



Brazilian National eHealth Strategy

SUS: Unified Health System

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CIO/Ministry of Health

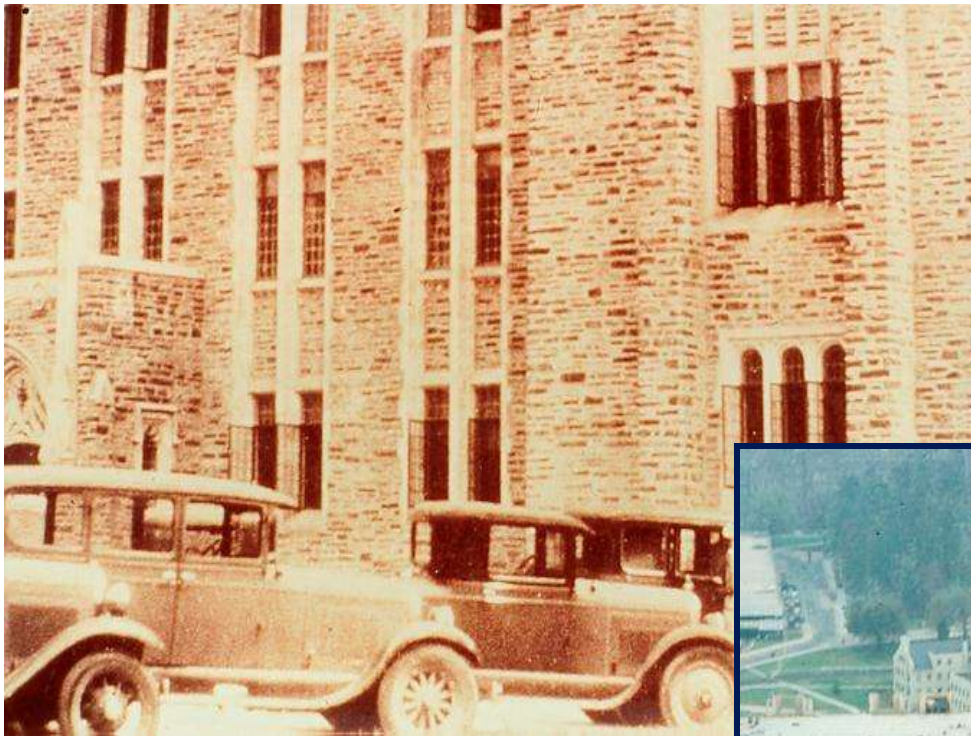
July 2012



Ministério
da Saúde



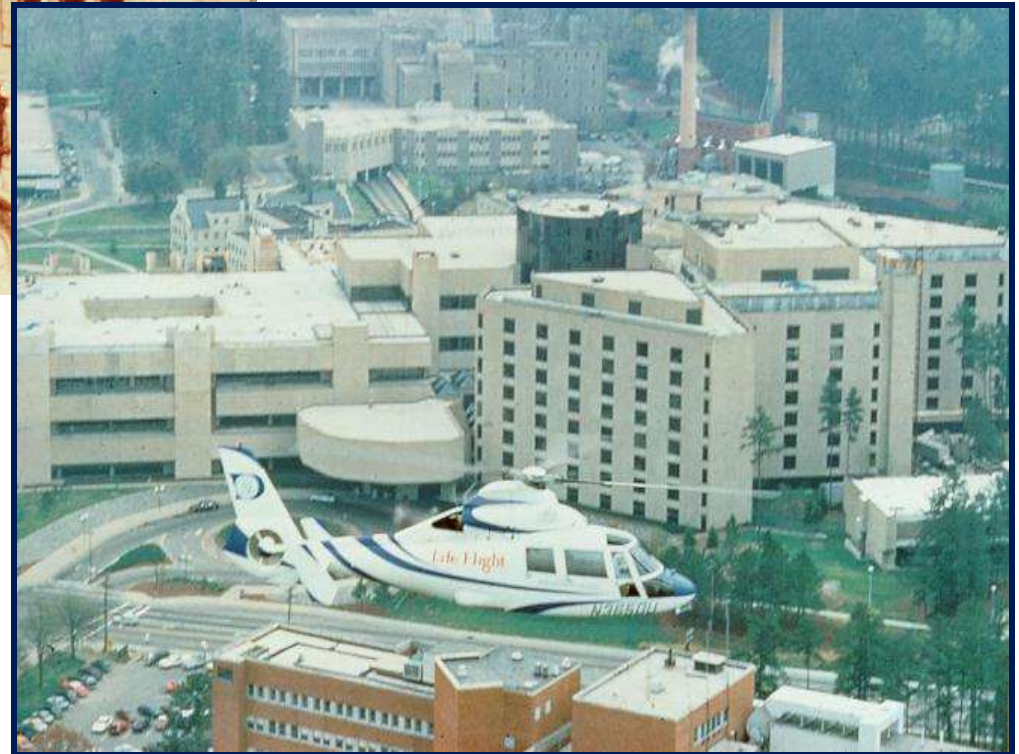
Health the building



1935

Source: Ed Hammond

2004



Infirmary



1935

Source: Ed Hammond

2004

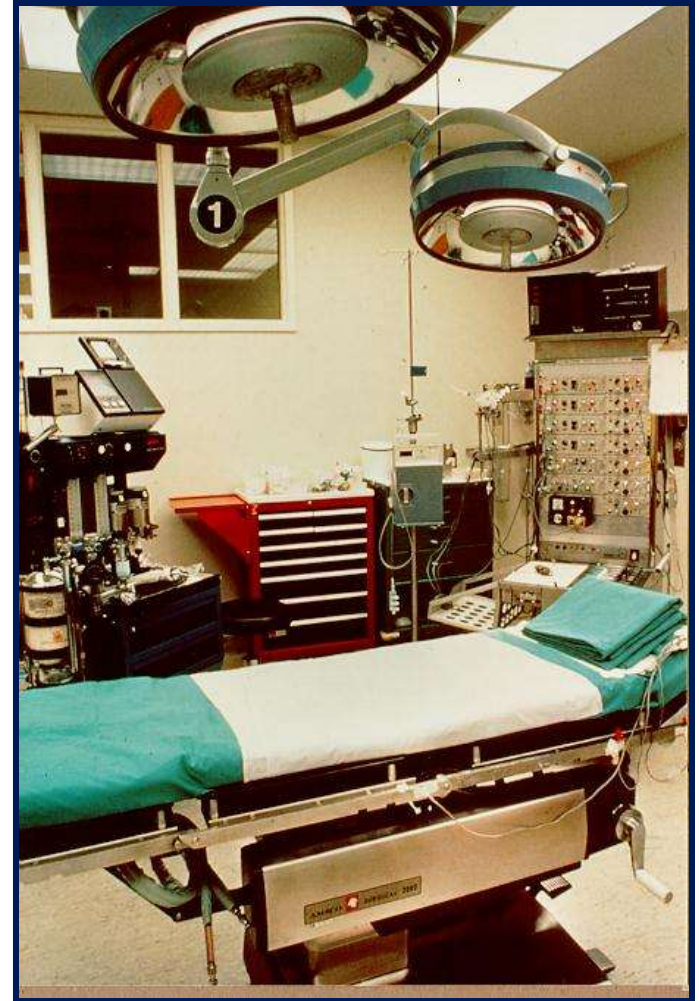


Surgical Center



1935

Source: Ed Hammond



2004

Prontuary



1935

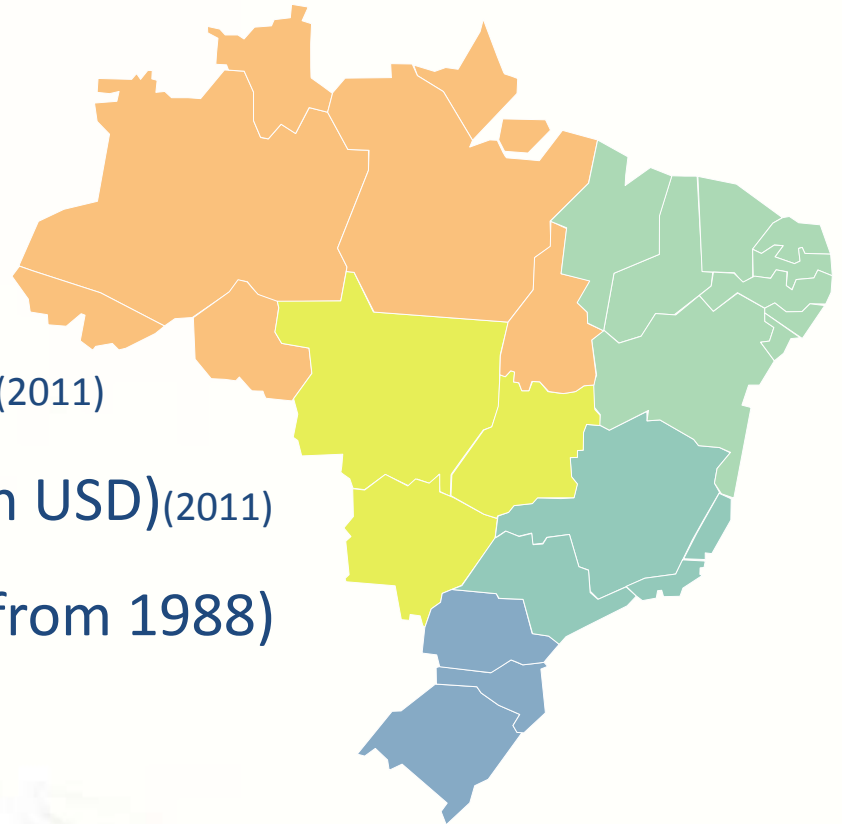
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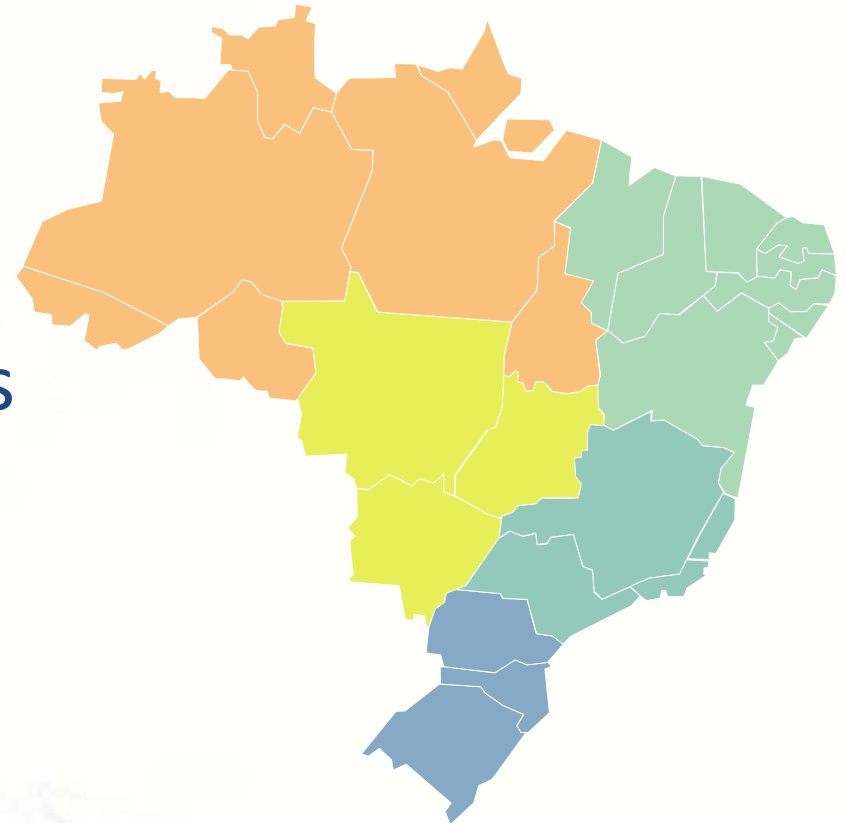
Brazil: Facts and Figures

- 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)

| Services | Quantity (2011) | Monthly Average | Amounts paid per year (2011) | Procedures performed per year (2011) |
|-------------------------|-------------------|-----------------|-------------------------------|--------------------------------------|
| AIH (inpatient) | 11,1 mi | 0,9 mi | R\$ 11,2 bi | 112 mi |
| APAC (specialized care) | 717,7 mi | 59,8 mi | R\$ 5,8 bi | 3,600 mi |
| Ambulatory (outpatient) | 3,524,0 mi | 293,7 mi | R\$ 15,2 bi | 3,524 mi |
| Total | 4,252,8 mi | 354,4 mi | R\$ 32,2 bi ~US\$16 bi | 7,236 mi |

From TABNET/DATASUS - <http://www2.datasus.gov.br/DATASUS/index.php?area=0202>

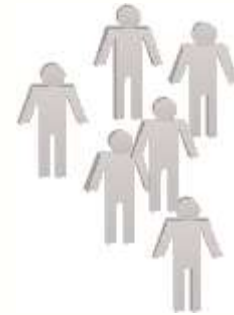
| Health Care Unit | Public | Private | Philanthropic Charitable |
|-------------------------------|--------|---------|--------------------------|
| Provide services to SUS | 65,333 | 17,331 | 4,812 |
| Don't provide services to SUS | | 168,150 | |

1 BRL ~ 2 USD

Brazilian National eHealth Strategy

Contexts for eHealth services

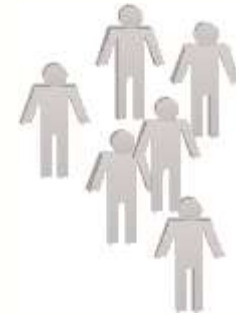
- Citizen
 - Better health services
 - Information and empowerment



Brazilian National eHealth Strategy

Contexts for eHealth services

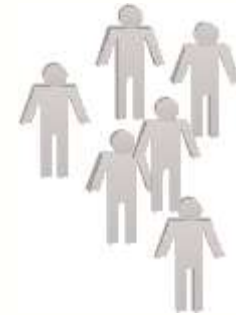
- Citizen
 - Better health services
 - Information and empowerment
- Health Professional
 - Improved professional activity
 - Information and knowledge



Brazilian National eHealth Strategy

Contexts for eHealth services

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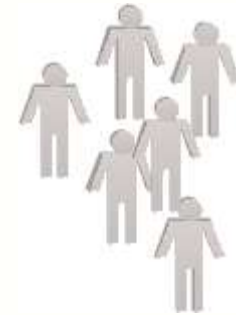


- Health care units (providers)
 - Better services to citizens
 - IT solutions and resources

Brazilian National eHealth Strategy

Contexts for eHealth services

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- Health Professional
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- Health care units (providers)
 - Better services to citizens
 - IT solutions and resources

- Decision holders and Managers
 - Efficiency and transparency
 - Cost control
 - Informed policy formulation and decision making



Brazilian National eHealth Strategy

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

National Health Card

- 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 $\approx 100\%$ 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

EHR



National Electronic Health Registry

Adopted Standards for Interoperability

(Ministerial Act 2.073 / 2011)

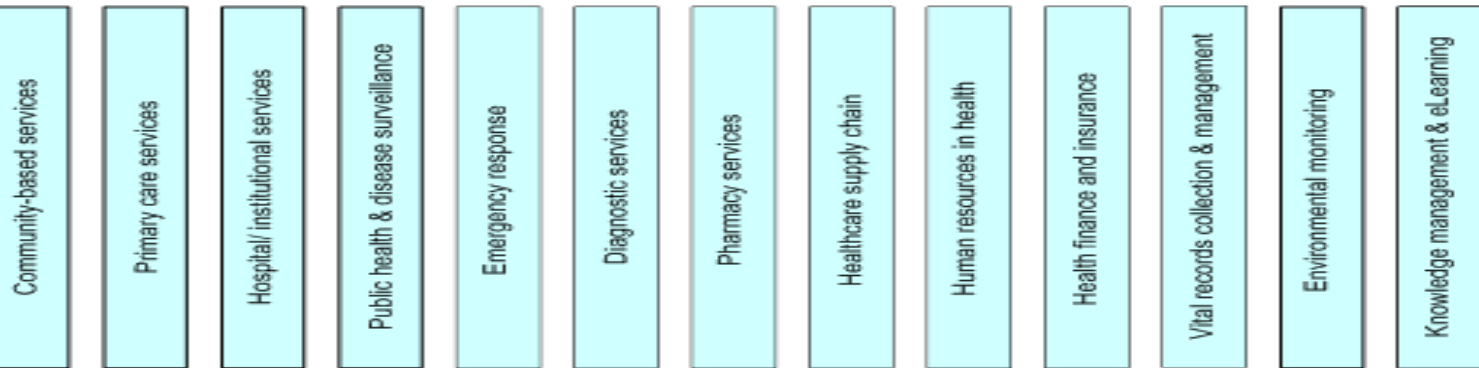
| | |
|---------------------------|--|
| Web Services: | SOAP, WS-Security, WSDL |
| Document Coding: | XML |
| Reference Model for PHR: | OpenEHR |
| Interoperability: | HL7 |
| Clinical Document Archit: | HL7-CDA |
| Lab Coding: | LOINC (Logical Obs. Identifiers, Names and Code) |
| Clinical terms: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

Brazilian standards for clinical procedures

Informed health policy
Improved access to care
Evidence-based practice
Informed health service planning
Efficiency, productivity, cost-effectiveness
Improved quality of care – to individuals & populations

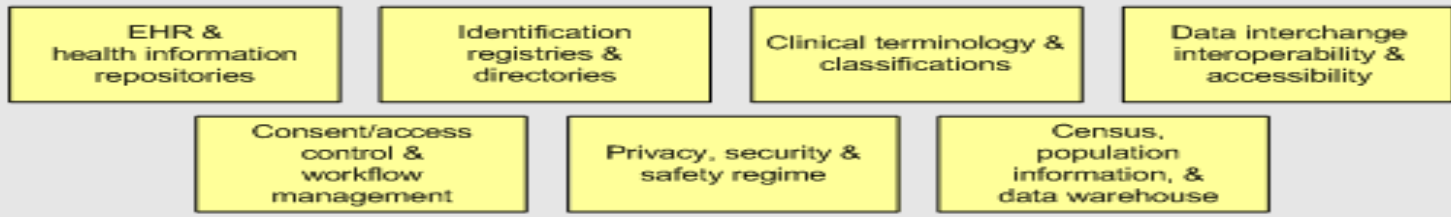
Health Process Domain Components

Patient Path – supporting continuity of care



HS planning, monitoring & evaluation

Foundation - eHealth Infostructure



Foundation - ICT Infrastructure



Standards, methods, guidelines, frameworks

Governance & national ownership



National Electronic Health Registry

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

CADSUS

CADSUS
CNES
SISRCA
EHR (non-clinical)

BI tools
EHR (clinical)

Phase 1

Phase 2

Phase 3

31.03.2012 ✓

31.12.2012

31.12.2013

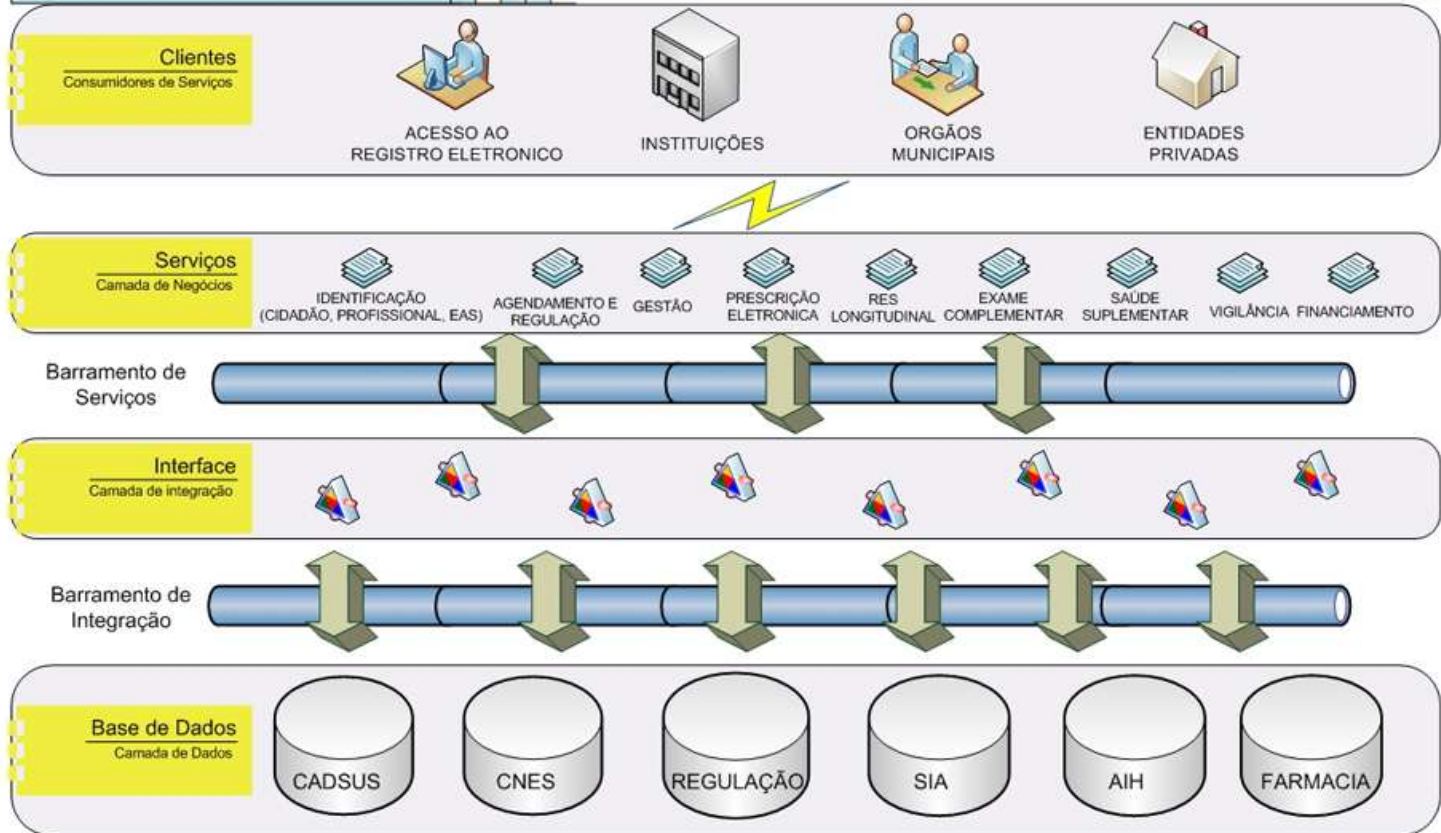
Regulatory Framework

- 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

BARRAMENTO DA SAÚDE



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

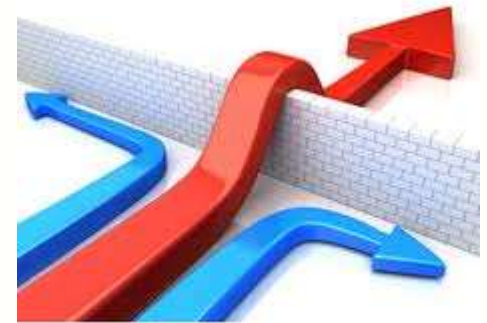
- Sponsorship from Presidential office;
- Key goal in the Ministry strategic agenda;
- National-wide databases and mature structuring information systems (although silo-based);
- Pragmatic development strategy;
- Participation of states and municipalities;
- Involvement of experts, professionals, scientific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



Brazilian National eHealth Strategy

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.



Other matters of concern

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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CIO/Ministry of Health

July 2012



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da Saúde

