AMB

Associação Médica Brasileira

WMA Taipei – Health IT

Index

IT EVOLUTION

IT Evolution

- In 1946 was born the first computer for general use, the ENIAC (fig. Opposite), the University of Pennsylvania, sponsored by the US Army, by Mauchly and Eckert

- In 1969, the Agency of the US Department of Defense Projects installed a new and revolutionary electronic communication network, which developed in the 1970s and later became the Internet

- 1971 - Intel engineer Ted Hoff, in Silicon Valley, invented the microprocessor, which is the computer on a single chip. The microelectronics changed everything, causing a "revolution within the revolution”

- The microcomputer was invented in 1975 (Altair), and the first commercial product of success, the Apple II in 1977

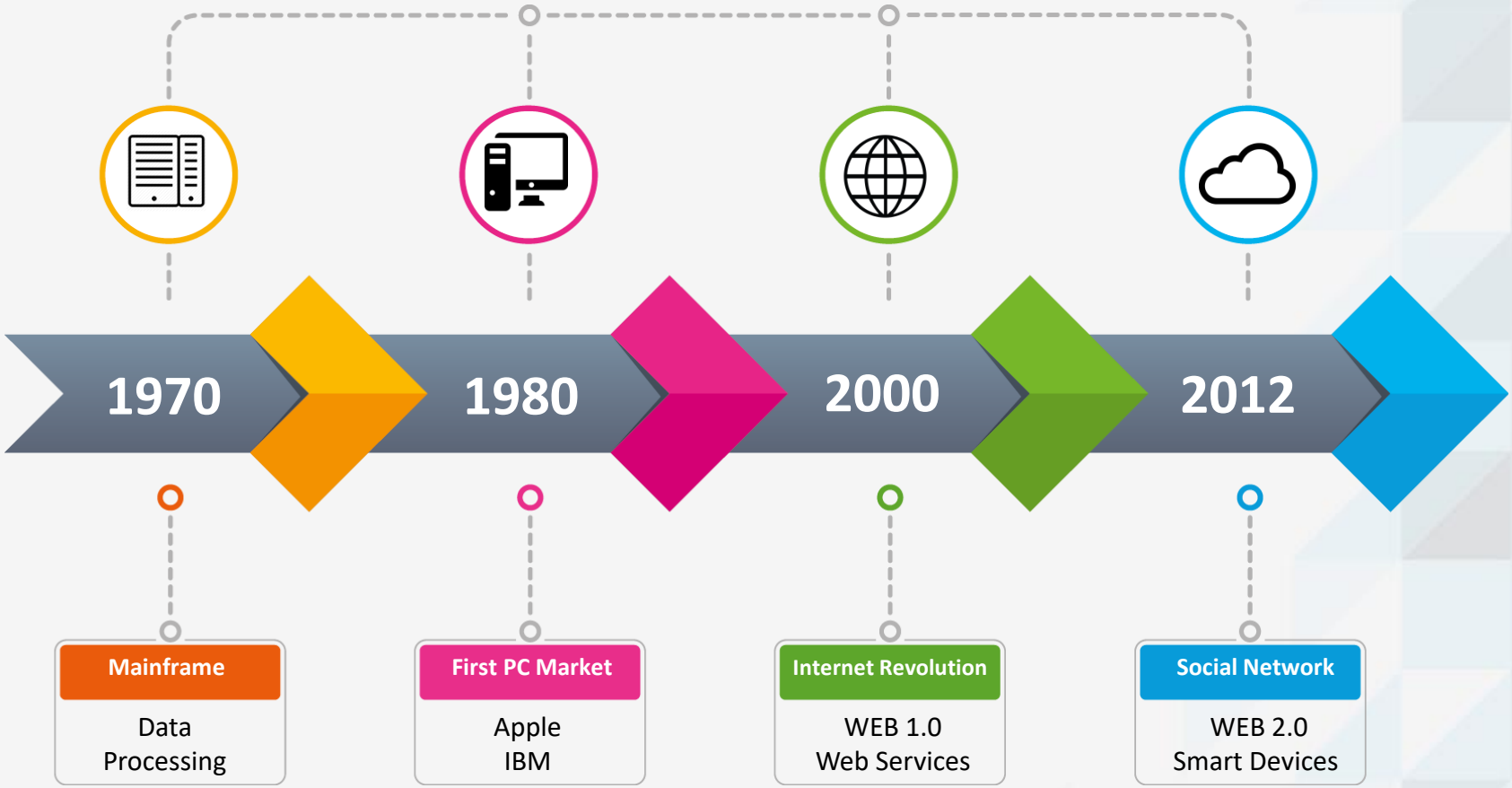
IT Evolution

- In 1981 begins the computer spread era with the Apple and IBM, which created the Personal Computer (PC), which has become the generic name for microcomputers, whose cloning was practiced on a massive scale, particularly in Asia

- The 1990s is characterized by extraordinary versatility to transform processing and centralized data storage on a shared and interactive system of networked computers

- In the twenty-first century, we have a growing presence of Japanese companies, Chinese, Indian and Korean, as well as significant contributions of Europe in biotechnology and telecommunications

IT Evolution



EXAMPLES OF HEALTH IT

Example of Health IT Treatment / Rehabilitation

- InMotion, created by the Brazilian scientist Hermano Krebs, director of the laboratory mechanical and human rehabilitation of the Massachusetts Institute of Technology (MIT)

- Stimulates the intensity and frequency of the movement, it helps with neurological rehabilitation

- These devices are present in major US medical centers, such as the Chicago Rehabilitation Institute and the New York Presbyterian Hospital, and expanding to Asia and Europe

Example of Health IT Treatment / Rehabilitation

- Patients suffering from chronic diseases such as diabetes, asthma, heart disease and cancer can use games such as **Re-Mission** to manage condition

- Games can be adopted in virtual and real physical therapy (e.g. **Wii-Habilitation**)

Example of Health IT Treatment / Rehabilitation

WiiHab

Example of Health IT Diagnosis / Prevention

Dermatology

- George Zouridakis, a professor of engineering technology from the University of Houston, Texas, created an app that can save lives of thousands of people who do not have access to dermatologists.

- The idea is to get in rural areas and in developing countries. The app hits the diagnosis in **85%** of cases.

Example of Health IT Diagnosis / Prevention

Obstetrics

- The Airstrip Connected System includes a fetal heart rate monitor that allows mothers to tune into the baby's heart beats and record the sound; Additionally important data on the baby's progress, such as weight and number of kicks can also be observed

MORE SUCCESSFUL CASES

Technology Bringing Healthcare to Everybody

- Technology provides new tools to connect the cultural, socio-economic and geographic barriers to services and health information in remote urban and underserved communities

- IT improved pre-hospital diagnosis of **stroke** and **myocardial infarction** and enhanced the supervision of delivery of tissue thromboplasminogen activator in acute ischaemic stroke. Telemedicine presents an opportunity to **enhance patient management**

- Telemedicine is a term widely used to represent the use of telecommunication and information technologies to support services, training and health information for healthcare providers and patients

Telemedicine
e-Health HP

- Access to basic health services in remote areas of India is a critical issue due to lack of medical resources, electricity and connectivity. HP, working together with the Council for Scientific Research (CSIR), is helping to change that with the eHealth Center - a mobile medical unit with cloud connection sheltered in a standard container that can be rapidly deployed to remote areas of the country.

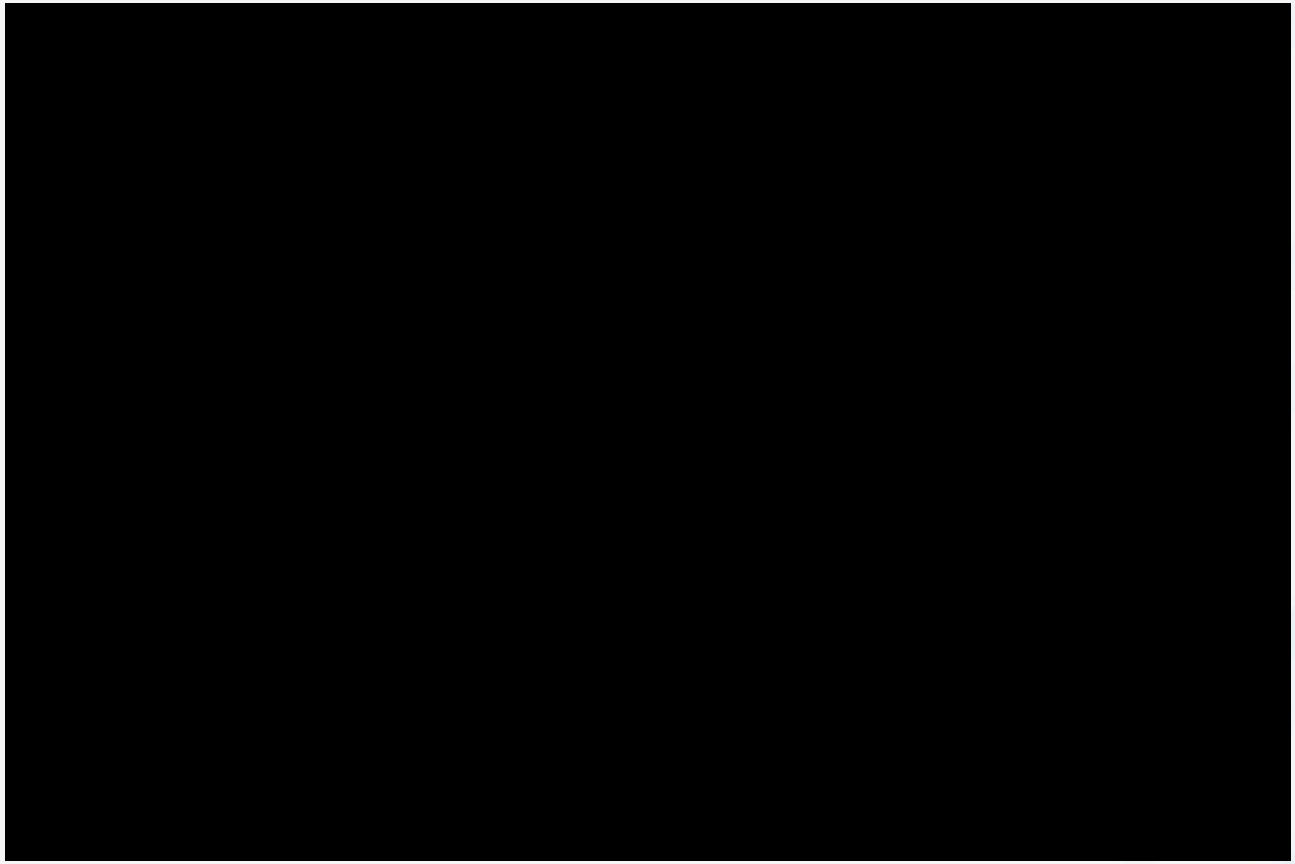
Telemedicine
Ryder Trauma Center

- The Ryder Trauma Center, in collaboration with the Lehman Center has been a pioneer in the field of telemedicine. The Lehman Center has partnered with the US Army to research the effectiveness of telemedicine in the trauma environment

- Telemedicine technology could virtually bring world class trauma physicians to the battlefield to support and mentor deployed military physicians who are treating injured soldiers

- This technology has assisted in the World Cup and the Olympics in Rio

Ryder Trauma Center



IT IN HEALTH EDUCATION

IT in Health Education Physicians

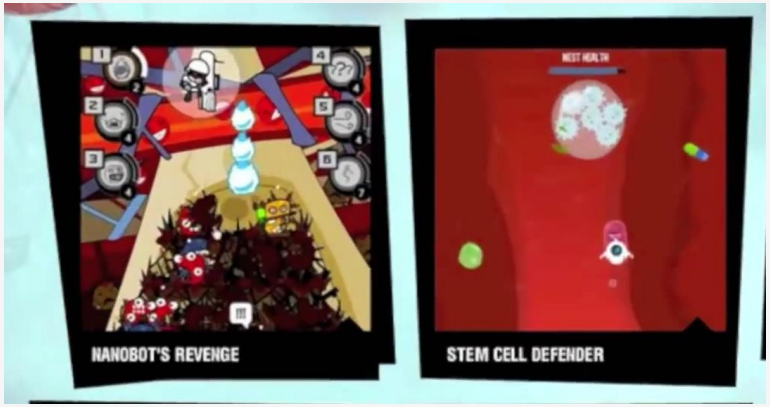
- A recent study by Opinion Health, multinational company specialized in market research in health, reveals that **75% of doctors** do online research, on average, five times a week. Each access, more than **20 minutes** are spent in the search for data that can assist in clinical decision. Periodicals represent **86% of the main sources of information**

- Therefore, it is necessary to promote continuing medical education and medical guidelines for quality content

IT in Health Education Patients

- Games with build in health education offer an alternative to traditional learning methods and can significantly improve health knowledge. Professional medical training games such as **Burn Center™** can also be used in clinical practice

- Healthcare marketing games have the potential to reach consumers in an impactful and non-invasive way. They can also be used in a social context to inspire behavioral change




HEALTH
DATABASE

Electronic Medical Records Brazil

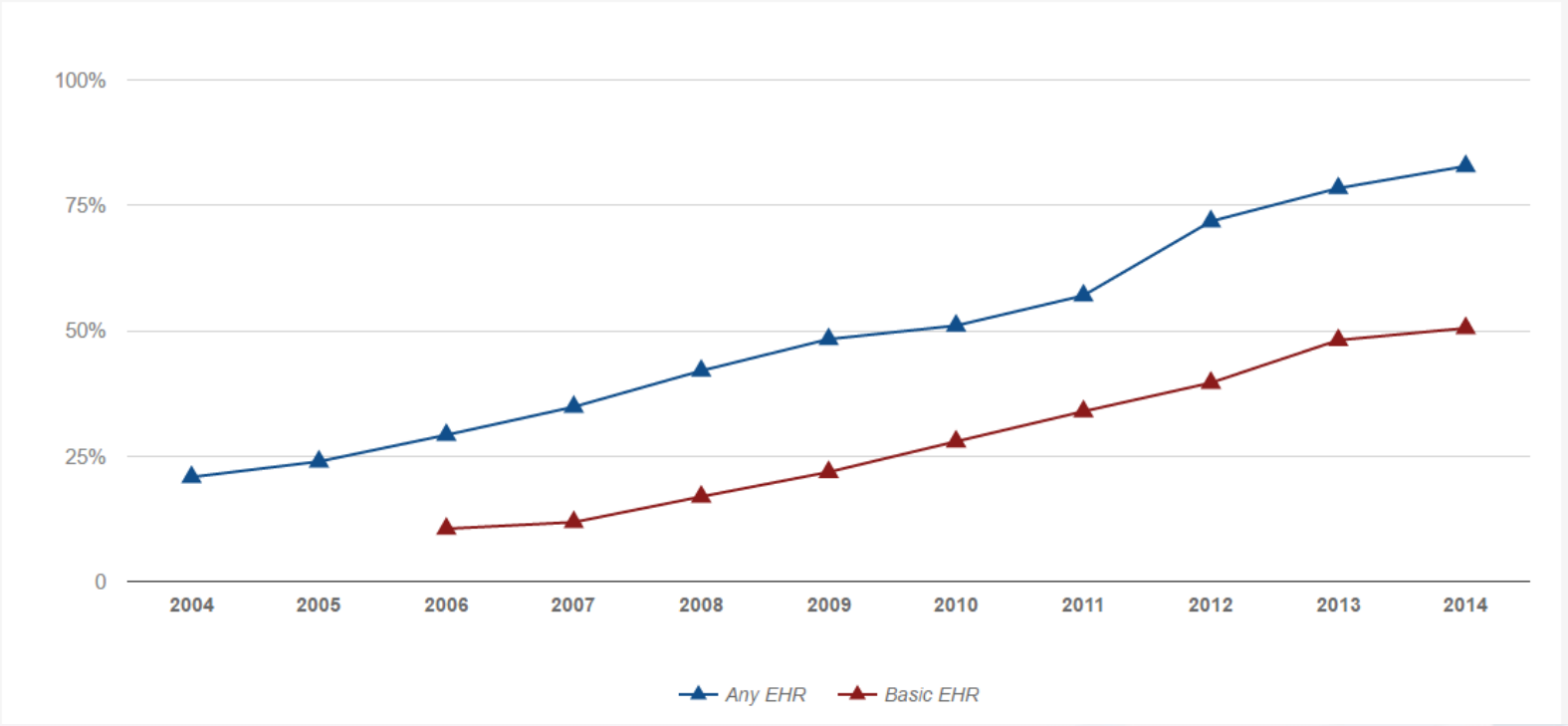
- From **2013 to 2015**, the opinion of professionals who believe that we need to be more prepared to use PEP (Electronic Patient Record) **increased by 70%**
- **87% of Brazilian physicians** believe that PEP's benefits will collaborate to patient's satisfaction
- **83%** believe PEP is essential to make patients more committed to treatment

Electronic Medical Records
United States

Office-based Physician Electronic Health Record Adoption: 2004-2014

EHR adoption has nearly doubled since 2008

2014



Electronic Prescription

80% of medical consultations in Brazil generate revenues - about 5 billion medical order

About 1/3 of the world population lacks access to essential medicines (WHO).

Each prescriptions has an average of **2.4** products (high-risk interactions).

Complications by misuse of drugs affect about **20%** of hospitals budget

70% of SUS (Brazilian Public Health System) expenses for treating diseases could be prevented by behavior change

Data Security

Best practices in data security and management should are applied to reduce re-identification and breach risks

Data security and management practices should provide for:

a) Controlling and monitoring physical and IT data security within data custodians and processors.

b) Controlling and monitoring to ensure that access to and use of personal health data within data custodians or processors is performed by staff subject to confidentiality rules/regulations.

c) Limiting data transfers to and from data custodians or processors to secure channels.

d) Requiring legally binding contracts with recipients of personal health data or de-identified person-level data from custodians or processors that specify the data confidentially and security requirements to be respected.

e) Ensuring data custodian staff, data processor staff and third-party data recipients of personal health data or de-identified person-level data have mandatory and periodic training on data privacy and security protection through on-line training or other means.

f) Before transferring data, reviewing the physical security and security policies and practices of data recipients and any parties mediating data transfers.

g) Conducting independent and random data security audits of data recipients and any parties mediating data transfers.

h) Following-up with data recipients to verify data destruction requirements and any other end of contract requirements have been met.

i) Offering alternatives to transferring data, such as providing data access within a research data centre or through a secure data portal, or analysing the data within a certified/accredited organisation.

j) Implementing penalties for data misuse by any party, such as contractual, financial or criminal penalties.

Source: Health Data Governance: Privacy, Monitoring and Research - *Health data security and management practices* © OECD (2015)


IT IN DEVELOPED
COUNTRIES

IT in Developed Countries

- In the United States, for example, new technologies in health account for up to **48%** of the growth of medical costs. Today, almost a fifth **(17%)** of US GDP is spent on health while in the 1980s was **9%**

- Countries such as Sweden and Denmark, invest about **10%** of the GDP

- Compared to other developed countries such as the Netherlands, United Kingdom, Australia, Germany and Canada, the **US spends more and have poorer health indicators**.


HEALTHCARE
ISSUES

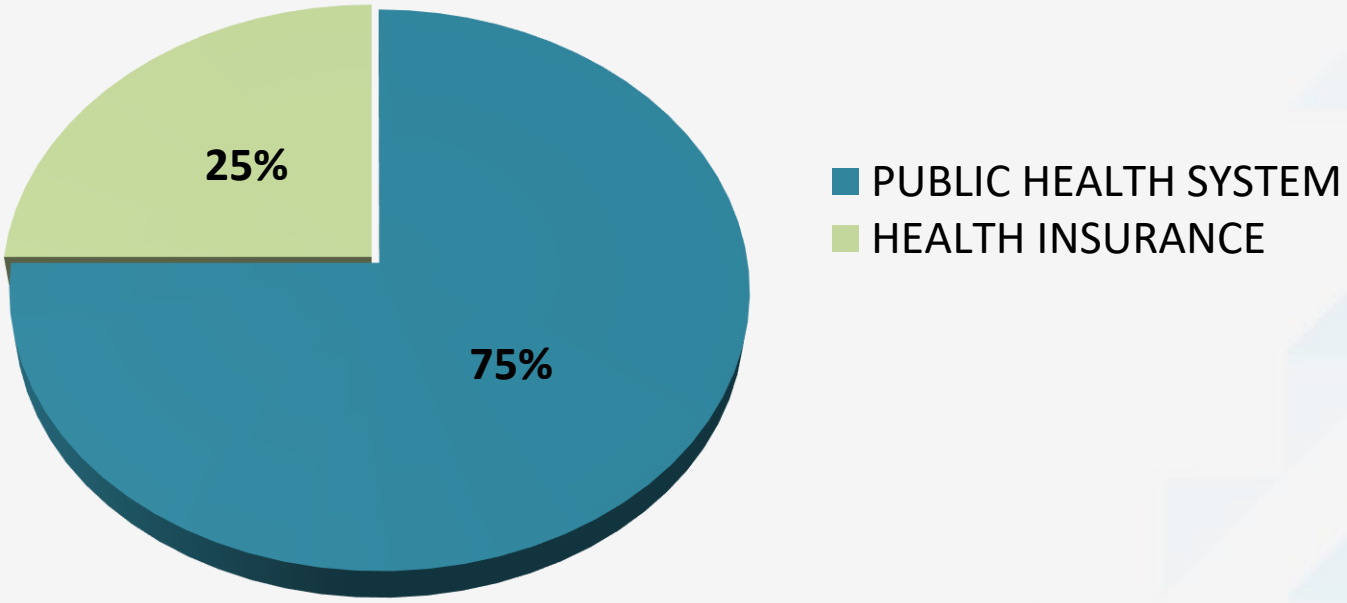
Our Healthcare Issues

- The Unified Health System (SUS) is the public health system name in Brazil, inspired by the National Health Service (UK)

- It was established by the 1988 Federal Constitution, in Article 196, in order to carry out the constitutional law of the right to health as a "right for all" and "duty of the state" and is regulated by Law. 8.080 / 1990, which operationalized the public health service

Our Healthcare Issues

- 206 million people
- 158 million depend on SUS (public health system) - **USD 69,9 billion**
- 48 million have health insurance- **USD 78,8 billion**



Our Healthcare Issues

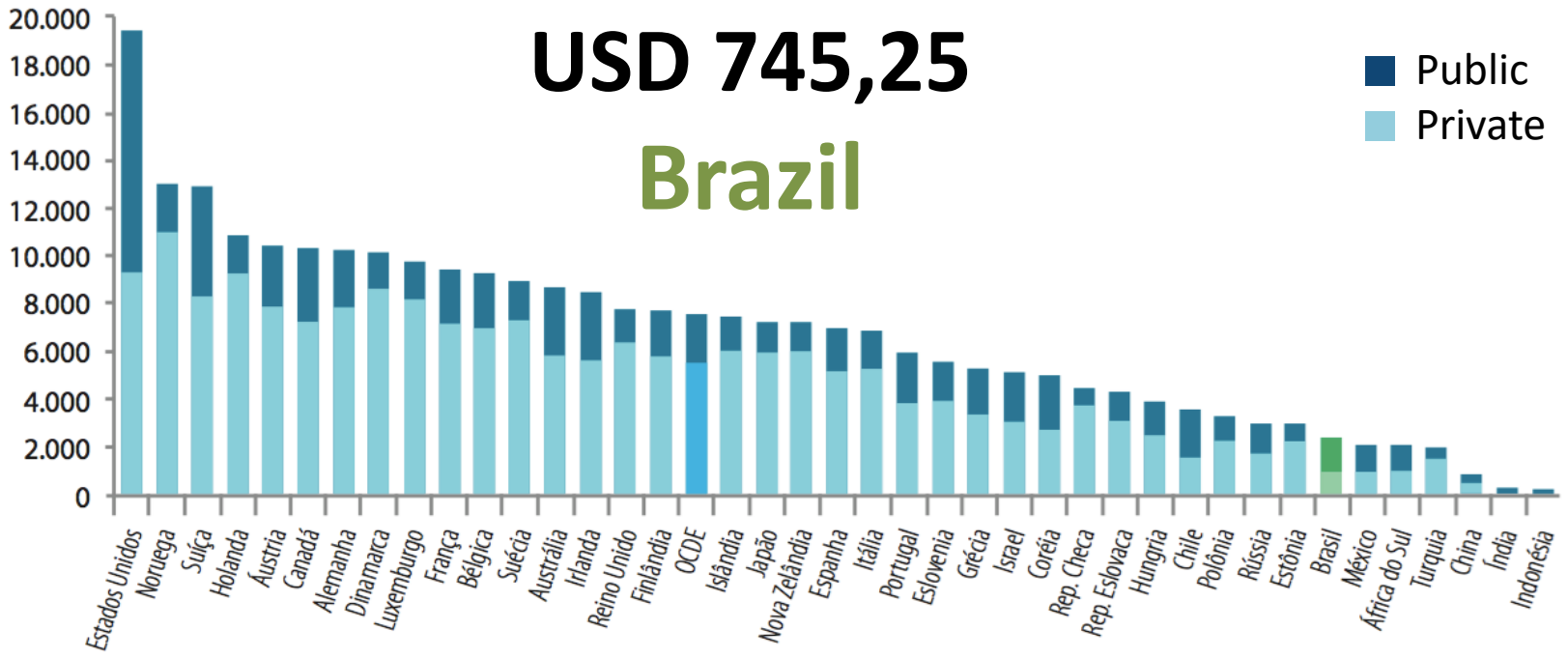
- According to PNAD (National Survey by Household Sampling) **27.5 million** Brazilians seek health services in the **15 days** preceding the survey, but **681,000 people**, or **2%** of those who sought, were not met

- In addition, **5.9 million** reported not having contact with health services for reasons such as lack of money, distance from the point of care, incompatible time, delay in treatment, or lack of specialist in health establishment

- Considering the **23.5 million** people who needed health services in the last **15 days** and has no health insurance, **6 million** or **25%** claimed to have had no health care. Among the **9.9 million** who needed care and have health insurance, only **6%** could not get an appointment

Our Healthcare Issues

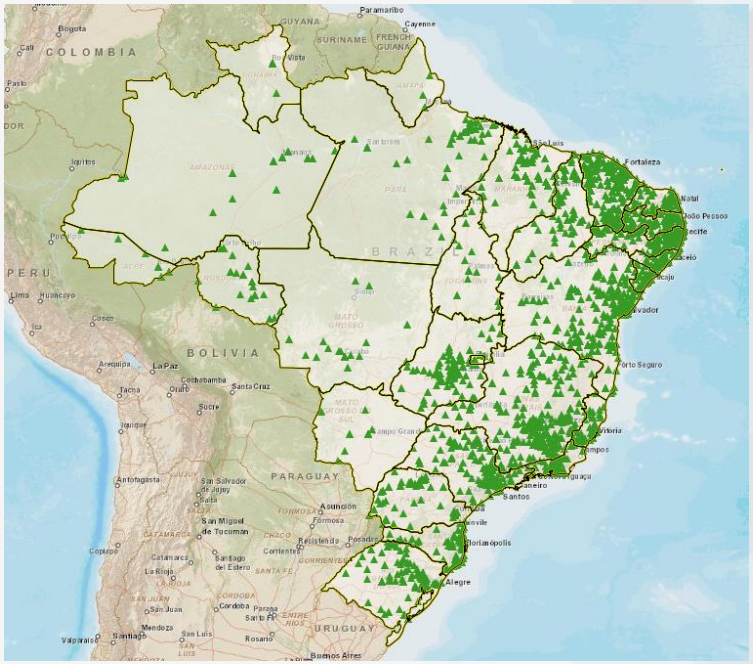
Total expenditure per capita in health USD - Public and Private (2011)




HOW CAN IT HELPS
HEALTHCARE

How Can IT Helps Healthcare

- Brazil is a country with continental dimensions, most doctors are in coastal regions. Therefore, telemedicine can be a tool to help increase access to these doctors to the countryside population
- It is necessary to educate doctors and patients to accept this concept so it be can an alternative and help millions of people
- This is the future of healthcare, worldwide



How Can IT Helps Healthcare

- ✓ Efficiency gains and cost reduction
- ✓ Improved access and health care delivery
- ✓ Reduced medical errors and improved patient safety
- ✓ Improved prevention and management of chronic diseases
- ✓ Improved data sharing for infectious disease monitoring

THANK YOU!

florentinocardoso@terra.com.br