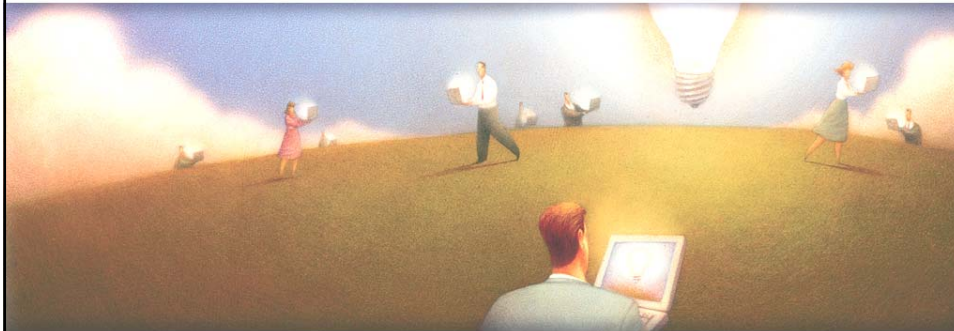


Innovations by InterSystems



Global Impact of Connected Healthcare October 2007

www.intersystems.com

InterSystems – Global Offices



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InterSystems Platform for Connected Healthcare

InterSystems
CACHE[®]

The number 1 database in healthcare

InterSystems
ENSEMBLE[®]

The top rated healthcare integration software

InterSystems
HEALTHSHARE[™]

The first health information exchange platform

Over 100,000 Healthcare Systems Worldwide

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InterSystems Vantage Point

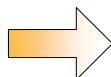
Hospitals, Clinics,
Laboratories, HMOs, ...

100,000+ systems,
4,000,000+ users

Packaged
Applications

Custom
Applications

100s of application
partners



Database + Application
Development

Most successful
healthcare database

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Terminology

- **Electronic Patient Record (EPR) :**
Computer based patient records within the scope of a single provider organisation.
- **Electronic Health Record (EHR) :**
The contents of a (possibly virtual) repository of summary medical information about a person. Designed to serve a large number of provider organisations and facilitate interoperability of EPR systems to improve the continuity of care given to patients.
- **Electronic Case Record (ECR) :**
The contents of a (possibly virtual) repository of all Clinical information related to a Specific Case i.e. Diabetes. Designed to serve a large number of provider organisations and facilitate interoperability of EPR systems to improve the continuity of care given to patients.

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The Healthcare System Needs Worldwide?

- The Basic System Needs are similar
- Patient Administration Register Patient and maintain Demographic Details.
- Availability of Patient History at Point of Care
- Create EPR & EHR and Single Patient View
Maintain Diagnosis, Allergies, Medicines Management.
- Lab , Radiology & Pharmacy Systems Ordering & Results.
- Discharge Summary.
- Improve National Healthcare Statistics AIDS,
Bird FLU, SARS



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Connected Healthcare



Connecting
clinicians,
organizations
and patients
across the
continuum of care

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Ensemble in Healthcare (Sample)

- Partners Healthcare
- Canadian Department of Defense
- New York City Health & Hospital Corporation
- Boston Medical Center
- Providence Healthcare
- UMMS (Maryland)
- George Washington University Medical Assoc.
- Hunterdon Healthcare
- Metropolitan Healthcare
- Pathology Medical Systems
- Cedars-Sinai
- MIT Medical
- Stanford Hospital & Clinics
- Evanston Healthcare
- Royal Edinburgh Infirmary (UK)
- Vimercate Hospital (Italy)
- US Veterans Affairs
- Dr. Negrin Hospital (Spain)
- UK Cancer Registries
- European Food Safety Admin. (Belgium)
- Iris Nord (Belgium)
- Motoman / Kaiser (USA)
- PPSHP (Oulu Finland)
- National Dutch EHR
- Serum Institute (Finland)
- Barts NHS Trust (UK)
- Hospital Ambroise Pare (Belgium)
- Moorfield Hospital (UK)
- IKEM (Austria)
- Okinawa Hospital (Japan)
- VSSHP (Turku Finland)
- PSSHP (Kuopio Finland)
- Sultan Qaboos (Saudi)
- CH Roubaix (France)...

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What is Current View on EPR & Cost Effectiveness?

"Building systems that improve patient healthcare is imperative but who PAYS?"

- Medication errors accounts for around a quarter of the incidents that threaten patient safety in each country (UK, USA & Australia)
 - 70% of Prescribing Errors can be reduced with IT which alone Contribute £ 500M per year in the NHS due to increased bed days.
 - Errors by poor writing contributes to death & Expensive Litigation.
 - £ 400M per year in clinical negligence compensation in the NHS.
 - 25% Over Ordering of Expensive Tests Radiology & Lab
 - Result Transcription Errors up to 35% in Developing Countries
 - Over Prescribing massive costs.

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1200 lives per year can
be saved

Audit Commission 'A Spoonful of Sugar' December 2001

- 70% of these errors could be eliminated by the use of computerised prescribing and patient records systems
- 11.7% of patients admitted to hospital experience an adverse event
- Every adverse event results in an average 8.5 additional days in hospital
- These additional days alone cost the NHS £500m per year

“Most errors are caused by the prescriber not having immediate access to accurate information about either the medicine...

Indications, contraindications, interactions, therapeutic dose, or side effects,

...or the patient...

Allergies, other medical conditions, or the latest laboratory results”.



Yesterday's Records!!!



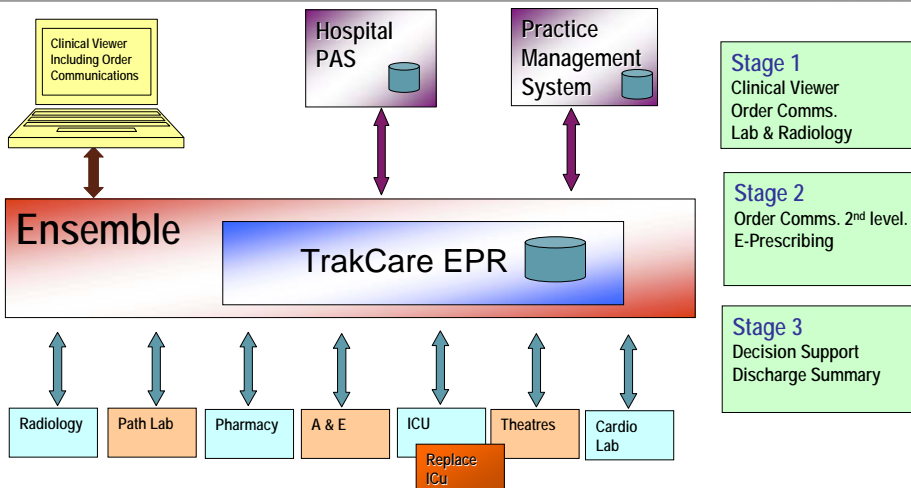
Year 1937 **Innovations** by **InterSystems**

ToDay's Records!!!



Year 2007 **Innovations by InterSystems**

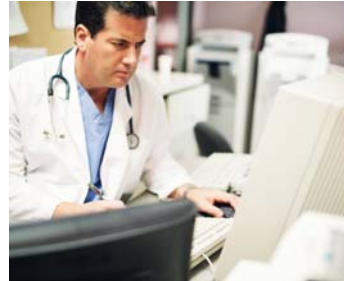
FastTrak EPR



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Drivers for EHR Investments

- **Improve access to health information**
 - Anytime
 - Anyplace
 - Anywhere
 - *But* not by anyone!
- **Improve quality of care**
 - Clinicians can make informed decisions about treating patients
 - Incorporation of evidence-based medicine tools
- **Improve patient safety**
 - More extensive medication history and allergy information
 - Advanced clinical decision support and alerts
 - Reduces adverse clinical events
- **Reduce costs**
 - Eliminates or reduces redundant tests and procedures
 - Reduces costs associated with adverse clinical events
 - Eliminates costs associated with transcription and storage of paper records



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What are the Common Problems?

- **Citizens**
 - Demand Better Healthcare
 - Safety & Adverse advents
 - Concerns include Privacy Security
- **Governments**
 - Agree to Provide Better Healthcare and Reduce Costs??
 - Adverse advents Reduce Bed Days
 - Provide Better Information at Point of Care
 - Security, Privacy, Reliability of Information



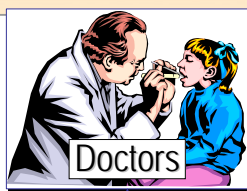
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Healthcare Spending

Country	Health GDP	%Private	Life Expectancy
USA	15.4%	55.3%	77.1yrs
UK	8.1%	13.7%	77.7yrs
France	10.5%	21.6%	78.8yrs
Japan	7.8%	18.7%	80.7yrs
China	4.7%	62.0%	71.4yrs
S.Africa	8.6%	77.5%	51.1yrs
India	5.0%	82.7%	62.5yrs
Sweden	9.1%	15.1%	79.6yrs

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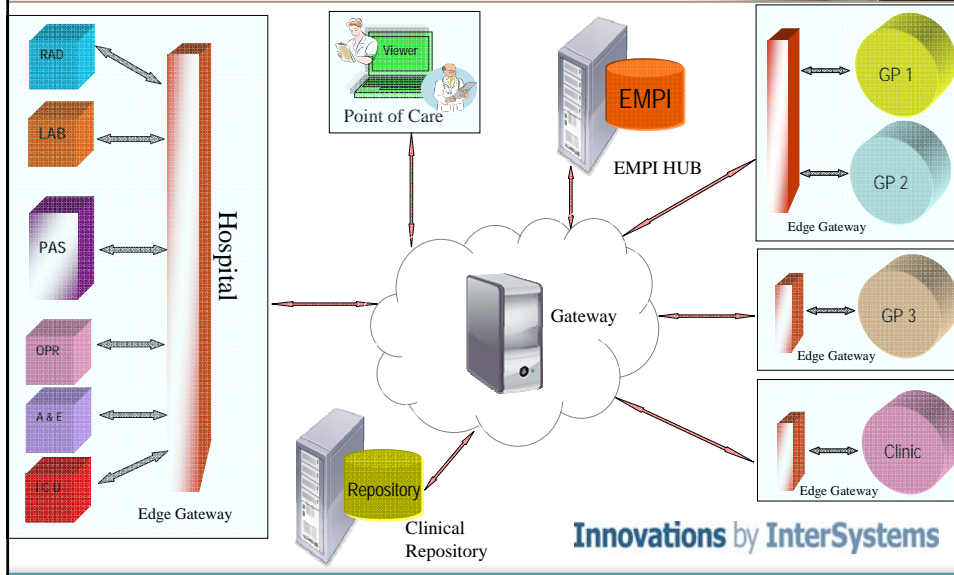
InterSystems HealthShare



- Optimized platform for regional / national health information exchange
- Based on proven Ensemble + Caché technologies

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HealthShare: Regional & National EHR



HealthShare Standards

HL7 v2	Health Language 7 version 2
HL7 v3	Health Language 7 version 3
CDA	Clinical Document Architecture
CCR	Continuity of Care Record
CCD	Clinical Care Record encapsulated in CDA
DICOM	Digital Imaging and Communications in Medicine
NCPDP	National Council for Prescription Drug Programs
RLS	Connecting for Health Common Framework

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Core RHIO Requirements

- **Security & Consent Management:** Prevent non-consensual use and release of private health information
- **Clinical Data Exchange / Patient-centric EHRs:** Clinical data extracted from a wide variety of different clinical systems must be transformed, exchanged, aggregated and presented to physicians in an integrated, patient-centric view using a common interface
- **Service Oriented Architecture:** The components of the system need to be based on a set of loosely coupled, customizable services, allowing for incremental addition of new services as the exchange (and standards) evolve
- **Flexible Deployment Models:** Federated, Centralized and Hybrid deployment models need to all be supported, enabling large numbers of small institutions and large health care providers to exchange data reliably and efficiently
- **Data Analysis / Public Health Reporting:** Support for public health purposes such as population based analysis, quality improvement, surveillance, evaluation, etc.

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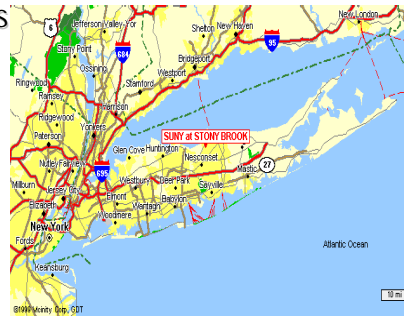
USA HealthShare Initiatives.

- Rhode Island, Long Island, Cedars - Sinai
- Short-listed for Nebraska State RHIO (NeHII)
- CARHIO (Michigan)
- Connecticut RHIO
- Brooklyn RHIO
- Tampa Bay
- Indian Health
- HealthLA
- New Mexico RHIO
- Western New York RHIO
- CA Mental Health
- Texas RHIO
- Arizona RHA
- St. Louis
- Illinois RHIO
- Escavia RHIO (Florida)
- North East Florida
- Portland RHIO

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Long Island Patient Information Exchange

- 5.2 Million Residents 8,000 GP's (Assoc with NS-LIJ Health System)
- Using InterSystems HealthShare for master patient index and clinical data exchange.
- Connecting 15 healthcare organizations on New York's Long Island
- Initial LIPIX Deployment
 - 4 Hospitals
 - 2 Physician Practices
 - Home Care Agency
 - Municipal Health Center
 - EMS Organization
 - Reference Laboratory
 - Long Term Care Facility
 - Public Health Department



Innovations by InterSystems

Rhode Island Health Information Exchange

- A total of 1.1 Million Residents 3,000 GP's
- Having a useful, usable and used interconnected health information system that:
 - Puts the right information into the hands of clinicians and their patients when and where it is needed
 - Allows for population health information to be analyzed and used for surveillance, health policy, and research
- Using InterSystems HealthShare for state-wide master patient index and clinical data exchange
- Connecting 14 healthcare organizations across the state (85%+ of all lab and medication data)
- Governor has an "Anytime, Anywhere Healthcare" agenda



Innovations by InterSystems

HealthShare @ Cedars-Sinai

- 9.9 Million population (All of LA) 1,800 Dr's (at Cedars) 80 Dr's primary care, 700 spec physicians in their allied assoc doc group`
- Cedars-Sinai ranks as one of the top California hospitals in clinical quality.
- CIO realizes that empowering patients by providing them with their personal health records at discharge will lead to data sharing and eventually RHIO (thought leadership)
- "RHIO-ready" project
 - CCR/CCD on thumb drive at discharge
 - PHR available via web
 - Web services for data sharing/accessing partners



Innovations by InterSystems

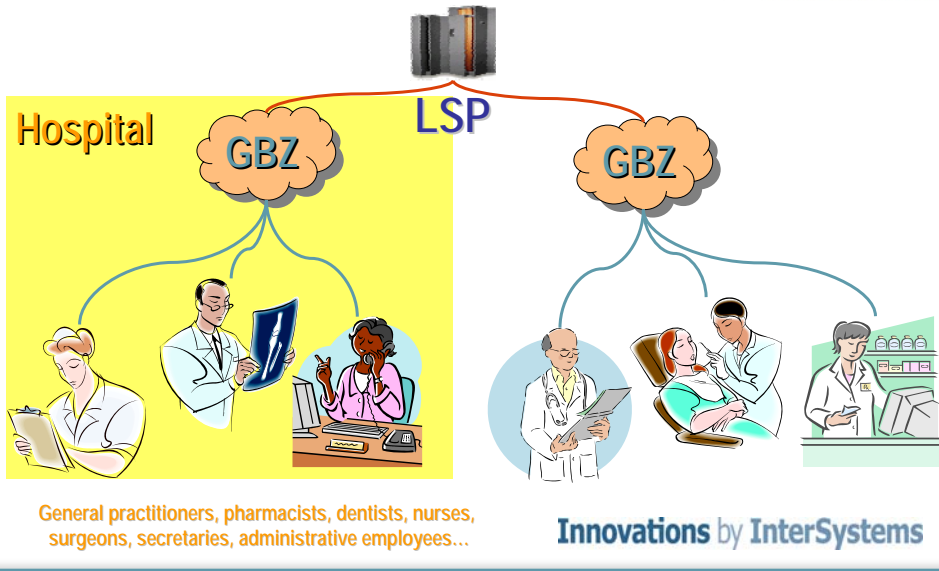
International HealthShare Initiatives



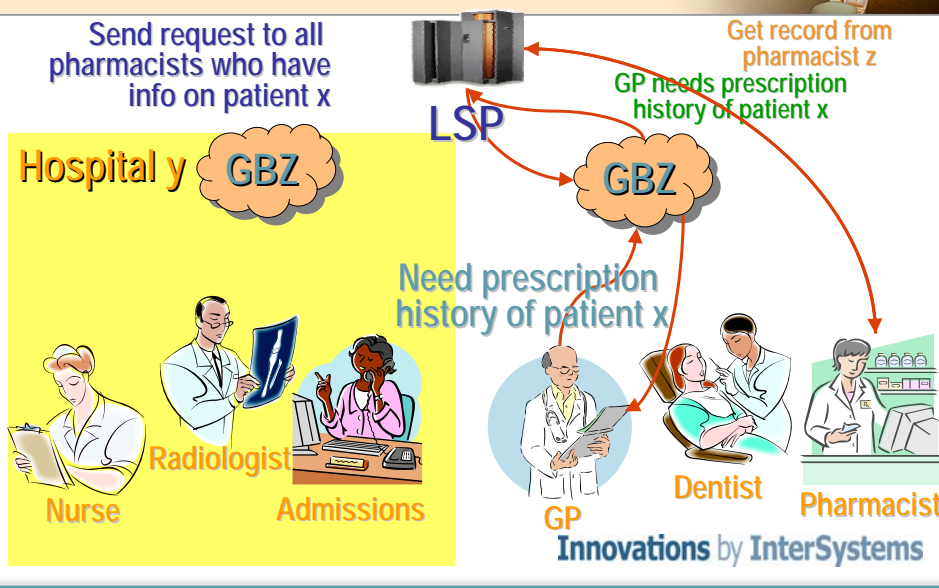
- | | | |
|---------------|-------------|----------|
| • Netherlands | "Nictiz" | National |
| • Sweden | "Carelink" | National |
| • Finland | "Kela" | National |
| • Italy | "Lombardia" | Regional |
| • Germany | Health Card | Regional |
| • Denmark | "e-Journal" | National |
| • Scotland | | National |
| • Chile | | National |
| • China | | Regional |
| • Thailand | | National |
| • Hong Kong | | Regional |
| • Brazil | | Regional |
| • Israel | | National |

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Netherlands "Nictiz" National Project



Functional Example



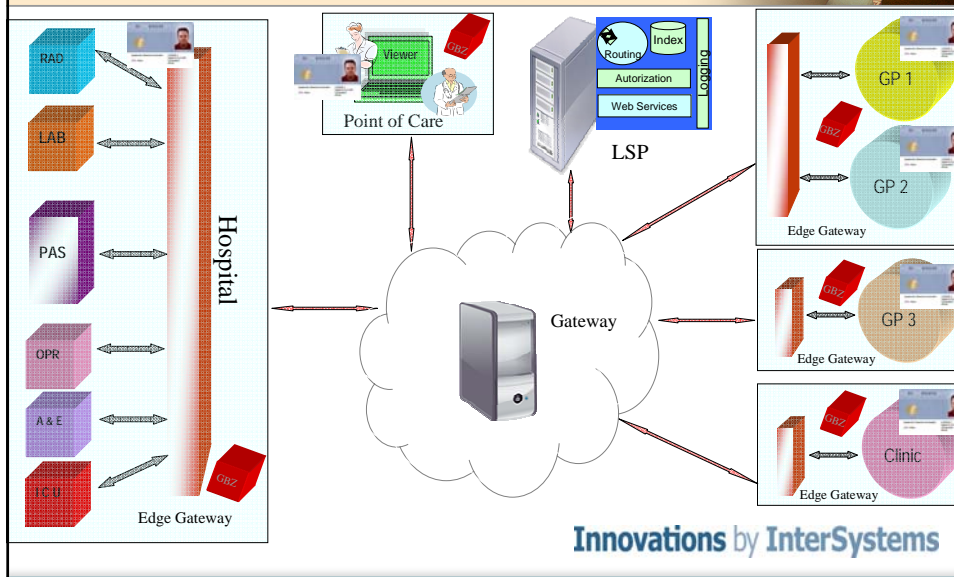
Netherlands National Project

- NICTZ/CSC using Ensemble to build National Backbone (LSP).
- A "GBZ" ("Goed Beheerd Zorgsysteem", which means "Well Managed Healthcare System" in Dutch) is a Healthcare Information System.
- The "GBZ In A Box" is a simple solution to provide connectivity to healthcare institutions with a GBZ quality system.
- "GBZ in a Box" will include the option for adding clinical Viewer.



Innovations by InterSystems

NICTIZ/CSC GBZ in a Box



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Sweden National System

- Population 9million 12 healthcare regions
- Sweden is planning to implement a national EHR and related infrastructure to improve quality of healthcare.
- The national health ministry, the county and municipalities have agreed on a national strategy for Health.
- Carelink (the Swedish equivalent to NicTiz) is managing the EHR and Infrastructure part of the project.
- The funding will come mainly from the local regions as they decide to participate in the project



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Italy Regional Health



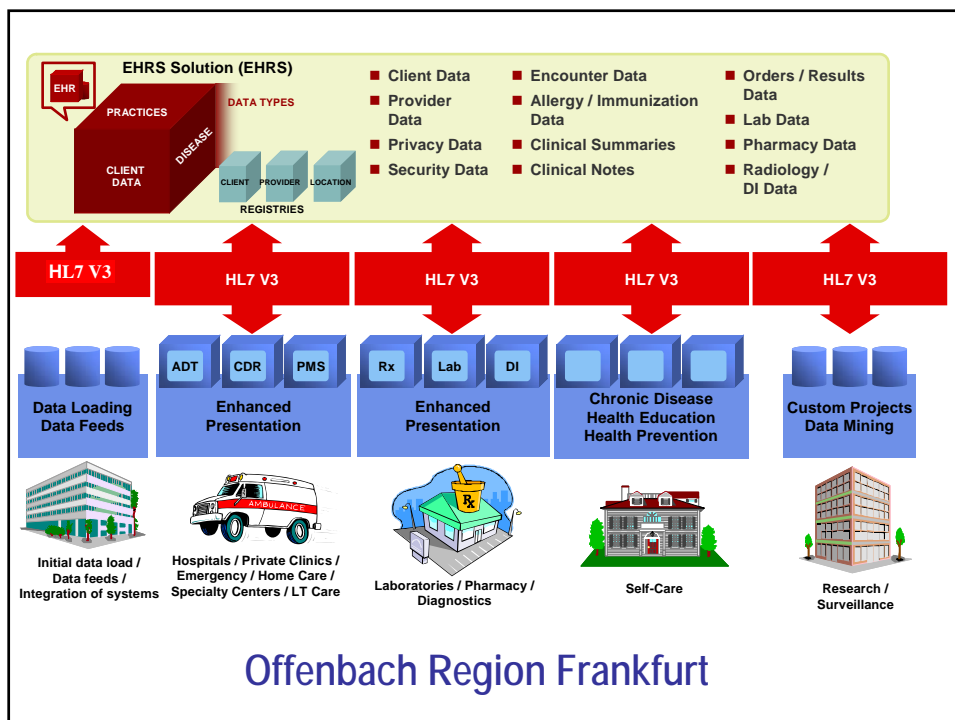
- Italy population 59 million
- 22 healthcare regions
- National Commitment EHR
- Lombardia Region
10million people,33 hospitals, 400 clinics, 10,000 GPs
- Viamacarti Hospital 40% of Pharmacy EHR.

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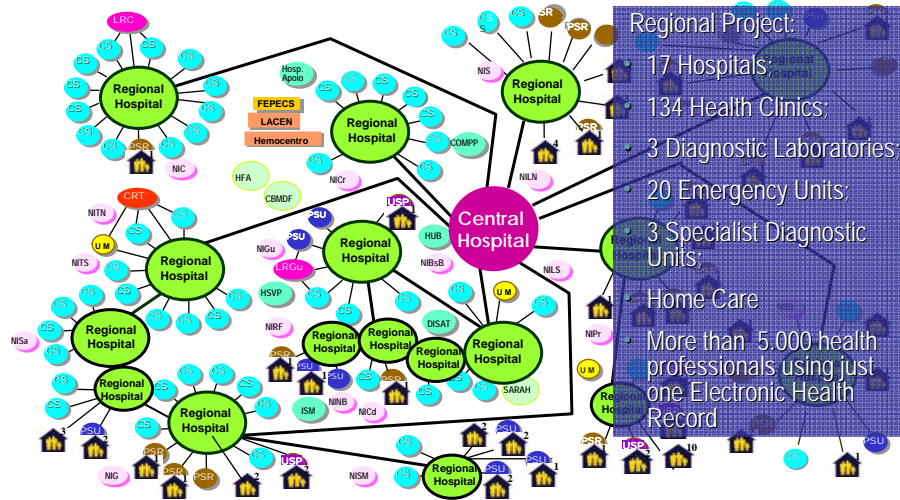
Germany Regional EHR

- Offenbach Region Frankfurt
- The foundation for the motivation for the project is a study which the county did in August 2005. It contains suggestions for the Co-work of elderly nursing and the healthcare system, especially concerning the interfaces between the ambulant care and the stationary treatment of patients.
- The ReGIS concept is an initiative triggered by those suggestions.
- The goal is to improve the quality of life of the citizens in the county of Offenbach by implementing a integrated system between the medical and non-medical Health Care.
- The county expects an added value not only for its citizens but for every participant on ReGIS,

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Regional System Brasilia



- Regional Project:
- 17 Hospitals;
 - 134 Health Clinics;
 - 3 Diagnostic Laboratories;
 - 20 Emergency Units;
 - 3 Specialist Diagnostic Units;
 - Home Care
 - More than 5.000 health professionals using just one Electronic Health Record

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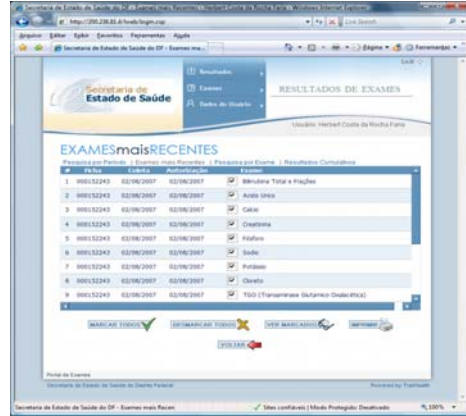
Regional Care in Brasilia



- Healthcare Centers and Regional Hospital – 134
 - Single patient information and EHR
 - Shared scheduling of doctor's visits, tests and procedures
 - Control of references and counter-references
 - Seamless admittance and pre-admittance scheduling
- Pharmacies – 134 + 15 Regional + 2 Central
 - Shared information and single EHR
 - Control of prescription issuing
 - Control of medication issuing
- Integration between Regional Hospitals – 17
 - Shared information and single EHR
 - Bed management, with a full view of the network, by specialties
- Laboratories – 20, of which 3 are central
- Emergency Care – 20
- Integration with legacy systems – SES
 - SES-DF; DATASUS; GRCA; SINAM; SINAM/MS; DIPAS/SAS/SES; SIM; SINASC; SIA; SIAB; SISVAN; SISCOLO; SISPRENATAL; SISCOM; SI PNI; SICLON; FCES; CARTÃO SUS; SALA SITUACÃO; SIS PPI; HOSPUB; SIGAB

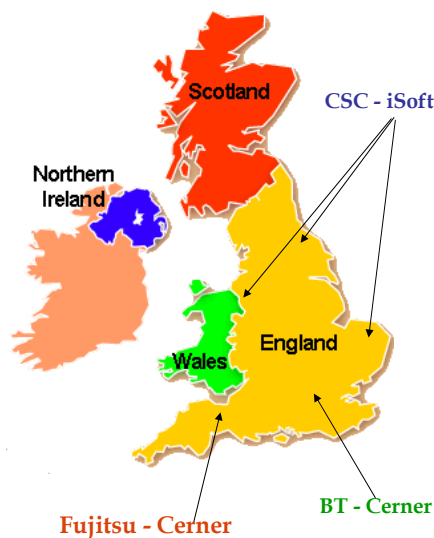
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Brasilia Citizens Portal



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UK National Program



- 55 million people
- 12 billion pounds
- 5 LSP Regions
- National Spine
- 9% of GDP ranked 18th
- 65% Clinical data in Primary Care.

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South Africa Commitment to Improve Healthcare

May 10 1994

President of Republic of South Africa Inaugural Speech

Spending is to be in two areas

Healthcare and Education

- National EHR 2007

The time for the healing of the wounds has come.

The moment to bridge the chasms that divide us has come.

The time to build is upon us



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Summary

- **“Rip & Replace is no longer the proffered way**
- **Single Hospital integrate existing applications**
 - Provide a single patient view at point of care
 - Early Rewards
 - Lower risk
 - Freedom of choice
- **Multiple Hospitals Large Hospital Groups**
 - Integrate all facilities provide one clinical repository
- **Regional and National EHR Systems**
 - HealthShare
 - Provide clinical information any time anywhere
 - Lower costs improve care
- **Community Based systems**
 - EHR
 - Ancillary services
 - Ambulance
 - Home Care

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Thank You