Brazilian National eHealth Strategy

SUS: Unified Health System

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CIO/Ministry of Health

July 2012
Health the building

Source: Ed Hammond
Infirmary

Source: Ed Hammond

1935

2004
1935

Source: Ed Hammond

Surgical Center

2004
Brazil: Facts and Figures

• 5th largest country (7,682,300 km²)
• 5th largest population (193 million) (2011)
• 6th largest economy (GDP 2.5 trillion USD) (2011)
• “Young” democracy (Constitution from 1988)
• Political stability
Brazil: Political Organization

- National Federation
- 5 Geographical Regions
- 26 States + DF
- 5,565 Municipalities
Brazilian Unified Health System (SUS)

- Integral health care for all citizens;
- Regionalized and Decentralized;
- Federated;
- Governance at 3 levels:
  - National
  - State
  - Municipal
### Brazilian Unified Health System (SUS)

<table>
<thead>
<tr>
<th>Services</th>
<th>Quantity (2011)</th>
<th>Monthly Average</th>
<th>Amounts paid per year (2011)</th>
<th>Procedures performed per year (2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIH (inpatient)</td>
<td>11,1 mi</td>
<td>0,9 mi</td>
<td>R$ 11,2 bi</td>
<td>112 mi</td>
</tr>
<tr>
<td>APAC (specialized care)</td>
<td>717,7 mi</td>
<td>59,8 mi</td>
<td>R$ 5,8 bi</td>
<td>3,600 mi</td>
</tr>
<tr>
<td>Ambulatory (outpatient)</td>
<td>3,524,0 mi</td>
<td>293,7 mi</td>
<td>R$ 15,2 bi</td>
<td>3,524 mi</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,252,8 mi</strong></td>
<td><strong>354,4 mi</strong></td>
<td><strong>R$ 32,2 bi ~US$16 bi</strong></td>
<td><strong>7,236 mi</strong></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Health Care Unit</th>
<th>Public</th>
<th>Private</th>
<th>Philanthropic Charitable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide services to SUS</td>
<td>65,333</td>
<td>17,331</td>
<td>4,812</td>
</tr>
<tr>
<td>Don’t provide services to SUS</td>
<td></td>
<td>168,150</td>
<td></td>
</tr>
</tbody>
</table>

1 BRL ~ 2 USD
Brazilian National eHealth Strategy

Contexts for eHealth services

- Citizen
  - Better health services
  - Information and empowerment
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- Health Professional
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  • Better services to citizens
  • IT solutions and resources
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- Decision holders and Managers
  - Efficiency and transparency
  - Cost control
  - Informed policy formulation and decision making
Key Actions (2012-2013)

- Identification of individuals in Health System (SUS): National Health Card (deployed, scaling)
- Development of the National Electronic Health Registry
- Regulatory framework
  - Adoption of International and National Standard (see Ministerial Act. 2.073/11)
- System interoperability: Service bus (ESB)
- IT solutions for:
  - Hospital
  - Basic Care unit
• Identification of individuals in Health System (SUS): National Health Number

• MPI - Master Patient Index Web Service (deployed) and PIX/PDQ (in development)

• Deduplication of the citizens’ database (CADSUS)

• Aim to cover ≈100% of the population until 2014

• Links the procedures to user, professional and health unit
National Electronic Health Registry

- Information and Business models (Who? What (granularity)? When?)
- Citizen’s Health Portal (PHR and other eHealth services)
- Security and Privacy policy (and enabling tools)
- Interoperability architecture (Service bus)
- Technical architecture and infrastructure
  - Connectivity issues
  - Cloud computing (SaaS) solutions
Adopted Standards for Interoperability
(Ministerial Act 2.073 / 2011)

Web Services: SOAP, WS-Security, WSDL
Document Coding: XML
Reference Model for PHR: OpenEHR
Interoperability: HL7
Clinical Document Archit: HL7-CDA
Lab Coding: LOINC (Logical Obs. Identifiers, Names and Code)
Clinical terms: SNOMED
Image coding: DICOM
Knowledge models: ISO 13.606-2
Patient Identifier: IHE – PIX
Primary Care: ICPC-2

Brazilian standards for clinical procedures
Main Milestones:

- National Health Card system (CADSUS) ✔
- Production (non-clinical) information
  - based on existing databases and IT systems: Dec 2012 (quick win)
- Clinical EHR (simple): Dec 2013
Regulatory Framework

- Min Act nº 940/11-GM: national health card system and basic regulations
- Min Act nº 2.073/11-GM: standards and interoperability
- Min Act nº 16/11-SGEP/SVS: integration of other systems (SVS/MS) and the national health card system.
- Min Act nº 02/12-SAS/SGEP: use of the national health number in all health records
- Min Act nº 1.127/12-GM: funding for development of IT interoperable regional solutions
Interoperability: Service bus
Important Systems (10 samples)

**CADSUS** – User Registration Information System
**CNES** – National Register of Health Facility
**SISRCA** – Regulation, Control and Evaluation
**SISREG** – Regulation System
**SNT** – National Transplant System
**SINAN** – Information System for Notifiable Diseases
**SIM** – Information System on Mortality
**SINASC** – Information System on Live Births
**Farmácia Popular** – People's Pharmacy (Authorizer)
**HORUS** – Drug Dispensing System
**PORTAL DA SAÚDE** – Ministry of Health Website
**Brazilian National eHealth Strategy**

**Strong Points**

- Sponsorship from Presidential office;
- Key goal in the Ministry strategic agenda;
- National-wide databases and mature structuring information systems (although silo-based);
- Pragmatic development strategy;
- Participation of states and municipalities;
- Involvement of experts, professionals, scientific associations, academia.
Main Challenges

• Clear eHealth consensus and policies still in development
• Complex governance system;
• Regional and (economical) diversity;
• Diversity of technical solutions (in use – legacy - and in development);
• Limitations in connectivity and ICT infrastructure (specially outside large and medium urban areas);
• Lack of required expertise (availability);
• Bureaucracies at public sector administrative processes;
• Quick wins vs. strategic developments balance
Trends

- TeleHealth
  - Family Health Program;
  - Community Health Agents;

- MOBILITY
  - Family Health Program;
  - Community Health Agents;
  - Epidemiological Control

- CLOUD COMPUTING
  - Security / Access / Cost

- HEALTH PROMOTION
  - Information, Education and Communication;
  - Community Participations and Social Control;
  - Social Networks.
Technological Aspects:

- IT Governance:
  - CIINFO / MS - Committee for Information and Computing in Health at Ministry of Health
- IT Human Resources
- Networks / connectivity & IT Infrastructure
- Contingency and Disaster Recovery

Cultural Aspects:

- Attitudes of Health professionals - need for change
- Legislation and Regulatory Compliance
Thank You!

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