

Overview of global ehealth initiatives

Blair Butterfield

Board Member Emeritus
eHealth Initiative & Foundation



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eHealth defined

Question: How to define ehealth?

One answer: the use of information technology to facilitate higher quality, more accessible healthcare at lower cost.

Often understood to include the following technologies:

- Electronic health records
- Telemedicine
- Consumer health informatics
- Health knowledge management
- Virtual healthcare teams
- mHealth or m-Health
- Population health management
- Healthcare Information Systems

ehealth common themes

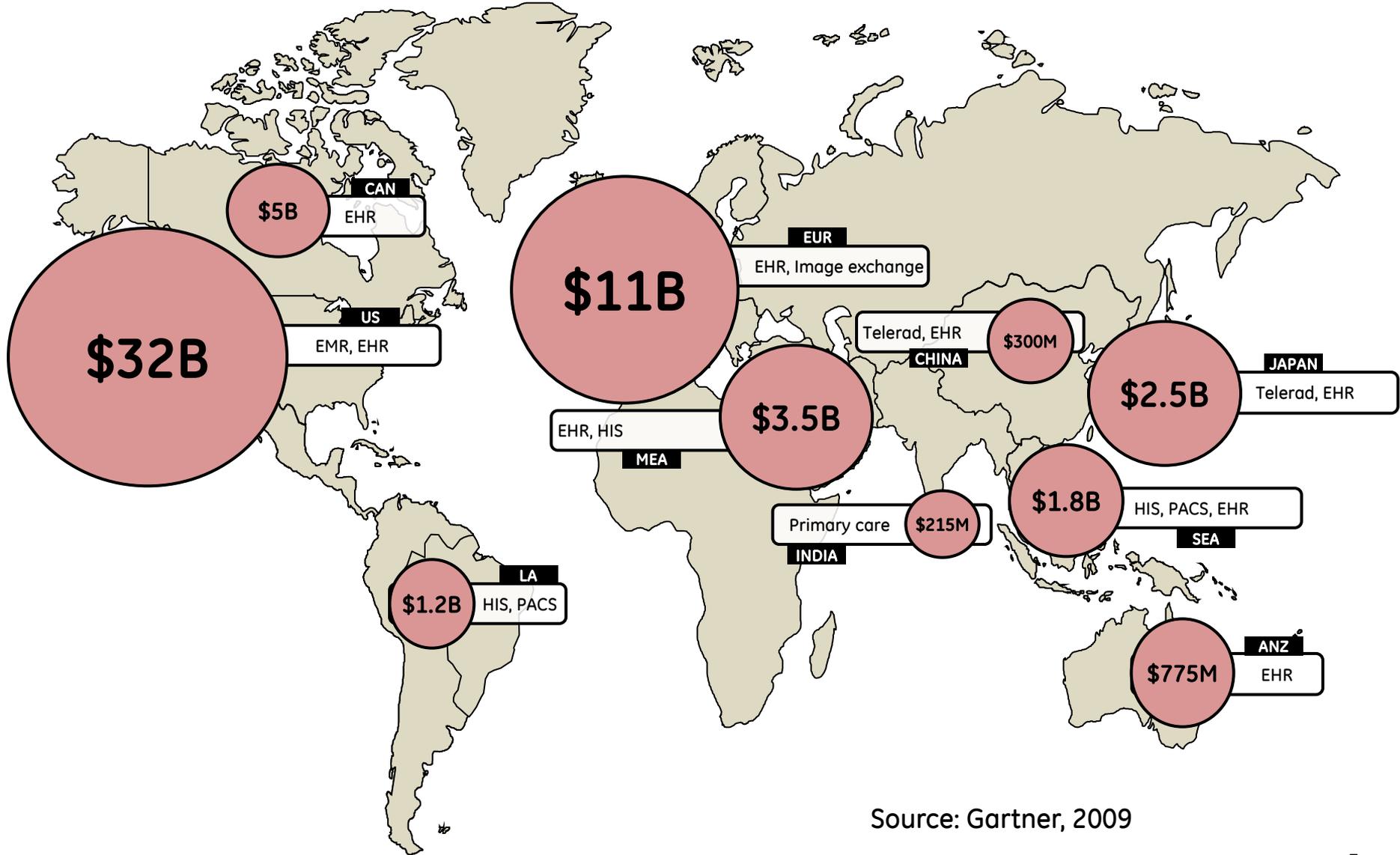
4 common “diseases”

- rising healthcare **costs** (aging populations, chronic disease)
- **inefficiencies** (scheduling, payment)
- lack of **access** (too few doctors, especially in rural areas)
- unsatisfactory **quality** (incomplete history, medication errors, etc)

4 common “treatments”

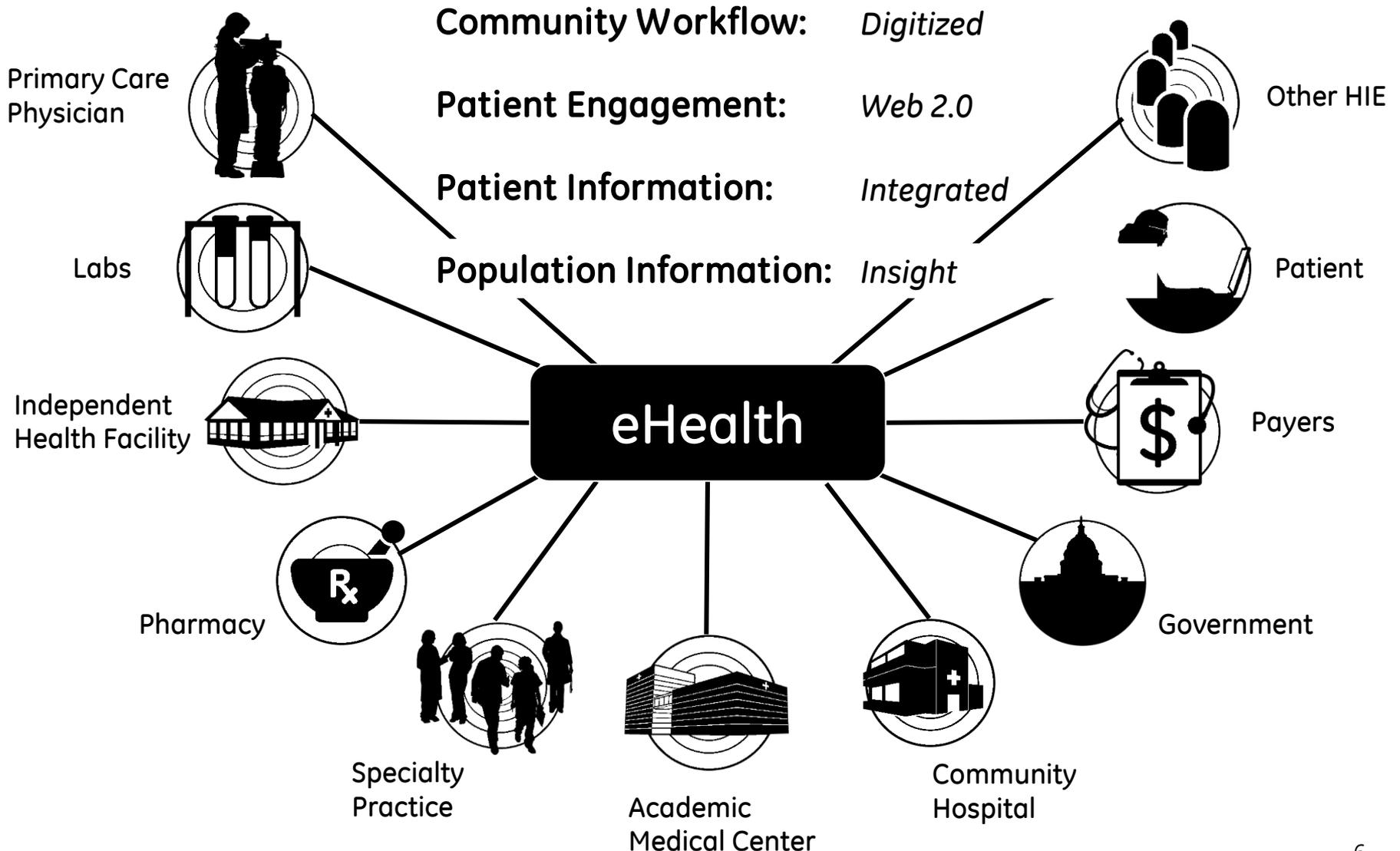
- **digitization** of health information (HIS, EMR, PACS adoption)
- longitudinal EHR (**sharing** data between existing systems)
- chronic disease **management** (home health, devices, etc)
- consumer **empowerment** (personally controlled electronic health records, online scheduling and prescriptions, etc)

Global healthcare IT investment



Source: Gartner, 2009

Vision of connected healthcare



eHealth ecosystem

value-add eHealth solutions

advanced capabilities for enhancing individual and collective health

well/disease
management

clinical trials

population
management

quality
reporting

comparative
effectiveness

decision
support

provider portal

provider-centric access

EHR

extra-office
workflows

secure
messaging

patient portal

patient-centric access

PHR

tailored
content

secure
messaging

health information exchange infrastructure

common infrastructure manages, collects, translates and delivers data

document
sharing

discrete data
exchange

security

identity
management

integration
tools

other services

physician
office

acute
care

long term
care

home

labs

public
health

Some national programs

(There are many other examples ...)



England

Overview

- England was one of the first countries to invest heavily in ehealth.
- The English program originally envisioned regional deployments of clinical systems with an interoperability “spine” to connect the regions, plus a number of national applications (e-prescriptions, appointment scheduling, etc).
- It has both the best practices and learnings that early adopters often generate.
- Budgeted at £6 billion over 10 years, the real figure may be much higher.



England

Lessons learned

- Initial emphasis on a centralized strategy that lacked sufficient clinician buy-in early in the process to facilitate adoption.
- Not designed to address regional needs that may tailor or pace adoption of IT.
- Over-reliance on a single standard (HL7v3) to create an interoperability framework for all systems in the network.
- Sharing of health records via messages proved unworkable and required the “spine” to be re-architected.



England

Best practices

Valuable, seminal work has been done in:

- defining unambiguous methods of data entry.
- policies concerning data sharing and privacy.
- the regional image sharing programs, which enable PACS systems within each cluster to store and share images. Pursuing the “low hanging fruit” of image-reuse leads to reduced duplicate procedures, better access to prior records, and overall efficiencies.
- sharing of health records as documents on the spine ultimately proved effective, reducing the cost, complexity and simplifying data-sharing and trust models.



Canada

Overview

- Canada Health Infoway, a federally funded organization (over CDN\$2 billion to date) with an annual operating budget of ~CDN\$24M and 162 employees, has established a national EHR Blueprint.
- EHR implementation is governed at the jurisdiction (sub-province) level and driven by local priorities, funding, etc.
- There is a dedicated Standards Collaborative chartered to develop standards (including nomenclature and messaging) for use by the EHR program.
- Key program level components of the EHR include Registries, Infrastructure, Laboratory Systems, Imaging Systems, Drug Systems, Interoperable EHR, Telehealth, Public Health Surveillance, and Innovation and Adoption.



Canada

Lessons learned

- The need for an integrated EHR deployment model, deployed incrementally alongside discrete data repositories, to avoid integration issues later on.
- The need for a more comprehensive approach to standards, rather than attempting to identify a single standard that represents “state of the art” as a “best bet” for long-term use.
- Risk of underfunding of the national program, despite Canada having one of the highest investments for one of the lower populations being served in global programs.



Canada

Best practices

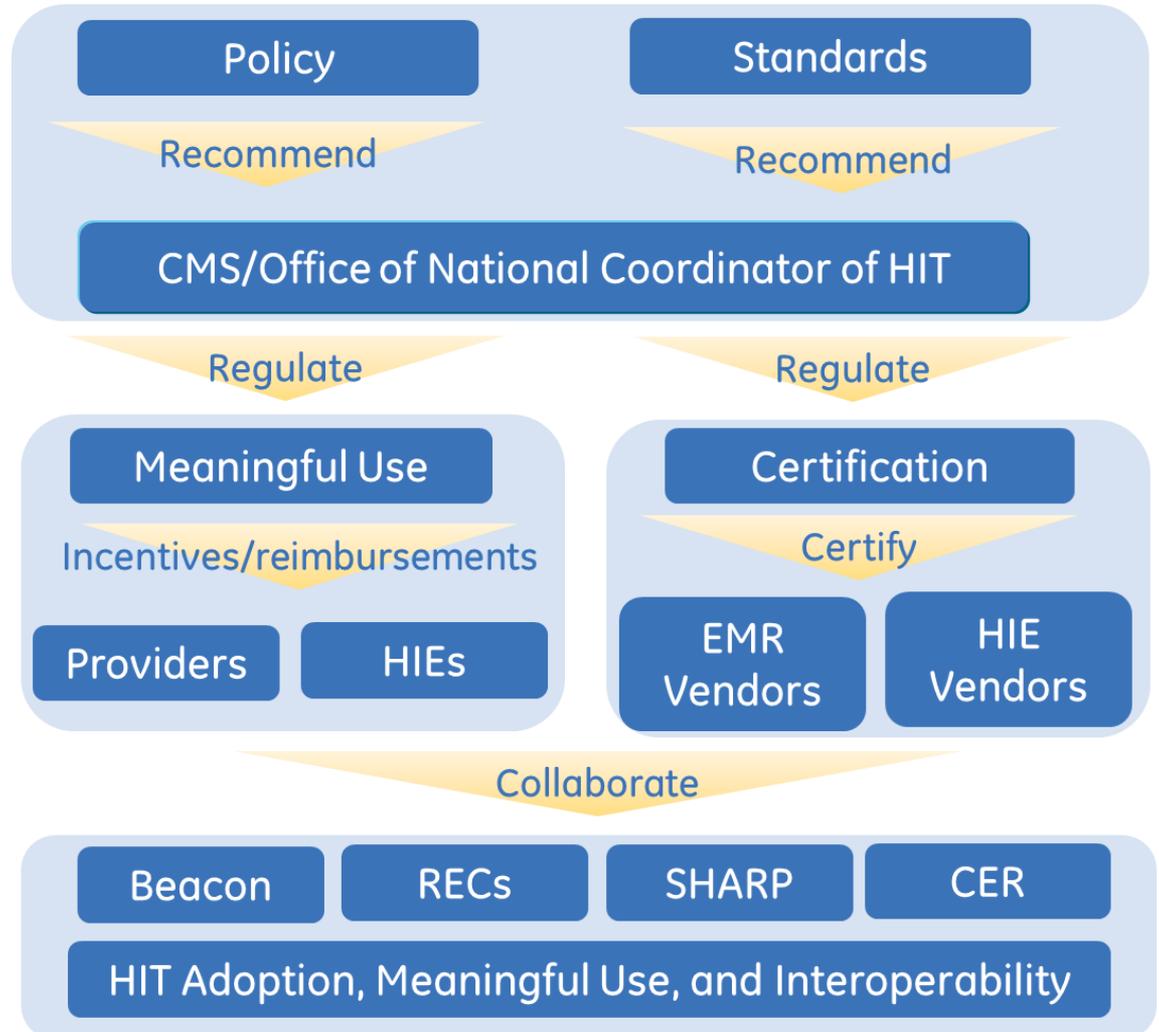
- The key strengths of the Canadian model are its focus on strategic investment in projects that advance the national ehealth agenda.
- The processes to evaluate, fund, and partner with regions embarking on such projects.
- These have achieved a balance of national strategy enforcement while being tailored to local business needs and stakeholder involvement.
- The willingness to be collaborative with other countries and adopt the best of what is available.



United States

Overview

- Drivers are monetary incentives paid to providers for compliance with IT “meaningful use.”
- \$30 billion in funding for a wide range of related programs
- Larger health reform legislation wraps around IT program.





United States

Lessons learned

- Insufficient willingness to mandate interoperability standards for IT systems (challenges of data control)
- Over-emphasis on complex concepts of “meaningful use” of IT – driven by funding incentives that go to clinicians, who may or may not be motivated by the financial benefits.
- Inability to identify and promote sustainable business models that support the regional connectivity infrastructures (health information exchanges) after the grant funding is exhausted.
- Unwillingness to learn from other countries – those who fail to learn from history are destined to repeat it?
- What about consumer empowerment – could it disrupt the provider-based models for IT adoption? Or will they nicely evolve and integrate?



United States

Best practices

- Focus on clinicians and “meaningful use” of IT. Recognition that the starting point for data sharing is those who have the data today – the providers and payers.
- Recognition of regional variations in IT drivers and business needs, and the need for extensive education, training, and communication to effect change management.
- Establishment of Beacon Communities to “light the way” by exemplifying best practices and innovating advanced implementations promises to provide key learnings.
- Funding of Regional Extension Centers, similar to the historic agricultural extension centers of an earlier era, have the potential to assist providers in the complex processes of selecting and implementing healthare IT systems.



France

Overview

- France has a high percentage of providers using ICT however the functionality is low, and less than a third use it for clinical data capture.
- France is working to solve issues in four areas of patient engagement, broader clinical communications (alerts, reminders, etc), provider collaboration, and greater healthcare efficiency.
- The first two programs are the DP (Medication History) and DMP (Personal Health Record).



France

National DMP Project

Deployment of Personal Health Record for all citizens

- ✓ connects hospitals, pharmacies, GP practices, labs
- ✓ Standards-based IHE XDS architecture at the core

Phase 1 will last 5 years (starting in 2011)

- ✓ 13 million records (20% of population)
- ✓ 160,000 GPs, 2,800 hospitals, 1,900 labs
- ✓ Infrastructure budget is US\$70MM, or US\$14MM per year



France

Lessons Learned

- Program has proceeded fitfully - 2011 is the critical year for deployment
- Start with the most frequently needed types of clinical data
- Engage stakeholders early and often – including the consumers.
- Have a systematic approach to interoperability from the start.

Best Practices

- The patient-centric, standards-based approach that balances needs of providers with privacy and security concerns.
- The incremental approach to deployment of the national ehealth strategy. In particular the decision to base the national architecture on IHE and HL7 CDA
- The use of IHE simplified the standards-adoption process, allowing vendors to test and adopt standards that address IT and clinical needs in a coherent, proven framework.



Australia

National Health and Hospital Reform Commission made 7 key ehealth recommendations (2008)

- By 2012, every Australian can have a PCEHR that they will own and control
- legislate privacy of electronic health data, with secure access by authorised providers
- open technical standards for e-health by 2012
- unique personal & provider identifiers by July 2010
- develop and implement a national marketing strategy to inform consumers and health professionals about the benefits and safeguards of the proposed e-health approach
- mandate payment of benefits for all health and aged care services be dependent upon provision of data to patients and providers, in a format that can be integrated into a PHR



Australia

Current Status (2011)

- ✓ Unique provider and patient identifiers are now available for adoption
- ✓ National tenders released and vendor responses received for:
 - **National infrastructure partner** (7 functional bundles, ranging from base infrastructure to call centers to portal applications for providers and patients to clinical templates)
 - Standards direction is to leverage IHE XDS.
 - **National change management partner** (to deal with the “people side” of ehealth)
 - Theoretically still on track to meet original goals in 2012
 - Implementation still lies ahead ...



Austria

Best Practices

- Austria initially embarked on an ehealth strategy that called for coded data elements to be shared, using IHE-XDS sharing architecture.
- The pushback from physicians quickly led them to start with a “soft launch” and begin sharing via XDS-SD (scanned documents) to enable portable records quickly – the uptake was significant, and caused providers to request more structured, coded content.
- The response was to do this you need to create it. So now there is acceptance of coded content, as a natural step of evolution from scanned document sharing.

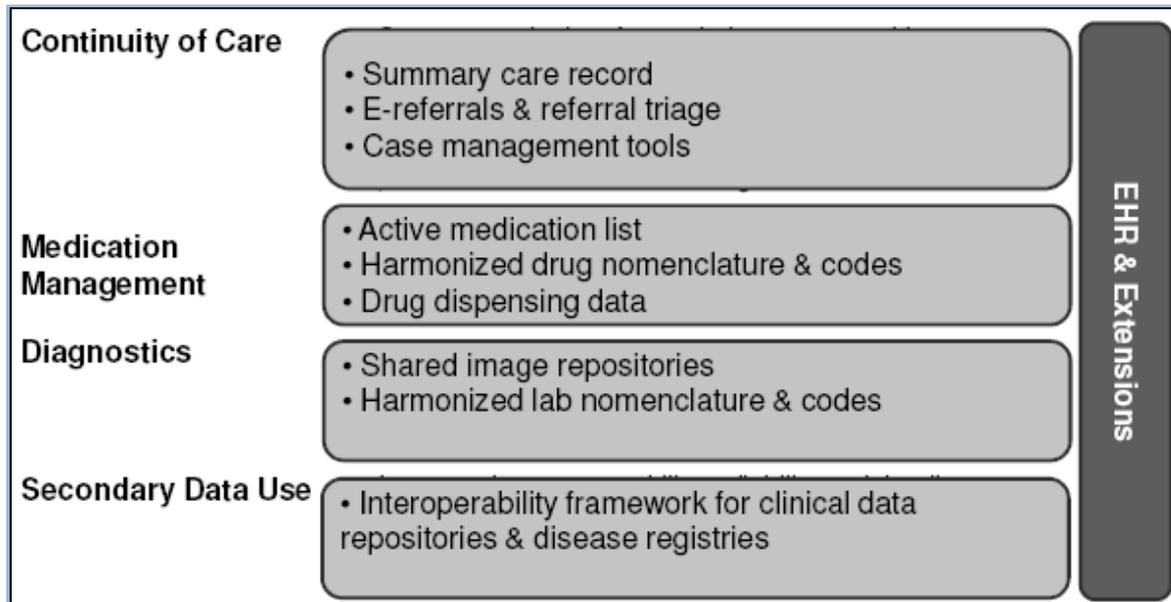
Lessons Learned

- Clinical providers respond best to an approach that gets them to ask for changes rather than have changes thrust upon them.
- The use of IHE was a breakthrough, enabling data portability and standardization of clinical content. It avoided a lot of in-country work that would have been expensive and time-consuming.



Singapore

- \$200M budget for national EHR, PHR and clinical data repositories.
- Goals include 100% physician and community hospital EMR adoption.
- Strong focus on consumer empowerment for quality and cost benefits.
- Buy (vs. build) approach using global companies and management.
- Interoperability strategy and standards and impacts under evaluation.



Source: Singapore's National EHR, MOH Holdings, July 2009



Hong Kong

US\$80MM investment in national EHR program to:

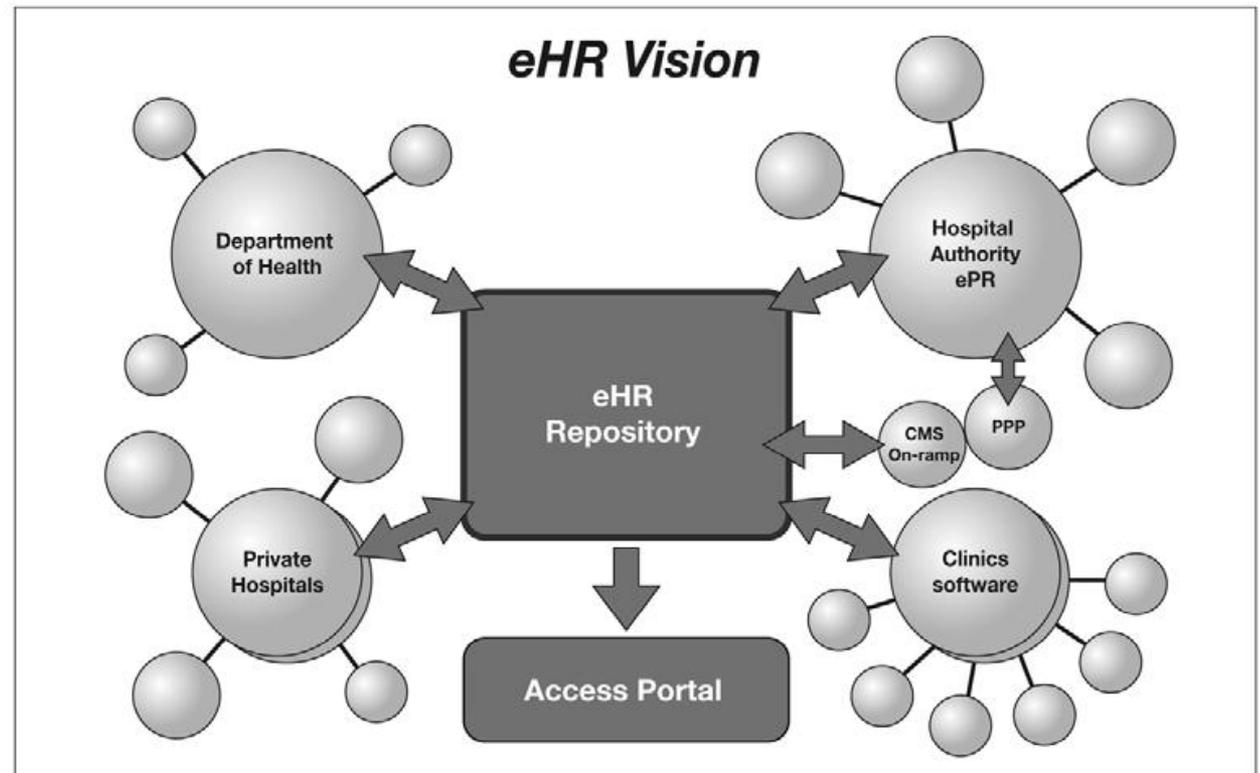
- Enable timely, patient-centered care
- Enhance primary care – build up lifelong EHR
- Facilitate hospital-primary care interface and public-private partnership

Stage 1:

- Build and evaluate infrastructure
- Open to private and non-government providers

Stage 2:

- Complete roll-out
- Engage potential IT professional bodies and private IT vendors

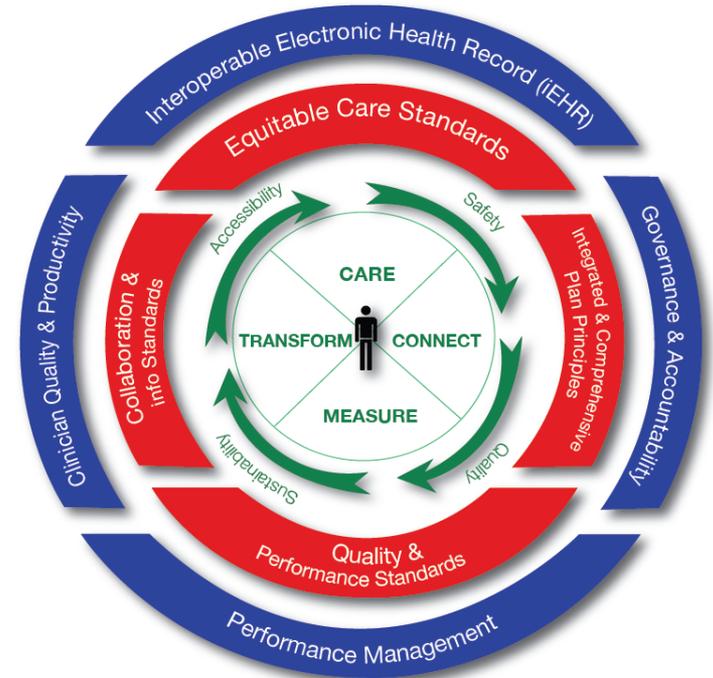




Saudi Arabia

Overview

- One of the most ambitious programs to date
 - ✓ HIS for ~330 MOH hospitals
 - ✓ primary care systems for ~3000 MOH clinics
 - ✓ standards-based national EHR strategy
 - ✓ US\$3 billion investment is contemplated
- 2011 is the launch year with 100 days plan
- Exceptional leadership and investment by Saudi government
- Focused on standards-based approach, with incremental EHR deployment alongside HIS/PHC
- Potential to become regional resource for ehealth excellence



Bringing it together

Why ehealth sometimes fails

- **Funding*** – insufficient or misaligned funding incentives.
- **Governance*** – unclear leadership, or conflicts between stakeholders
- **Standardization and interoperability** – lack of understanding that effective standards are critical between national infrastructure and clinical systems. Underestimation of complexity of interoperability: maturity, adoption, test tools, certification.
 - ✓ No national project is big enough to sustain significant standards customization.
- **Communication*** – poor articulation of the need for and benefits of ehealth

*Source: Electronic Health Records: A Global Perspective, Second Edition, A Work Product of the HIMSS Enterprise Systems Steering Committee and the Global Enterprise Task Force, August, 2010

eHealth Centers of Excellence

a common approach in many countries

	COE-type functions			Notes
	Total HCIT	Investment	% HCIT	
Canada	<ul style="list-style-type: none"> • 2010: \$150M • 2005: \$1,175M 	<ul style="list-style-type: none"> • \$6.6M • \$85M 	<ul style="list-style-type: none"> • 4.5% • 7.2% 	COE-functions are "Innovation and adoption" and "Infostructure"
Hong Kong	<ul style="list-style-type: none"> • 2009: ~\$100M 	<ul style="list-style-type: none"> • ~\$4.5M 	<ul style="list-style-type: none"> • 4.5% 	COE-functions include cost of "support service" for development of EHR over 3 years
Singapore	<ul style="list-style-type: none"> • 05-07: ~\$100M 	<ul style="list-style-type: none"> • ~\$9.7M 	<ul style="list-style-type: none"> • 9.7% 	COE-functions include "3-Year IT Master Plan for MOH HQ"
Sweden	<ul style="list-style-type: none"> • 2010: \$1,000M 	<ul style="list-style-type: none"> • \$45M 	<ul style="list-style-type: none"> • 4.5% 	COE-functions include "national coordination of the E-health strategy"
UK	<ul style="list-style-type: none"> • 2008: \$2,500 	<ul style="list-style-type: none"> • \$43M 	<ul style="list-style-type: none"> • 1.7% 	COE budget is for "strategic health authorities"; budget includes trust IT spend
US	<ul style="list-style-type: none"> • 2011: ~\$4,000 	<ul style="list-style-type: none"> • \$575M 	<ul style="list-style-type: none"> • 14.0% 	Total budget based on full HITECH funding COE budget is NHIN, standards, state HIE
			<ul style="list-style-type: none"> • 6.6% 	Average COE as % of HCIT budget

Source: MOH; Government official interviews; Lit research

Some parting thoughts ...

- Ehealth programs are major transformations and require engagement and support by all.
- Governance is critical – government must walk a fine line between control and delegation.
- Important to address privacy and consent issues early with broad input.
- It is essential to ensure clinician involvement throughout the entire process.
- Do not underestimate the importance of change management. Education and training cannot be overemphasized to align human factors for success.
- Build a critical mass of business cases for use of the system – make sure these are based on real business needs to ensure adoption and sustainability.
- Adopt data exchange standards early in the program and ensure they are fully enabled in the interoperability platform architecture.
- Start small and build incrementally – don't go for a “big bang” approach.
- Don't go for a “one size fits all” approach but allow for regional tailoring.
- No nation has yet realized the vision of patient-centric prevention and disease-management, evidence-based medicine, and ubiquitous provider use of IT. What is being built today is just the foundation for the future IT-enabled healthcare delivery system.

Thank you for your attention

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My contact information:

Blair Butterfield, GE Healthcare
blair.butterfield@ge.com