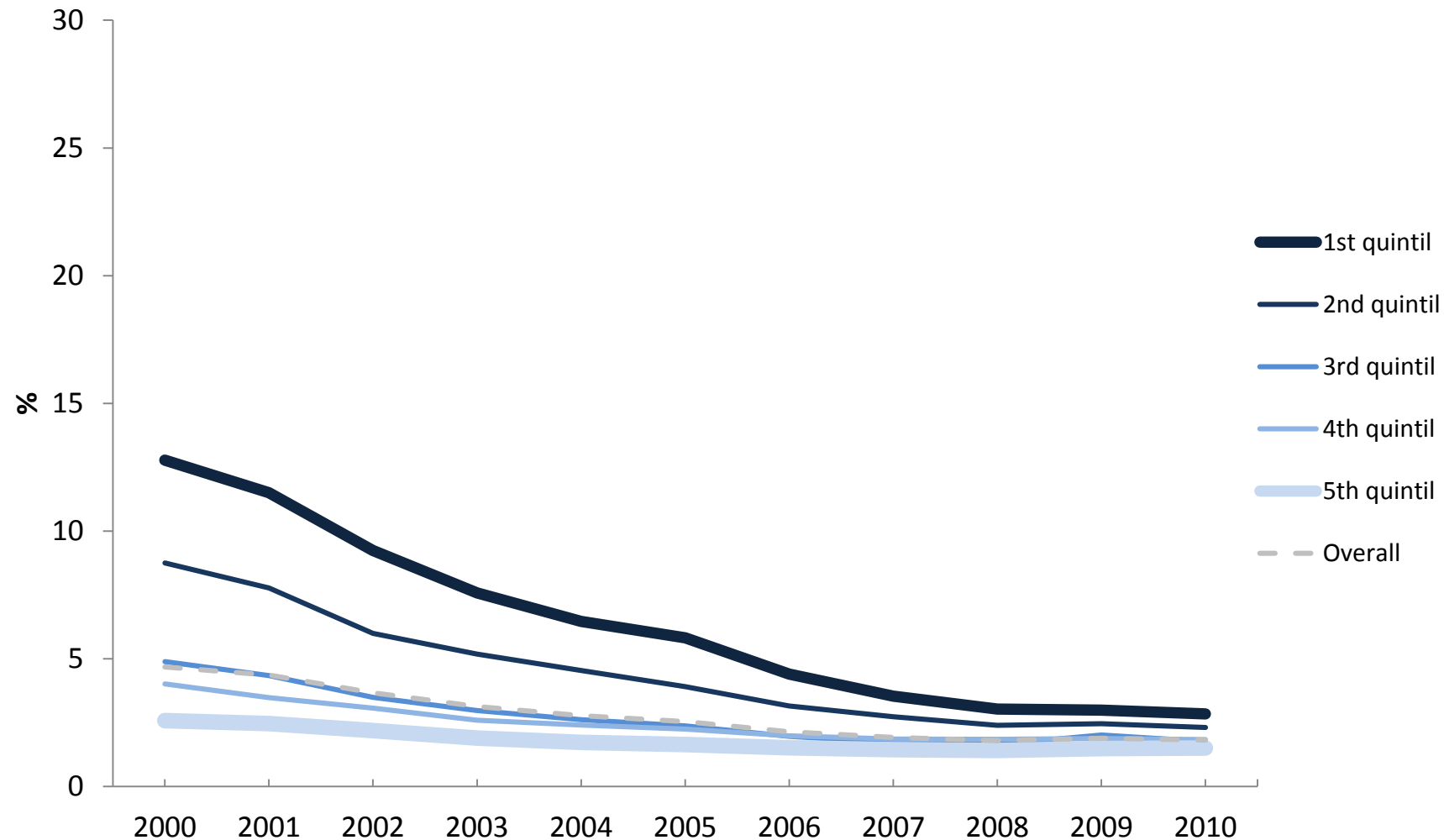
NASF multi-professional support teams

- NASF 1: at least five specialists linked to the minimum of 8 to 20 Family Health Teams.
- NASF 2: at least three specialists linked to the minimum of 3 Family Health Teams.

Impact of FHP : Summary

- Increase overall access and improve equity in Health Care
- Reduce overall childhood mortality and hospitalizations
- Reduce hospitalizations by causes sensitive to primary care
- Reduce mortality and hospitalizations by cardiovascular and cerebrovascular diseases

Trends in percentage of pregnant women without any prenatal visit at the moment of delivery according to quintiles of municipal HDI.



Data Source: MS/SVS/DASIS - Sistema de Informações sobre Nascidos Vivos - SINASC
Barreto et al, 2014

Impact of the Family Health Program on Infant Mortality in Brazilian Municipalities

Rosário Aquino, MD, PhD, Nelson F. de Oliveira, PhD, and Marcelo L. Damata, MD, PhD

Despite stagnation in economic growth, civil wars, and the HIV/AIDS epidemic, with the exception of a few countries in Africa and Asia, infant mortality continued to decline throughout the 1990s in developing countries, although the rate of decline was less than in the 2 previous decades.¹ Although social and economic factors are still fundamental determinants of these trends, even in contexts of recession and economic crisis, the persistent reduction in infant mortality draws attention to other factors. Support is increasing for the idea that the decline in infant mortality is the result of a broad range of determinants, many of which result from social policies that were implemented during this period.²⁻⁴ However, although different actions by health systems affect infant mortality, few studies have evaluated the total impact of programs, such as primary health care ones, that combine a set of interventions aimed at various risk factors.⁵

In Brazil, infant mortality rates have shown important declines in recent decades but are still higher than expected when compared with other countries with similar economies.⁶⁻⁹ Concerning the principal determinants of the observed downward trends, studies have pointed to the importance of implementing public policies in basic sanitation and nutrition; the sharp drop in fertility, especially in the 1980s; and the expansion of primary care services, especially maternal and child health programs.¹⁰⁻¹³

Since 1994, the Family Health Program (FHP) has been an important pillar in the reorganization of the Unified National Health System, whose organizational principles include universality and equity. By 2004, the program had been implemented in 82% of Brazil's 5563 municipalities, covering some 40% of the total national population. The FHP is centered on a family and community approach in which multiprofessional teams (including physicians, nurses, community health agents, and oral health professionals) work under the principles of comprehensive care.¹²

Objectives. We evaluated the effects of the Family Health Program (FHP), a strategy for reorganization of primary health care at a nationwide level, on declines in infant mortality at a municipality level.

Methods. We collected data on FHP coverage and infant mortality rates for 27 of 5563 Brazilian municipalities from 1990 to 2004. We performed a multivariate regression analysis for panel data with a negative binomial response by using fixed-effects models that controlled for demographic, social, and economic variables.

Results. We observed a statistically significant negative association between FHP coverage and infant mortality rate. After we controlled for potential confounders, the reduction in the infant mortality rate was 12.0%, 16.3%, and 22.2%, respectively for the 3 levels of FHP coverage. The effect of the FHP was greater in municipalities with a higher infant mortality rate and lower human development index at the beginning of the study period.

Conclusions. The FHP has an important effect on reducing the infant mortality rate in Brazilian municipalities from 1990 to 2004. The FHP may also contribute toward reducing health inequalities. *Am J Public Health* 2006;96:87-93. doi:10.2195/ajph.2005.1274804

Each FHP team is responsible for permanent and systematic follow-up of a given number of families residing in a circumscribed area and for establishing ties of commitment and shared responsibility.¹² Priority actions on the FHP include promotion, prevention, and care for mothers and children, such as the promotion of breastfeeding, prenatal care, neonatal and under-5 care, immunization, and other actions toward prevention, and management of infectious diseases such as diarrhea.¹²

The year 2008 marks the 30th anniversary of the Alma-Ata Declaration, which advocated primary health care based on the principles of community participation and the use of appropriate technology in health promotion and disease prevention and control. Worldwide, primary health care principles have received great attention, and the need to review and adapt those principles in different contexts has been stressed. Several international initiatives provide opportunities to discuss and evaluate countries' efforts to provide health for all and produce recommendations about the role of primary health care given the complexity of today's health challenges.¹³⁻¹⁶

In our study, we evaluated the effect of the implementation of the FHP on infant mortality rates in Brazilian municipalities from 1990 to 2004. The FHP strategy in Brazil and the availability of nationwide data provide a unique opportunity for evaluating the impact of a comprehensive program, rather than merely isolated health measures.

METHODS

We adapted an ecological and longitudinal approach in which we used a panel data or longitudinal data model. A panel data set¹⁷ contains observations on multiple entities (eg, individuals, cities, counties) for which each entity is observed at 2 or more points in time. In our study, the municipality (county) was the unit of analysis, and time-series data were assembled from several databases for 1990 to 2004.

We analyzed the quality of information on births and deaths for all 2964 Brazilian municipalities and included municipalities in the study only if they presented adequate information on infant deaths for the period 1990 to 2004.

EVIDENCE BASED PUBLIC HEALTH POLICY AND PRACTICE

Evaluation of the impact of the Family Health Program on infant mortality in Brazil, 1990–2002

James Macinko, Frederico C Guanais, Maria de Fátima Marinho de Souza

J Epidemiol Community Health 2006;60:13–19. doi: 10.1136/jech.2005.038323

Objective: To use publicly available secondary data to assess the impact of Brazil's Family Health Program on state level infant mortality rates (IMR) during the 1990s.

Design: Longitudinal ecological analysis using panel data from secondary sources. Analyses controlled for state level measures of access to clean water and sanitation, average income, women's literacy and fertility, physicians and nurses per 10 000 population, and hospital beds per 1000 population. Additional analyses controlled for immunisation coverage and tested interactions between Family Health Program and proportionate mortality from diarrhoea and acute respiratory infections.

Setting: 13 years (1990–2002) of data from 27 Brazilian states.

Main results: From 1990 to 2002 IMR declined from 49.7 to 28.9 per 1000 live births. During the same period average Family Health Program coverage increased from 0% to 36%. A 10% increase in Family Health Program coverage was associated with a 4.5% decrease in IMR, controlling for all other health determinants ($p < 0.01$). Access to clean water and hospital beds per 1000 were negatively associated with IMR, while female illiteracy, fertility rates, and mean income were positively associated with IMR. Examination of interactions between Family Health Program coverage and diarrhoea deaths suggests the programme may reduce IMR at least partly through reductions in diarrhoea deaths. Interactions with deaths from acute respiratory infections were ambiguous.

Conclusions: The Family Health Program is associated with reduced IMR, suggesting it is an important, although not unique, contributor to declining infant mortality in Brazil. Existing secondary datasets provide an important tool for evaluation of the effectiveness of health services in Brazil.

See end of article for authors' affiliations

Correspondence to: Professor J Macinko, Department of Nutrition, Food Studies, and Public Health, New York University, 35 West 4th Street, 12th Floor, New York, NY 10012-1172 USA; james.macinko@nyu.edu

Accepted for publication 7 June 2005

Impact of the Family Health Program on Infant Mortality in Brazilian Municipalities

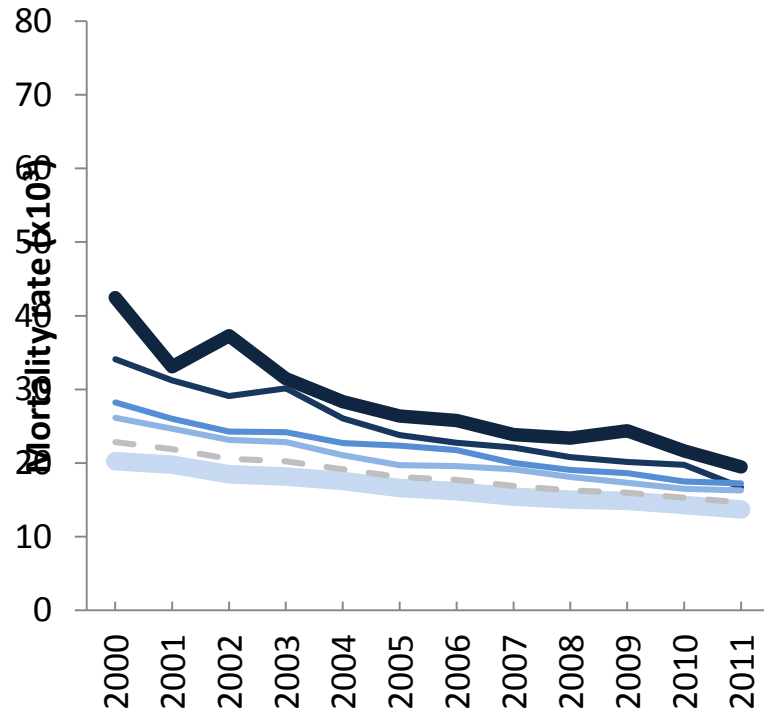
Am J Public Health. 2009;99(1):87-93

† Rosana Aquino. MD. PhD. Nelson F. de Oliveira. PhD. and Mauricio L. Barreto. MD. PhD

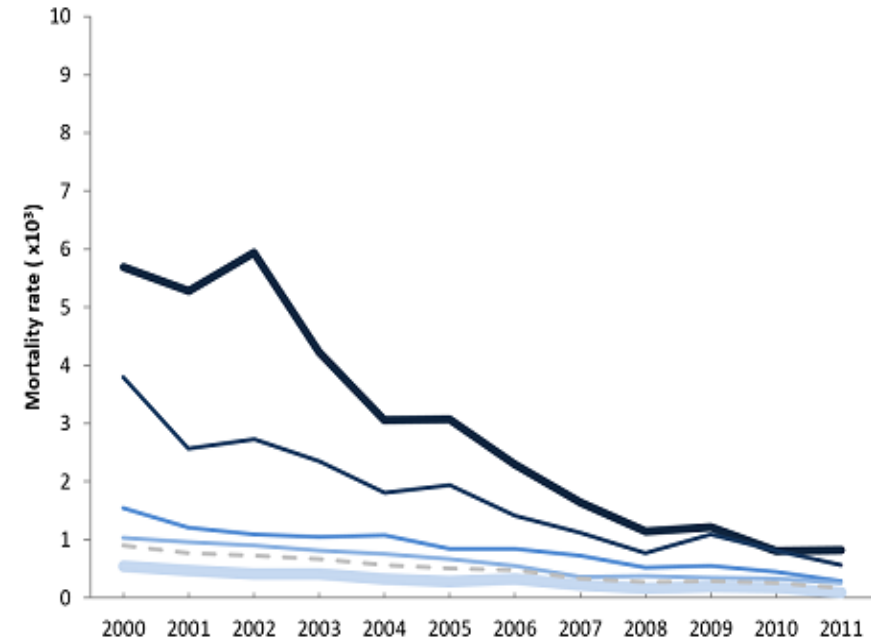
Fixed-Effects Models for the Bivariate Association Between Infant Mortality Rate and Family Health Program Coverage: Brazil, 1996–2004

Variables	Infant Mortality Rate		Neonatal Mortality Rate, RR (95% CI)	Postneonatal Mortality Rate, RR (95% CI)
	Crude RR (95% CI)	Adjusted RR (95% CI)		
FHP coverage				
No FHP ^a (Ref)	1.00	1.00	1.00	1.00
Incipient FHP ^b	0.84 (0.82, 0.85)	0.87 (0.86, 0.89)	0.90 (0.89, 0.92)	0.82 (0.80, 0.84)
Intermediate FHP ^c	0.77 (0.75, 0.79)	0.84 (0.82, 0.86)	0.86 (0.84, 0.89)	0.78 (0.75, 0.81)
Consolidate FHP ^d	0.68 (0.64, 0.73)	0.78 (0.73, 0.83)	0.81 (0.76, 0.88)	0.69 (0.62, 0.76)
Total fertility rate ≤2.4 children per childbearing-age woman		0.90 (0.87, 0.93)	0.92 (0.88, 0.95)	0.88 (0.84, 0.92)
Per capita income ≥BR \$258.00		0.92 (0.89, 0.94)	0.93 (0.89, 0.96)	0.89 (0.85, 0.93)
Functional illiterates rate ≤26.0% of individuals aged ≥15 y		0.87 (0.84, 0.89)	0.89 (0.86, 0.92)	0.83 (0.79, 0.87)
Percentage of persons living in households with running water ≥96.0%		0.91 (0.89, 0.93)	0.93 (0.90, 0.95)	0.88 (0.85, 0.91)
Gini index ^e ≤0.55		1.18 (1.14, 1.22)	1.21 (1.16, 1.26)	1.10 (1.05, 1.16)
Local hospitalization		0.88 (0.82, 0.96)	0.88 (0.80, 0.96)	0.94 (0.84, 1.06)

Under-five overall mortality rates according to HDI quintiles of municipalities



Under-five mortality rates from diarrhoea according to IDH quintiles of municipalities



- 1st quintil
- 2nd quintil
- 3rd quintil
- 4th quintil
- 5th quintil
- Overall

Trends in Primary Health Care-sensitive Conditions in Brazil

The Role of the Family Health Program (Project ICSAP-Brazil)

Ines Dourado, MD, MPH, PhD, Veneza B. Oliveira, MD, PhD,† Rosana Aquino, MD, PhD,**

Palmira Bonolo, MD, PhD,‡ Maria Fernanda Lima-Costa, MD, PhD,†

Maria Guadalupe Medina, MD, PhD, Eduardo Mota, MD, PhD,**

Maria A. Turci, MSc,† and James Macinko, PhD§

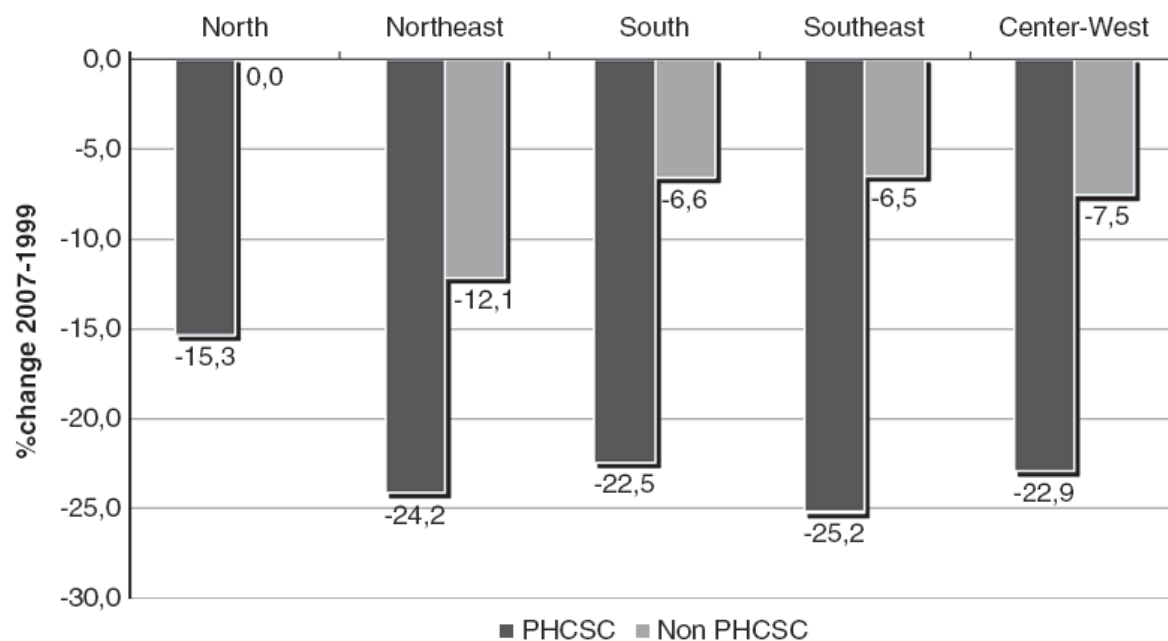


FIGURE 2. Percentage change between 1999 and 2007 in hospital admissions sensitive to primary healthcare (PHCSC) and nonsensitive (non-PHCSC) per 10,000 inhabitants aged below 80 years, by Brazilian Region. PHCSC indicates primary healthcare-sensitive conditions.

Impact of primary health care on mortality from heart and cerebrovascular diseases in Brazil: a nationwide analysis of longitudinal data

 OPEN ACCESS

BMJ 2014;348:g4014 doi: 10.1136/bmj.g4014

Davide Rasella *postdoctoral researcher*¹, Michael O Harhay *PhD student*³, Marina L Pamponet *researcher*¹, Rosana Aquino *associate professor*^{1,2}, Mauricio L Barreto *professor*^{1,2}

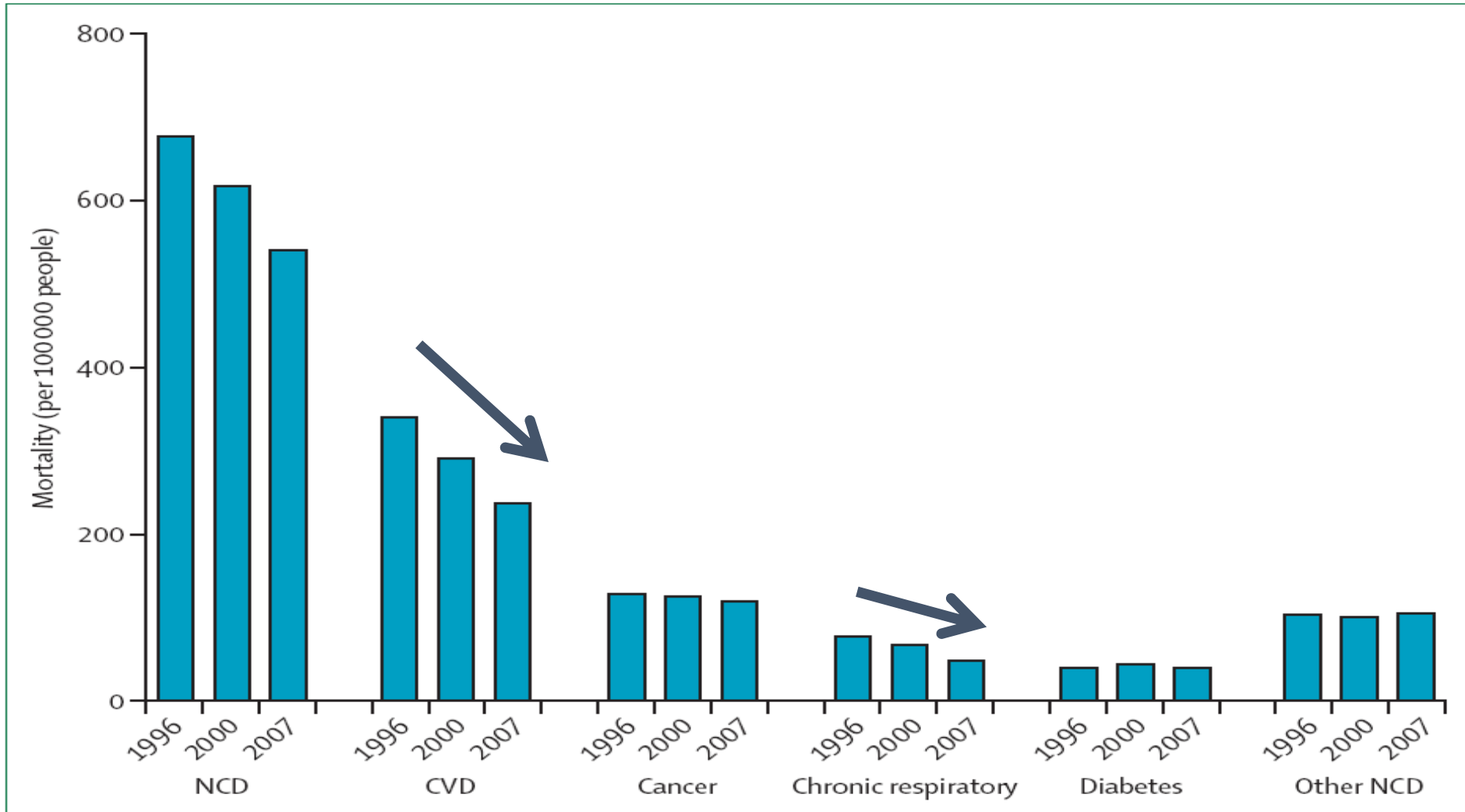
¹Instituto de Saúde Coletiva, Federal University of Bahia, Rua Basílio da Gama, s/n, Salvador, Bahia, Brazil; ²Ciência, Tecnologia e Inovação em Saúde, INCT-CITECS, Salvador, Bahia, Brazil; ³Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania School of Medicine, Philadelphia, USA

Fixed effect negative binomial models for crude and adjusted association between standardised mortality rates and annual coverage with Family Health Program (FHP) in municipalities in Brazil, 2000-09

Variables	Cerebrovascular diseases mortality rate		Heart diseases mortality rate	
	Crude rate ratio (95% CI)	Adjusted rate ratio (95% CI)	Crude rate ratio (95% CI)	Adjusted rate ratio (95% CI)
FHP population coverage:				
No coverage	1	1	1	1
Incipient (>0 to <30%)	0.94 (0.92 to 0.97)	0.98 (0.95 to 1.00)	0.93 (0.89 to 0.94)	0.98 (0.94 to 1.02)
Intermediate (≥30% to <70%)	0.79 (0.76 to 0.81)	0.86 (0.83 to 0.89)	0.73 (0.70 to 0.76)	0.81 (0.78 to 0.85)
Consolidated (≥70%)	0.71 (0.69 to 0.74)	0.82 (0.79 to 0.86)	0.66 (0.63 to 0.69)	0.79 (0.75 to 0.80)

Trends in non-communicable disease mortality in Brazil 1996 - 2000 - 2007

Lancet, 2011



Age-standardised to the WHO standard population, 18 corrected for under-reporting, with redistribution of ill-defined causes of death pro rata across non-external causes.

Social Protection Programs in Brazil



Bolsa Família Program

(Conditional Cash Transfer)

† Great Expansion - 4.1 million families served in 2004 to 13.4 million in 2011 (MI, 2011), approximately 44 million people (23% of the population).

† Principal axes:

- Transfer income, which promotes immediate relief to poverty
- Conditionalities that encourage access to education and health
- Additional programs to create conditions for families be out of the program.

† Intended for extremely poor households

† Benefits: R\$ 32 to a maximum of R\$ 306.

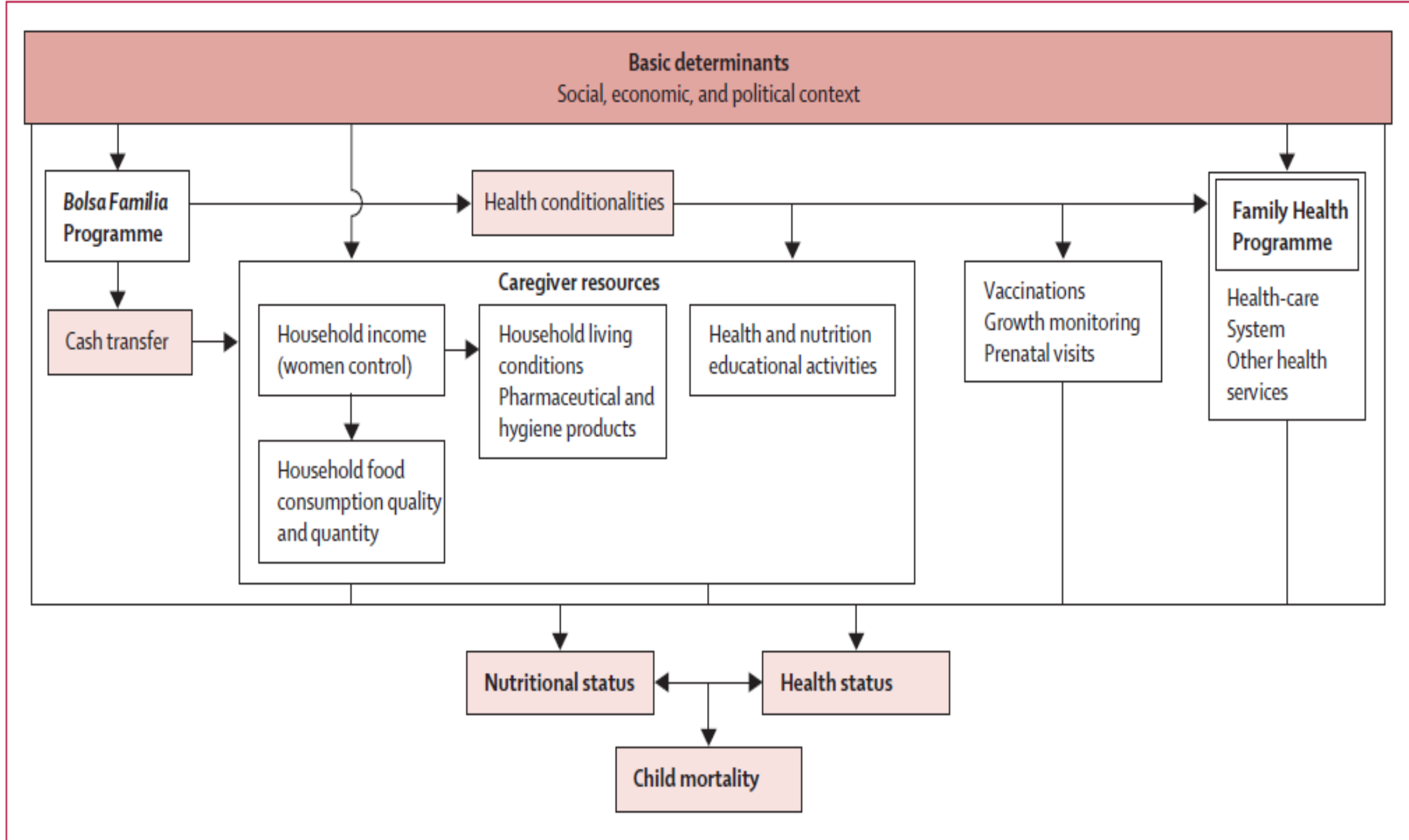


Figure: Mechanisms linking the *Bolsa Familia* Programme and the Family Health Programme to child nutritional and health outcomes

Effect of a conditional cash transfer programme on childhood mortality: a nationwide analysis of Brazilian municipalities



Daive Rasella, Rosana Aquino, Carlos A T Santos, Rômulo Paes-Sousa, Mauricio L Barreto

Summary

Background In the past 15 years, Brazil has undergone notable social and public health changes, including a large reduction in child mortality. The *Bolsa Família* Programme (BFP) is a widespread conditional cash transfer programme, launched in 2003, which transfers cash to poor households (maximum income US\$70 per person a month) when they comply with conditions related to health and education. Transfers range from \$18 to \$175 per month, depending on the income and composition of the family. We aimed to assess the effect of the BFP on deaths of children younger than 5 years (under-5), overall and resulting from specific causes associated with poverty: malnutrition, diarrhoea, and lower respiratory infections.

Methods The study had a mixed ecological design. It covered the period from 2004–09 and included 2853 (of 5565) municipalities with death and livebirth statistics of adequate quality. We used government sources to calculate all-cause under-5 mortality rates and under-5 mortality rates for selected causes. BFP coverage was classified as low (0·0–17·1%), intermediate (17·2–32·0%), high (>32·0%), or consolidated (>32·0% and target population coverage \geq 100% for at least 4 years). We did multivariable regression analyses of panel data with fixed-effects negative binomial models, adjusted for relevant social and economic covariates, and for the effect of the largest primary health-care scheme in the country (Family Health Programme).

Findings Under-5 mortality rate, overall and resulting from poverty-related causes, decreased as BFP coverage increased. The rate ratios (RR) for the effect of the BFP on overall under-5 mortality rate were 0·94 (95% CI 0·92–0·96) for intermediate coverage, 0·88 (0·85–0·91) for high coverage, and 0·83 (0·79–0·88) for consolidated coverage. The effect of consolidated BFP coverage was highest on under-5 mortality resulting from malnutrition (RR 0·35; 95% CI 0·24–0·50) and diarrhoea (0·47; 0·37–0·61).

Interpretation A conditional cash transfer programme can greatly contribute to a decrease in childhood mortality overall, and in particular for deaths attributable to poverty-related causes such as malnutrition and diarrhoea, in a large middle-income country such as Brazil.

Funding National Institutes of Science and Technology Programme, Ministry of Science and Technology, and Council for Scientific and Technological Development Programme (CNPq), Brazil

Published Online

May 15, 2013

[http://dx.doi.org/10.1016/](http://dx.doi.org/10.1016/S0140-6736(13)60715-1)

[S0140-6736\(13\)60715-1](http://dx.doi.org/10.1016/S0140-6736(13)60715-1)

See Online/Comment

[http://dx.doi.org/10.1016/](http://dx.doi.org/10.1016/S0140-6736(13)61035-1)

[S0140-6736\(13\)61035-1](http://dx.doi.org/10.1016/S0140-6736(13)61035-1)

Instituto de Saúde Coletiva,
Federal University of Bahia,

Salvador, Bahia, Brazil

(D Rasella PhD, R Aquino MD,

C A T Santos PhD,

Prof M L Barreto MD);

Department of Exact Sciences,

State University of Feira de

Santana, Feira de Santana,

Bahia, Brazil (C A T Santos);

Institute of Development

Studies, University of Sussex,

Brighton, UK

(R Paes-Sousa MD); and Ciência,

Tecnologia e Inovação em

Saúde, INCT-CITECS, Salvador,

Bahia, Brazil (Prof M L Barreto)

Correspondence to:

Prof Mauricio Barreto, Instituto

de Saúde Coletiva, Universidade

Federal de Bahia,

Canela, 41110-040,

Salvador, Bahia, Brazil

mauricio@ufba.br

	BFP models		FHP models		FHP and BFP (adjusted)
	Crude	Adjusted	Crude	Adjusted	
BFP population coverage					
Low (0-0-17.1%)	1.00	1.00	..	..	1.00
Intermediate (17.2-32.0%)	0.91 (0.90-0.93)	0.93 (0.91-0.95)	..	..	0.94 (0.92-0.96)
High (>32.0%)	0.82 (0.80-0.85)	0.86 (0.83-0.89)	..	..	0.88 (0.85-0.91)
Consolidated (>32.0% and TPC ≥100% for at least 4 years)	0.76 (0.72-0.80)	0.81 (0.76-0.85)	..	..	0.83 (0.79-0.88)
FHP municipality population coverage					
No FHP (0-0%)	..	..	1.00	1.00	1.00
Incipient (<30%)	..	..	0.97 (0.92-1.02)	0.98 (0.94-1.03)	0.99 (0.94-1.04)
Intermediate (≥30%)	..	..	0.89 (0.85-0.93)	0.91 (0.87-0.96)	0.93 (0.88-0.97)
Consolidated (≥70% and implemented for at least 4 years)	..	..	0.81 (0.77-0.86)	0.85 (0.80-0.90)	0.88 (0.83-0.93)
Income per person (monthly, >BR\$380)*	..	0.94 (0.92-0.97)	..	0.93 (0.91-0.96)	0.95 (0.92-0.97)
Proportion of municipality population eligible for BFP* >22.4%	..	1.07 (1.02-1.11)	..	1.10 (1.06-1.15)	1.07 (1.03-1.12)
Proportion of individuals living in households with inadequate sanitation* <16.7%	..	1.10 (1.05-1.15)	..	1.11 (1.06-1.16)	1.10 (1.05-1.15)
Proportion of individuals older than 15 years who are illiterate† >11.1%	..	1.04 (1.00-1.09)	..	1.05 (1.01-1.10)	1.04 (1.00-1.08)
Total fertility rate† >2.32	..	1.08 (1.04-1.11)	..	1.08 (1.05-1.12)	1.07 (1.03-1.10)
Rate of admission to hospital (per 100 inhabitants)* >4.27	..	1.02 (0.99-1.04)	..	1.02 (0.99-1.04)	1.01 (0.99-1.04)
Number of observations	17 118	17 118	17 118	17 118	17 118
Number of municipalities	2853	2853	2853	2853	2853

Data are rate ratio (95% CI) unless otherwise specified. TPC=target population coverage. *Cutoff is median value. †Cutoff taken from Rasella and colleagues, 2010.¹⁷

Table 2: Fixed-effect negative binomial models for association between under-5 mortality rates and Bolsa Família Programme (BFP) and Family Health Programme (FHP) coverage

Successes and failures in the control of infectious diseases in Brazil: social and environmental context, policies, interventions, and research needs

Mauricio L Barreto, M Gloria Teixeira, Francisco I Bastos, Ricardo A A Ximenes, Rita B Barata, Laura C Rodrigues

Lancet 2011;377:1877-89.

Successes

- Diseases preventable by vaccination
- Diarrhea
- Chagas' Disease

Partial Successes

- *HIV/AIDS*
- *Hepatitis A and B*
- *Leprosy*
- *Tuberculosis*
- *Schistosomiasis*
- *Malaria*

Failures

- Dengue
- *Visceral Leishmaniasis*

Successes - why?

- Control of diseases such as diarrhea, cholera, Chagas' disease, and those preventable by vaccination has been successful through efficient public policies and concerted efforts from different levels of government and civil society. For these diseases, policies dealt with key determinants (eg, the quality of water and basic sanitation, vector control), provided access to preventive resources (such as vaccines), and successfully integrated health policies with broader social policies.

Failures: why?

- Diseases for which control has failed (such as dengue fever and visceral leishmaniasis) are vector-borne diseases with changing epidemiological profiles and complex transmission patterns related to adverse environmental, social, or economic, and major difficulties in treatment and lack of vaccines.
- The control of disease vectors to be successful must be fully integrated into broad policies that incorporate the mobilization of society, health and environmental education, improvements in habitation and sewerage, and attempts to avoid further deforestation

Key messages

- Since 1988, Brazil has developed a dynamic, complex health system (the Unified Health System; SUS), which is based on the principles of health as a citizen's right and the state's duty. The SUS aims to provide comprehensive, universal preventive and curative care through decentralised management and provision of health services, and promotes community participation at all administrative levels.
- The Brazilian Health Sector Reform occurred at the same time as democratization, and was spearheaded by health professionals and individuals in civil society movements and organisations.

Key messages

- Implementation of the SUS has been complicated by underfunding.
- Despite limitations, the SUS has managed to vastly improve access to primary and emergency care, reach universal coverage of vaccination and prenatal care, and invest heavily in the expansion of human resources and technology, including major efforts to produce the country's most essential pharmaceutical needs.

Key messages

- Important achievement has been the improvement observed in the health conditions of the Brazilian population, the result of the synergic effect of a comprehensive set of social policies and the increase in coverage and access to the health services.

Great challenges continue to exist...

- **Reach special groups**
- Financing the SUS
- External dependency of advanced health technologies
- Improve the quality of care
- The challenge **of human resources**
- The professional corporatism
- Judicialization of health
- Urbanization and Health
- To mitigate the effects of climate changes and other environmental hazards
- Health problems with high or growing incidence

Brazil's health system woes worsen in economic crisis

Budget cuts and political instability are exacerbating existing problems in Brazil's public health system amid increasing patient demand. Jonathan Watts reports from Rio de Janeiro.

Austerity threatens universal health coverage in Brazil

Michael Temer, Brazil's new interim president from the centre-right Brazilian Democratic Movement Party (PMDB), has unveiled an agenda of austerity measures to stimulate economic growth. In the manifesto *Uma Ponte Para Futuro* (October, 2015), he announced plans to reduce public spending, including the education and health-care sector. The minimum budget guaranteed by the constitution (3.8% of gross domestic product at present) would be abolished. The new Health Minister, Ricardo Barros, has revealed plans to end the monitoring of private health-care quality by the National Supplementary Health Agency (Agência Nacional de Saúde Suplementar), while encouraging Brazilian citizens

To conclude

The most important lesson from the Brazilian experience is that the ultimate challenge in reforming a health system and the health conditions of a population is political. It requires significant and continued effort to build capacity but in front of that the continuous engagement of the society as a whole in securing the right to health for all.

Obrigado!
Thank you!
谢谢!
謝謝!

mauricio.barreto@bahia.fiocruz.br