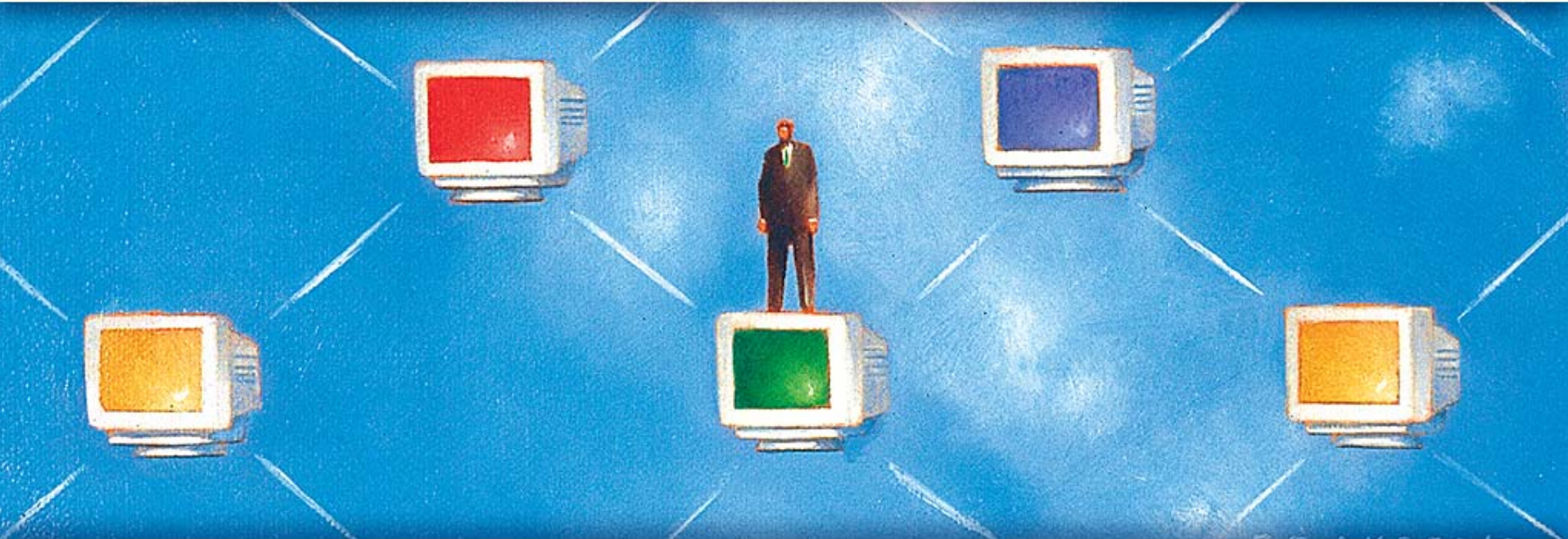


INTERSYSTEMS



Progress towards the delivery of EPR and EHR

An Overseas Perspective

Phil Birchall

www.intersystems.com

InterSystems Technologies



High Performance
Database with Rapid
Application Development



Universal Integration
Platform

Our 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

INTERSYSTEMS

Terminology

The header features a blue and yellow gradient background. On the right side, there is a graphic of several computer monitors of various colors (red, blue, green, yellow) arranged in a network-like pattern. A small figure of a person stands on top of one of the monitors.

- **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.

The Business Case



- Patient Safety?
- Reduce Costs?
- Improve efficiency / throughput?
- Improve quality of care?
- Disease Prevention?
- Patient Choice?
- Access to Care?

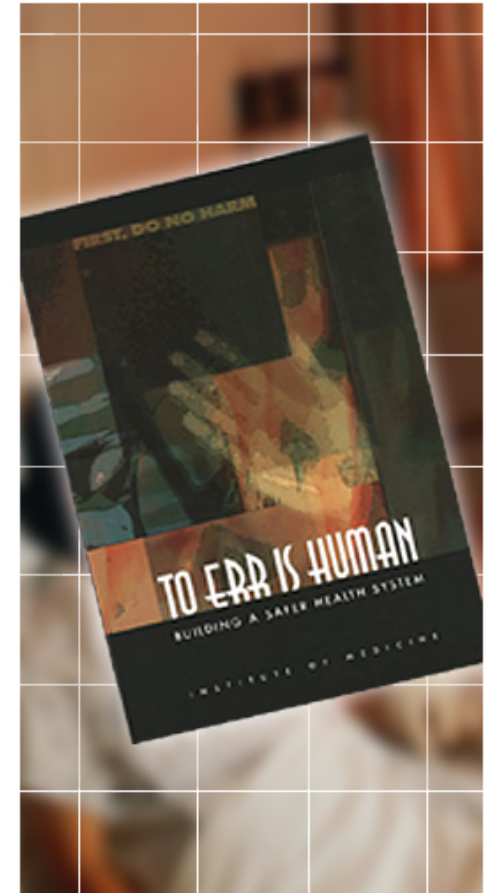
Patient Safety

USA

- 50% of preventable Adverse Drug Events are due to prescribing errors
- Up to 98,000 deaths per year from avoidable errors

UK

- Potentially 400,000 avoidable Adverse Events per year
- Up to 34,000 preventable deaths per year
- £ 400 million per year in clinical negligence compensation



Current Focus for Most EHR initiatives



<i>Aggregate</i>	Population Management EHR	Disease Surveillance EHR
<i>Individual</i>	Continuity of Care EHR	E-health Network EHR
	<i>Retrospective</i>	<i>Transactional</i>

EHR Initiatives around the World

- England NHS Connecting for Health
- Australia HealthConnect
- Canada Health Infoway
- U.S. Dr. Brailer's NHIN
- Croatia Central National Registry
- Finland OpenCDA
- Netherlands National IT Initiative for Health
- Germany SCIPHOX

A very partial list

Key Actors?

- Government?
- Healthcare Providers?
- Payers?
- Other Commercial Players?
- Patient / Consumer?

EHR and the Payer Community



MEDecision Puts Payer-based Patient Record in Doctors' Hands

Industry-First Electronic Patient Clinical Summary for Doctors delivers Comprehensive Information from all Providers, Labs and Pharmacies Associated with the Patient's Health Plan

“The ability of healthcare payers to leverage existing data and provide value at the point of care is a step closer to improving quality and patient safety.”

Cynthia Burghard, Research Director, Gartner

Unexpected Progress?

Published in partnership with 
Healthcare IT News
THE NEWS SOURCE FOR HEALTHCARE INFORMATION TECHNOLOGY

Daily News - September 28, 2005 - Wednesday

Insurer makes electronic patient summaries available for hurricane evacuees.

Source: Healthcare IT News / Author: Caroline Broder, Senior Editor

INTERSYSTEMS

Consumer Appetite for Medical Records

The Arrival of the Personal Health Record

The screenshot shows the NHS HealthSpace website. The header includes the NHS logo and the text 'Welcome to HealthSpace'. Below this, there is a navigation menu on the left with options like 'Home', 'Create a HealthSpace', 'Personal details', 'Library', 'Calendar', 'Choose & Book', 'Login', 'Settings', 'Sitemap', and 'Contact us'. The main content area is titled 'Welcome to HealthSpace' and contains several sections: 'Choose & Book' with links to learn more and go to the service; 'Personal details' with a link to save personal details; 'Health details' with links to track health online and keep a record of medications; and 'Library' with links to save favorite web links, keep a handy address book, search for local NHS services, record appointments, and find healthSpace guides.

The advertisement features the title 'YourHealthRecord' in large orange letters. Below it, the text reads 'Your personal health filing cabinet on the Internet'. To the left, there is a sidebar with links for 'Home', 'About Us', 'Subscribe', 'Tour', 'YourDiagnosis Link', 'YourHealthRecord Emergency Access', 'Terms & Conditions', 'Security & Privacy', 'Contact Us', and 'YourChildsRecord Link'. The main body of the ad includes the heading 'YOUR ONLINE HEALTH RECORD' followed by a bulleted list of services: 'your medications, your immunizations, illnesses, your family, and Doctor visits'. Below this, it states 'It is important to correct treatment secure and lifel...' and 'YourHealthRecord Doctors a comple...'. At the bottom, there are buttons for 'New User' and 'Health Provider', and a small photo of a family. The footer contains the text '© 2003 MacHealth Pty Ltd. All rights reserved 2003'.

The screenshot shows the mychart website interface. The header includes the mychart logo and the tagline 'Patients as Partners'. A 'NEXT SECTION' button is visible in the top right. The main content area is divided into several sections: 'My Health Record' with links for 'Health Summary', 'Recent Visits', 'Test Results', and 'Health Reminders'; 'Secure Messaging' with links for 'Inbox', 'Messages Sent', and 'Request Medical Advice'; 'Prescriptions' with links for 'Refill Request' and 'Appointments' (including 'View Future appts', 'Schedule & New Appt', and 'Request A Future appt'); and 'Customer Service' with links for 'Admin Info' and 'Insurance Info'. The 'View Proxy Status' section contains a paragraph explaining proxy access and a table of patients with access. The 'My Proxies' section contains a paragraph explaining proxy access to the user's account.

Patient	Access Until	Account Status
PRINCETON, DEANNA	06/01/2006	Active
PRINCETON, MATT	06/01/2006	Active

US POLL FINDINGS 2005

- >40% intend to keep their health records online
- 58% of over 65's file details of their healthcare treatment
- 84% welcomed the concept of a personal health record
- Serious concerns about security and privacy

Source: Harris Interactive Study

Innovators?



East Anglia NHS Ambulance Service

- Emergency Contact Number
- Voluntary Participation
- Free and simple to use
- Few barriers to adoption



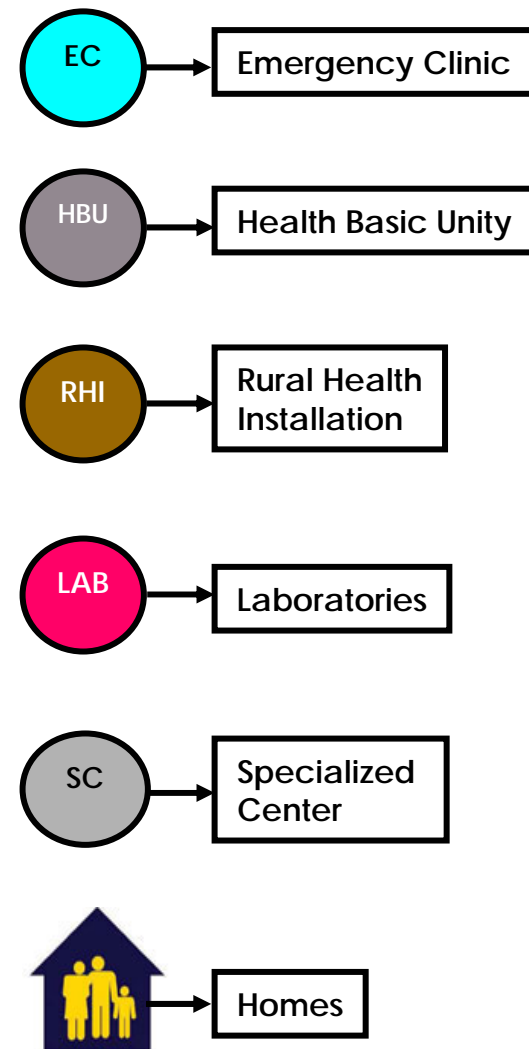
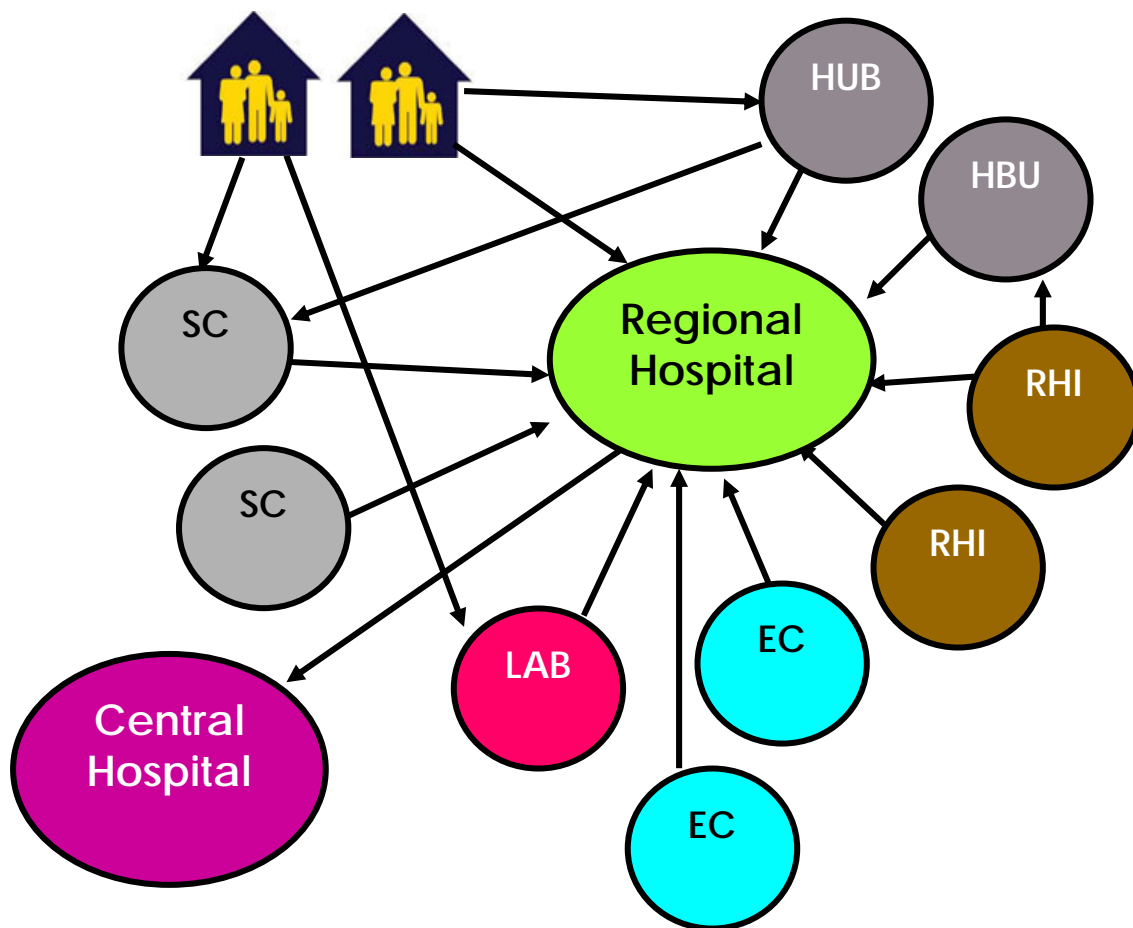
Bob Brotchie

ICE - Commercialisation



- >300,000 people already signed up for extended “emergency care”
- Subscribers volunteer **blood type, allergies, medical history** and **current medication** information
- Service beginning to introduce **security measures** to prevent identity theft
- Time to notify next of kin reduced from six hours to **13 minutes**.

What About the Healthcare Providers?

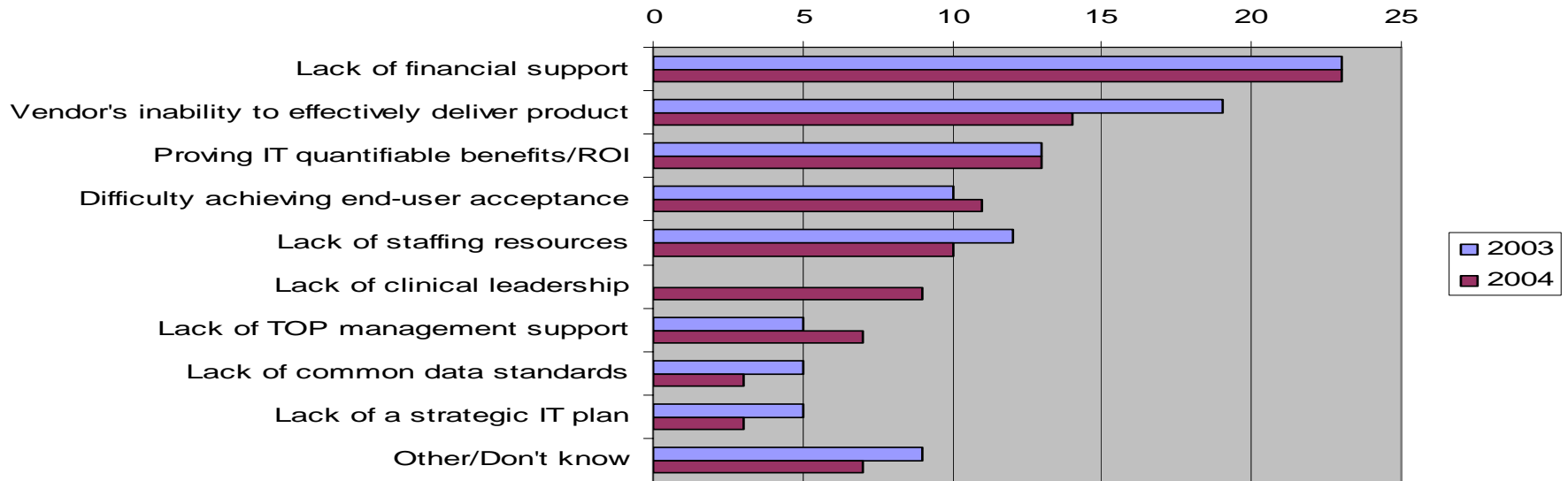


Healthcare Providers

Barriers to ICT investment



Barriers to implementing ICT - HIMSS 2004 CIO

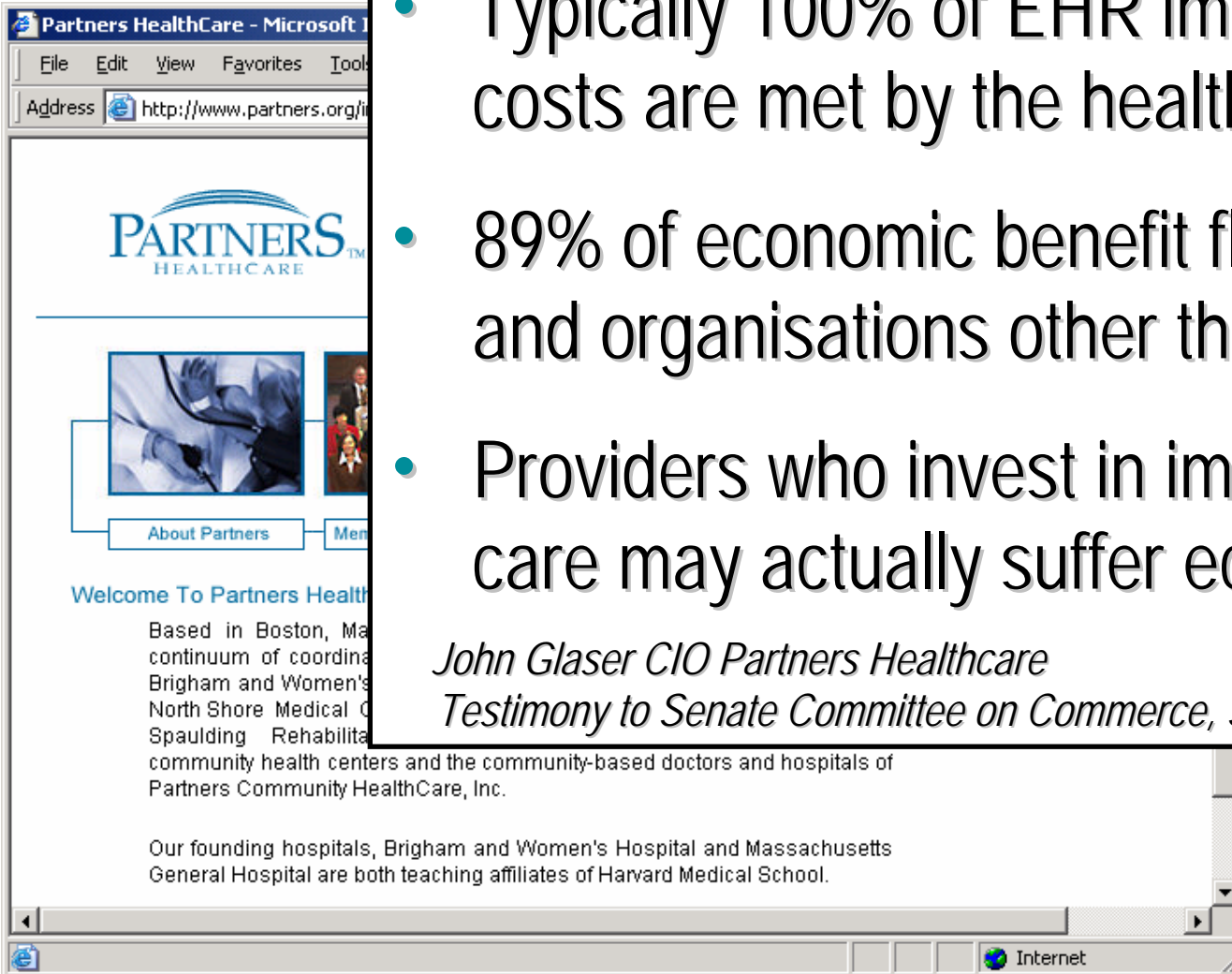


The Challenge for Providers

- Typically 100% of EHR implementation costs are met by the healthcare provider
- 89% of economic benefit flows to groups and organisations other than the provider
- Providers who invest in improving patient care may actually suffer economic loss.

John Glaser CIO Partners Healthcare

Testimony to Senate Committee on Commerce, Science and Transportation



The screenshot shows a Microsoft Internet Explorer browser window displaying the Partners HealthCare website. The address bar shows the URL <http://www.partners.org/>. The website header features the "PARTNERS HEALTHCARE" logo. Below the logo, there are navigation links for "About Partners" and "Members". The main content area includes a "Welcome To Partners HealthCare" section with the following text: "Based in Boston, Massachusetts, Partners HealthCare provides a continuum of coordinated care through its Brigham and Women's Hospital, Massachusetts General Hospital, North Shore Medical Center, Spaulding Rehabilitation Hospital, and community health centers and the community-based doctors and hospitals of Partners Community HealthCare, Inc." Below this, it states: "Our founding hospitals, Brigham and Women's Hospital and Massachusetts General Hospital are both teaching affiliates of Harvard Medical School." The browser's taskbar at the bottom shows the "Internet" icon.

The struggle to deliver EPR and EHR



1. Lack of Clear Definition leading to “Scope Creep”
2. Failure to acknowledge the importance of existing departmental or EMR systems
3. Very difficult to get agreement from stakeholders inside and outside the provider organisation
4. Demoralising sales / procurement cycle time
5. Far too long to implement (*Average 2-5 years Gartner 2005*)
6. Extent of Change Management trivialized.
7. Champions & Supporters lose Faith.
8. Costs & Budget Blowouts

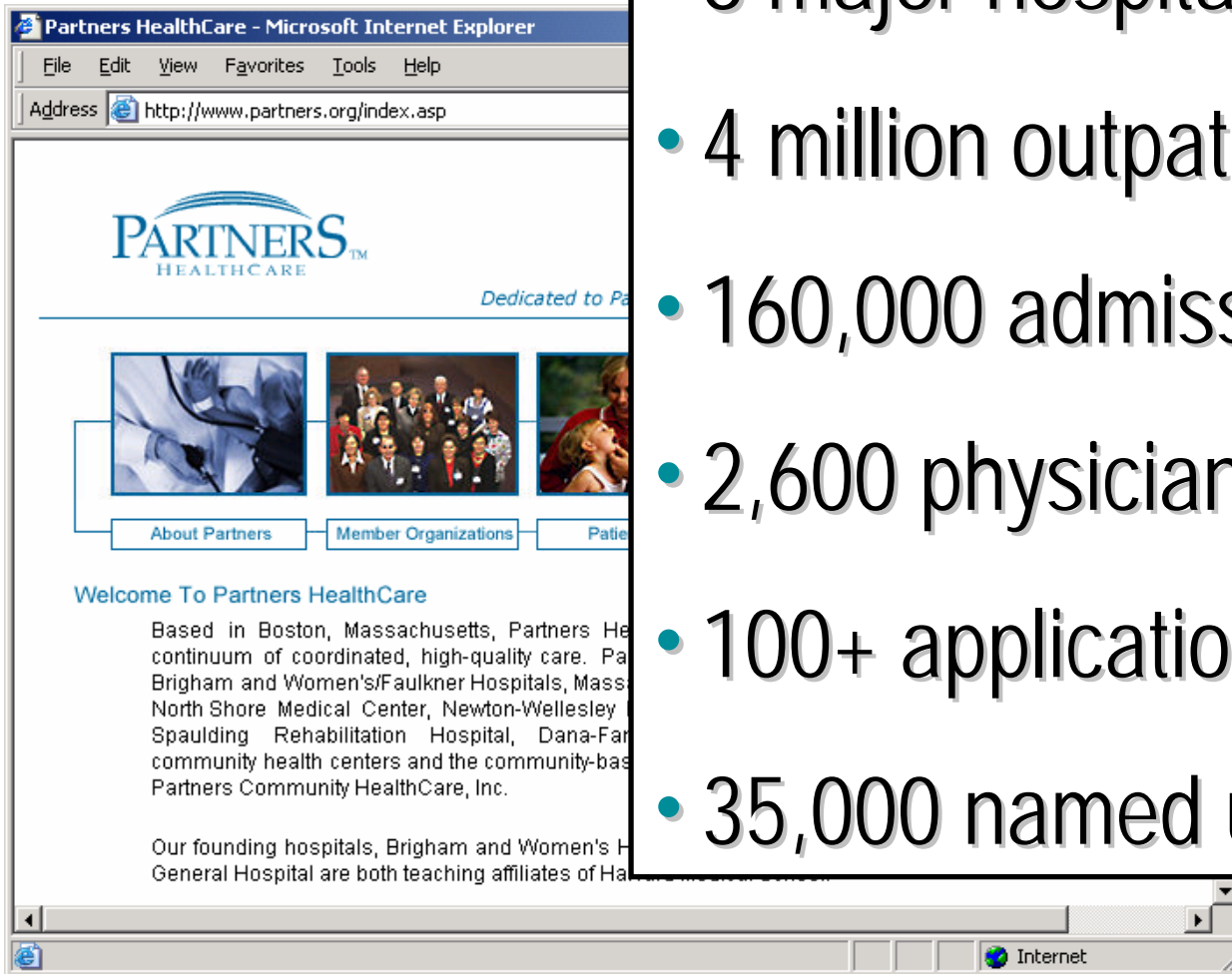
VistA - US Department of Veterans Affairs

- 163 hospitals, 850 clinics, 137 nursing homes, 73 home care programs across 21 regions
- Complete range of clinical and administrative applications.

“The Institute of Medicine notes that the VHA’s integrated health information system... is considered one of the best in the nation.”



Partners Healthcare

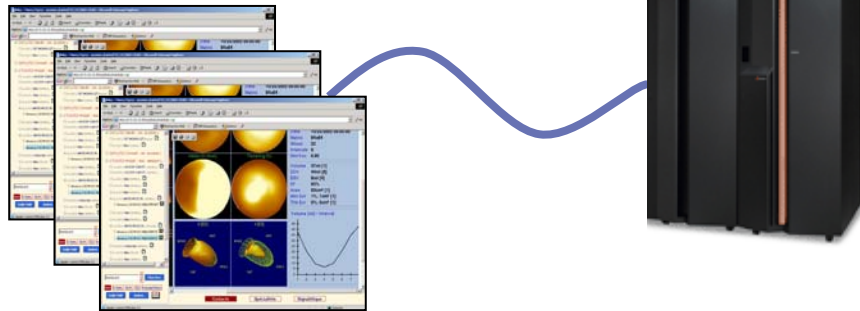


- 8 major hospitals
- 4 million outpatient visits
- 160,000 admissions
- 2,600 physicians
- 100+ applications
- 35,000 named users



Dr John Glaser

Core Technologies

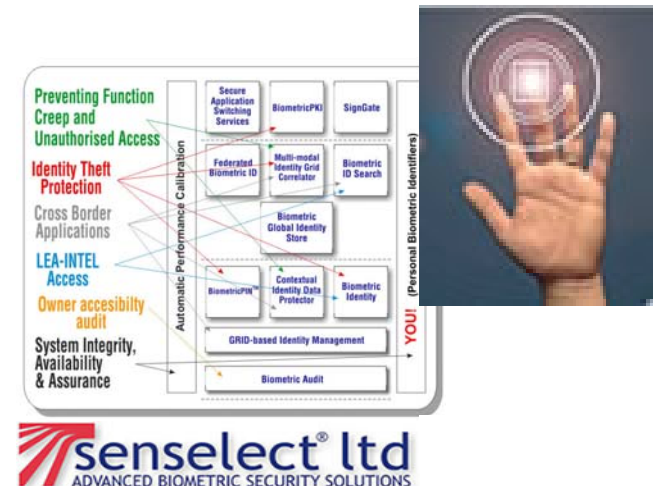


INFRASTRUCTURE

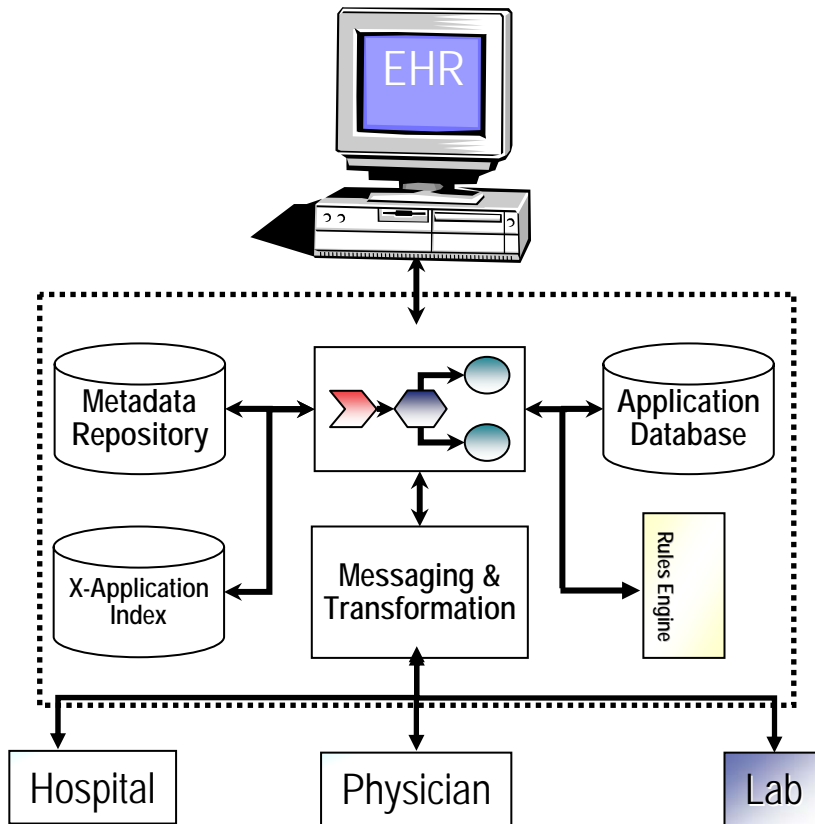
- Browser based User Interface
- Web as the Universal Network
- Performance
- Scalability
- Availability

SECURITY

- Distribution of personal medical data
- Encryption
- Biometrics, Digital Signatures, Smartcards
- Strategies for managing consent / denial



Core Technologies



INTEGRATION

- Cross Application Indexing / EMPI
- Integration of existing (legacy) solutions
- HL7 V2 and V3 Messaging
- XML:
receive, parse, persist, transform, transmit
- Workflow / Business Processes
- Composite Application Development
- Activity Monitoring

CareGroup EPR



*Beth Israel Deaconess Medical Center
Mount Auburn Hospital
New England Baptist Hospital*



Dr John Halamka

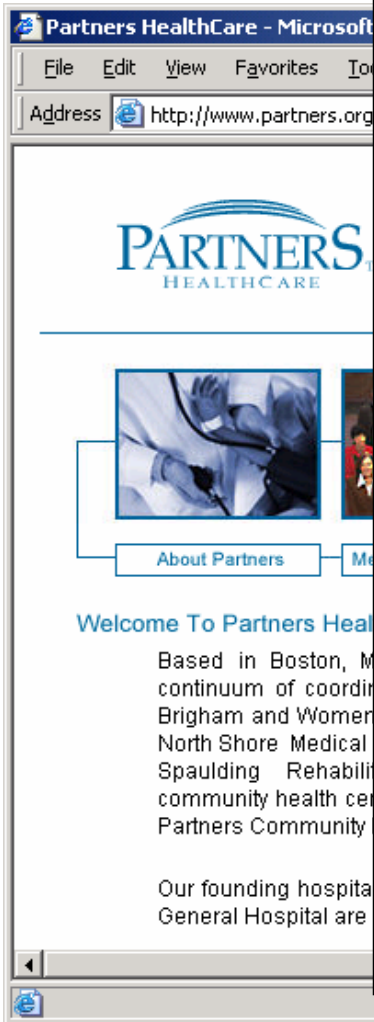
- WebOMR makes clinical data from CareGroups' **5 hospitals** available to **72 associated ambulatory practices** and qualified referring physicians
- **Web-based CPOE** reduces potential for medical error
- \$ 1 million per year **savings** from administrative efficiencies
- \$ 3-4 million per year **increase in revenues** from improved service

INTERSYSTEMS

Measurable Benefits @ Partners Healthcare

- Overall Medication errors reduced by 81%
- Serious Medication errors reduced by 55%
- Electronic reminders prompt recommended care for 30% more diabetes patients
- 15% of all orders changed to lower-cost but equally-effective medications
- Remote monitoring of the elderly leads to 25% increase in productivity for visiting nurses

John Glaser CIO Partners Healthcare



Implications on a National Scale

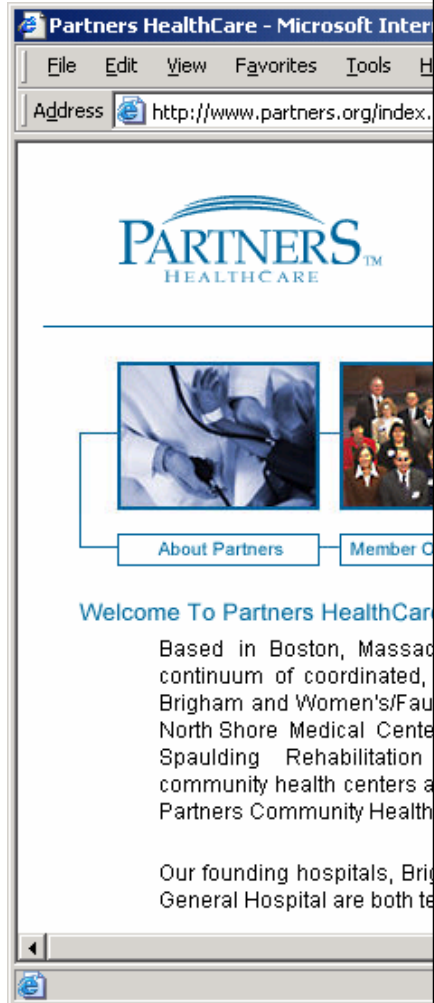
Widespread implementation of interoperable EHRs could save \$ 78 billion per year:

- Avoiding medical errors
- Reducing unnecessary care
- Improving administrative efficiency

Plus

- Elimination of 2 million adverse drug events per year across the nation.

John Glaser CIO Partners Healthcare



EHR Leadership

Kaiser Permanente & Epic Systems

- Largest non-profit USA Health Delivery Organization
 - 8.2 Million members across 9 States plus Washington DC
 - 136,000 technical and admin staff
 - 11,000 Physicians
 - US\$22.5bn Operating Revenue
- \$1.8 Billion, 3 year project using EPIC
 - Automated Medical Records
 - Patient charts, physician order entry, clinical notes, nursing and pharmacy



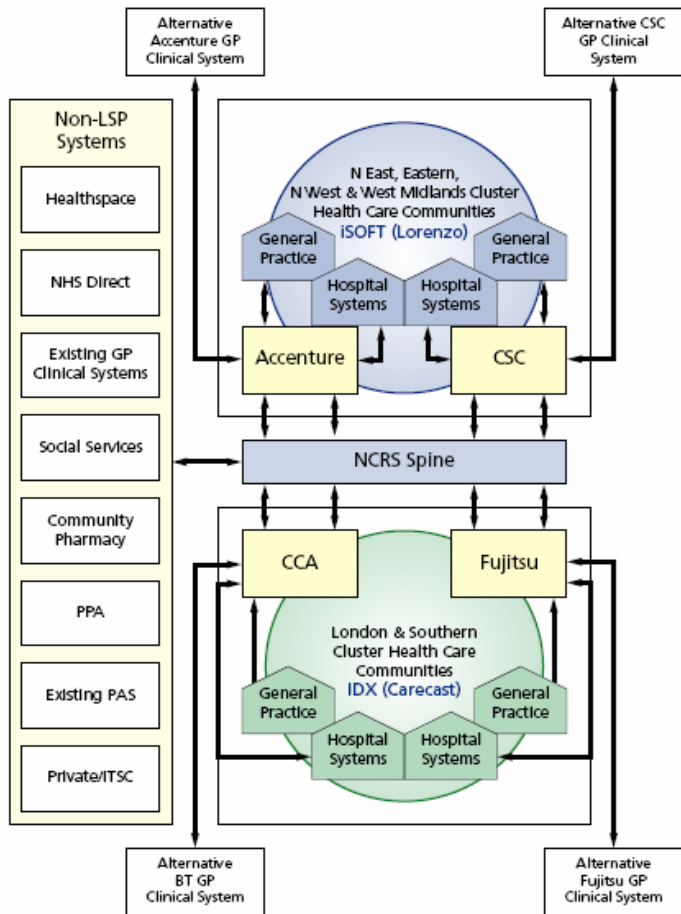
Recognition for EHR Leadership @ Kaiser

I have really one message, only one message for you today and that is that if you don't know that you're a leader, step back, breathe the air and **recognize that you're a leader**. This is really just a remarkable time. I wanted to be here with you today because you all, with every click of the mouse, every use of the keyboard, every time you take another step with your use of your **KP HealthConnect**, are **defining the national experience**.

David Brailer, MD, PhD,
National Coordinator for Health Information Technology,
Department of Health and Human Services,
August 2, 2005



NHS England – Connecting for Health



- Choose & Book
- National Care Record Summary
- National Messaging Infrastructure
- 2 application vendors to deliver “core” continuum of care solutions

- Local Funding Challenges
- Evolving Functional Scope
- Supplier Reconfiguration
- Change Management / Engagement
- Role of Existing Systems
- Technology

Thailand Commitment to EHR

- Pilot in 4 Regions
 - 1 large Hospital
 - 2 small
- 19 Regions 820 hospitals
- National Repository and EHR
 - Demographics
 - Diagnosis
 - Medications
 - Allergies



INTERSYSTEMS

South Africa Commitment to EHR

May 10 1994

President of Republic of South Africa
Inaugural Speech

Spending is to be in two areas

Healthcare and Education

- National EHR 2006

*The time for the healing of the wounds has
come.*

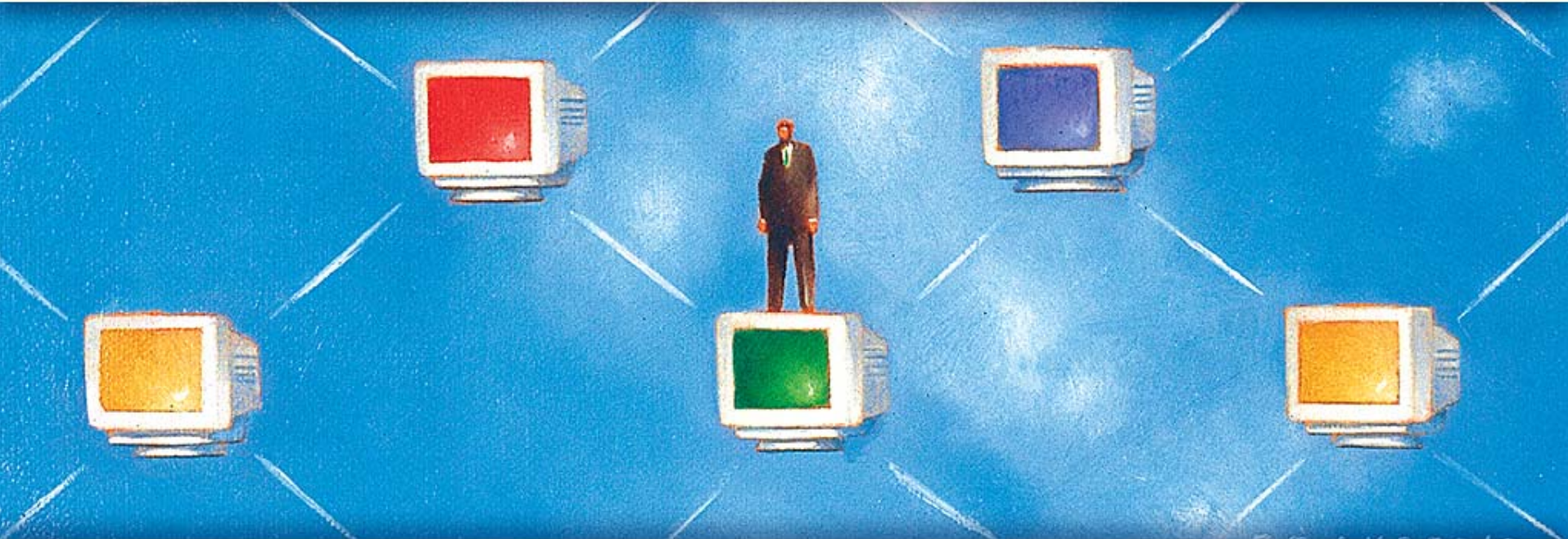
*The moment to bridge the chasms that divide us
has come.*

The time to build is upon us



INTERSYSTEMS

INTERSYSTEMS



Are We Making Progress? – Yes we are!

Phil Birchall

www.intersystems.com