Current challenges to healthcare in Brazil

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Conflict of Interest: None
Brazil – country profile

- Population (2014): 200 million
- World's seventh largest economy (2014)
- 27 States
- 5,570 Municipalities
- Area: 8.5 million km²
- HDI (2010): 0.699
- Life expectancy (2010): 73y
Aging phenomena of Brazilian population (average age)
Brazil – Urbanization

Constitution of the territories of different amplitudes with socio-spatial segregation:
- Huge income inequality
- Delineation of poverty areas
- Deficiency in sanitation, public transportation, lack of health equipments and schools, large risks of geological accidents

![Urbanization Chart]

Urbanization (%)

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<td></td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>120</td>
<td>140</td>
<td>160</td>
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Years
Causes of death in Brazil, 1990-2013

<table>
<thead>
<tr>
<th>1990 rank</th>
<th>2013 rank</th>
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<tbody>
<tr>
<td>1 Cardiovascular diseases</td>
<td>1 Cardiovascular diseases</td>
</tr>
<tr>
<td>2 Diarrhea/LRI/other</td>
<td>2 Neoplasms</td>
</tr>
<tr>
<td>3 Neoplasms</td>
<td>3 Diabetes/urog/blood/endo</td>
</tr>
<tr>
<td>4 Neonatal disorders</td>
<td>4 Diarrhea/LRI/other</td>
</tr>
<tr>
<td>5 Self-harm &amp; violence</td>
<td>5 Chronic respiratory</td>
</tr>
<tr>
<td>6 Diabetes/urog/blood/endo</td>
<td>6 Self-harm &amp; violence</td>
</tr>
<tr>
<td>7 Transport injuries</td>
<td>7 Neurological disorders</td>
</tr>
<tr>
<td>8 Chronic respiratory</td>
<td>8 Transport injuries</td>
</tr>
<tr>
<td>9 Unintentional inj</td>
<td>9 Unintentional inj</td>
</tr>
<tr>
<td>10 Cirrhosis</td>
<td>10 Cirrhosis</td>
</tr>
<tr>
<td>11 Neurological disorders</td>
<td>11 Digestive diseases</td>
</tr>
<tr>
<td>12 Other non-communicable</td>
<td>12 Neonatal disorders</td>
</tr>
<tr>
<td>13 Digestive diseases</td>
<td>13 Other non-communicable</td>
</tr>
<tr>
<td>14 Nutritional deficiencies</td>
<td>14 HIV/AIDS &amp; tuberculosis</td>
</tr>
<tr>
<td>15 HIV/AIDS &amp; tuberculosis</td>
<td>15 Nutritional deficiencies</td>
</tr>
<tr>
<td>16 NTDs &amp; malaria</td>
<td>16 Mental &amp; substance use</td>
</tr>
<tr>
<td>17 Other group I</td>
<td>17 NTDs &amp; malaria</td>
</tr>
<tr>
<td>18 Mental &amp; substance use</td>
<td>18 Musculoskeletal disorders</td>
</tr>
<tr>
<td>19 Maternal disorders</td>
<td>19 Other group I</td>
</tr>
<tr>
<td>20 Musculoskeletal disorders</td>
<td>20 Maternal disorders</td>
</tr>
<tr>
<td>21 War &amp; disaster</td>
<td>21 War &amp; disaster</td>
</tr>
</tbody>
</table>

http://vizhub.healthdata.org/gbd-compare/
### Burden of disease in Brazil, 1990-2013

#### 1990 rank
- 1. Diarrhea/LRI/other
- 2. Neonatal disorders
- 3. Cardiovascular diseases
- 4. Mental & substance use
- 5. Other non-communicable
- 6. Neoplasms
- 7. Self-harm & violence
- 8. Musculoskeletal disorders
- 9. Transport injuries
- 10. Diabetes/urog/blood/endo
- 11. Unintentional inj
- 12. Chronic respiratory
- 13. Nutritional deficiencies
- 14. Neurological disorders
- 15. Cirrhosis
- 16. HIV/AIDS & tuberculosis
- 17. Other group I
- 18. NTDs & malaria
- 19. Digestive diseases
- 20. Maternal disorders
- 21. War & disaster

#### 2013 rank
- 1. Cardiovascular diseases
- 2. Mental & substance use
- 3. Neoplasms
- 4. Other non-communicable
- 5. Musculoskeletal disorders
- 6. Diabetes/urog/blood/endo
- 7. Self-harm & violence
- 8. Chronic respiratory
- 9. Neonatal disorders
- 10. Transport injuries
- 11. Diarrhea/LRI/other
- 12. Neurological disorders
- 13. Unintentional inj
- 14. Cirrhosis
- 15. Digestive diseases
- 16. HIV/AIDS & tuberculosis
- 17. Nutritional deficiencies
- 18. NTDs & malaria
- 19. Other group I
- 20. Maternal disorders
- 21. War & disaster

Trends is proportional mortality by group of causes (Brazil, 1930-2007)
Trends is proportional mortality by specific infectious disease causes (Brazil, 1980-2008)
The Unified Health System (SUS)

BRAZILIAN HEALTH SYSTEM
Brazilian health system

The health system has two subsectors:

1. the public subsector (SUS) - financed and provided by the state at the federal, state, and municipal levels, including military health services;

2. the private and private health insurance (for-profit and non-profit) subsector - financed in various ways with public or private funds.

The National Supplementary Health Agency was created in 2000 to provide legal and administrative regulation of the private health insurance market.

Population can use services in all three subsectors, depending on ease of access or their ability to pay.
The Unified Health System (SUS)

- It was created by the 1988 Federal Constitution based on the principles of health as a citizen’s right and the state’s duty
- In 1990, a framework health-care law (Law 8080/90) was approved, specifying the attributions and organization of the SUS
- Principles: universality, equity, decentralization, community participation
- Responsible to ensure continuity of care to all Brazilians at the primary, specialist outpatient, and hospital levels
Figure 4: SUS policy-making and social participation process

Paim et al., 2011
The Unified Health System (SUS)

- Finance: federal (~50%), state (12%) and municipality (15%)
- Federal: responsible for national policies
- State and municipalities: responsible for implementation and maintenance

The SUS is responsible for 80% of the population and consumes 45% of total expenditure on health in the country.

The private health insurance is responsible for 20% of the population and consumes 55% of total expenditure on health.

Source: Ministry of Health and Federal Council of Medicine
Family Health Strategy

• Created in 1994 to improve the access of all citizens to health care

• Family health teams are located at PSF clinics, and are assigned to specific geographical areas and defined populations of 600 – 1000 families

• Health services and health promotion activities take place at health facilities, in patients’ homes, and in the community.

Paim et al, 2011
Family Health Team

- Around 33,000 teams and 280,000 Community health agents (2012)
- Present in around 90% of the Brazilian municipalities

Source: Ministry of Health
Evolution of Family Health Teams coverage

Source: Ministry of Health
Secondary care

The SUS is highly dependent on contracts with the private sector for medium complexity procedures especially for diagnostic and therapeutic support services (CT, MRI).

Psychiatric Reform Law – decrease of beds and increase of psychosocial care centres.

Specialized centres for dental care, counseling for HIV/AIDS and other sexually transmitted diseases, workers’ health, rehabilitation services and 24 h emergency care clinics.

The emergency mobile care service was present in 1150 municipalities, covering 55% of Brazil’s population in 2010.

Tertiary and hospital care

Includes some high-cost procedures, which are done predominantly by contracted private sector providers and public teaching hospitals.
Health Care Networks

Qualification/Education
Information
Regulation
Health Promotion and Surveillance

Stork Network
Mental Health Network
Urgency and Emergency Attention Network
Chronic Disease Network

PRIMARY CARE
Some SUS numbers

- 190 million persons assisted
- 152 million persons: SUS is only acess to health care (80%)
- 2,036 public Hospitals (31%)
- 11,109,834 SUS hospital admissions in 2009
- 45,000 primary care units
- 2,8 billions outpatients procedures/year
- 19,000 transplants/year
- 236,000 cardiac surgeries/year
- 9,7 millions chemotherapy and radiotherapy procedures/year

Best results of SUS

Access to health care in Brazil improved substantially after the creation of the SUS due to increase of the health workforce and strengthening of primary care clinics.

Reduction of hospitalizations due to conditions sensitive to primary care.

National Immunization Program - one of Brazil’s most successful public health programs, as shown by its high vaccination coverage and sustainability.

Decrease in postneonatal infant mortality rates.

HIV/AIDS prevention and control program.

Production of most of the country’s pharmaceutical needs.

Availability of basic drugs for the patients.
Best results of SUS

Good quality of data regarding deaths, hospitalizations, diseases of compulsory notification and specific diseases (ex. AIDS)

Participation of the population through the health councils

Strict health surveillance patterns and active services

Establishment of a national emergency system, including ambulances and emergency units

National public transplantation program

Funding medical and epidemiological research

Health technology assessment agency for evaluating new technologies incorporations
Some challenges of Brazilian healthcare

• Triple burden of disease (infection/NCD/violence)
• Underfunding
  • Brazil: US$466/year/per capita;
• Quality of care
• Human resources (number, qualification)
• Access of deprived populations
Some new challenges of Brazilian healthcare
Some new challenges of Brazilian healthcare
Some new challenges of Brazilian healthcare

Brazil's interim government wastes no time erasing Workers' party influence

In just a week, centre-right government has scaled back social policies as ideological shift already has sparked outrage and fear of going backward

The Slide of Brazil's GDP
Percentage change from same quarter in prior year
Some new challenges of Brazilian healthcare

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.

With Brazil in political crisis, science and the environment are on the chopping block.
SOLUTION
Some possible alternatives for Brazilian Health and Science crisis
BRAZILIAN SCIENCE AND EDUCATION THREATENED.
Some possible alternatives for Brazilian Health and Science crisis

Chamadas Públicas

As Chamadas Públicas para projetos de pesquisa e bolsas do CNPq estão organizadas nas abas do menu principal em "Abertas", "Encerradas" e "Resultados".

Chamada MCTIC/FNDCT-CNPq/ MEC-CAPES/ MS-Decit / Nº 14/2016 - Prevenção e Combate ao vírus Zika

Apoiar projetos de pesquisa científica e tecnológica que visem contribuir significativamente para o desenvolvimento científico e tecnológico do País, com foco especial na prevenção, diagnóstico e tratamento da infecção do vírus Zika e doenças correlacionadas, e no combate ao mosquito Aedes Aegypti, contribuindo assim de modo efetivo para o avanço do conhecimento, formação de recursos humanos, geração de produtos, formulação, implementação e avaliação de ações públicas voltadas para a melhoria das condições de saúde da população brasileira.
Some possible alternatives for Brazilian Health and Science crisis
Some possible alternatives for Brazilian Health and Science crisis

• Planning and management
• Quality evaluation and improvement
• Health team vs medical doctors
• Training of health professionals
• Innovative and cost-effective solutions
The Experience of the Telehealth Network of Minas Gerais, Brazil

Belo Horizonte, Brazil
April, 2015
Minas Gerais State, Brazil

www.mg.gov.br
# Telehealth Network of Minas Gerais

<table>
<thead>
<tr>
<th>Year</th>
<th>Phase</th>
<th># Municipalities</th>
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<tbody>
<tr>
<td>2005/2006</td>
<td>I</td>
<td>82</td>
</tr>
<tr>
<td>2006/2007</td>
<td>II</td>
<td>100</td>
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<tr>
<td>2008/2009</td>
<td>III</td>
<td>97</td>
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<tr>
<td>2009/2010</td>
<td>IV</td>
<td>328</td>
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<tr>
<td>2011</td>
<td>V</td>
<td>50</td>
</tr>
<tr>
<td>2012</td>
<td>VI</td>
<td>3</td>
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<tr>
<td>2013</td>
<td>VII</td>
<td>11</td>
</tr>
<tr>
<td>2014</td>
<td>VIII</td>
<td>50</td>
</tr>
<tr>
<td>2015</td>
<td>IX</td>
<td>59*</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>780</strong></td>
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**Situation 2016**

- 780 municipalities**
- 1,000 telehealth sites, including
- 48 ambulances

**87% < 14,000 inhabitants**
Telehealth Network of Minas Gerais

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<tr>
<th>Teleassistance Services:</th>
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<tbody>
<tr>
<td>Teleconsultation</td>
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<tr>
<td>Telecardiology</td>
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<tr>
<td>Tele-oftalmology</td>
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<tr>
<th>Low cost technology:</th>
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<tbody>
<tr>
<td>Computer</td>
</tr>
<tr>
<td>Digital electrocardiograph</td>
</tr>
<tr>
<td>Printer</td>
</tr>
<tr>
<td>Digital camera</td>
</tr>
</tbody>
</table>

6 Public Universities
32 Technical and administrative staff
30 Clinical staff
43 Specialists

Quality control office
Main Results

2,7 million Electrocardiograms

78000 TELECONSULTATIONS

June/2016
Economical Analysis

Variable cost per patient referral in Minas Gerais: US$ 36.00
Telehealth activity cost: US$ 5.40
Efficiency: 80%
Number of activities: 2,155,170 (March/2015)

Savings for public health system:
0.8 x 2,155,170 x [36.00 – 5.40] = US$ 32,1 Million

Investment (2005/2015) = US$ 8,4 Million

ROI = US$ 3.8
More than 7,000 health professionals trained
Hospital das Clínicas
Universidade Federal de Minas Gerais

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