



Canada Inforoute  
Health Santé  
Infoway du Canada



# Better Healthcare with Electronic Health Records

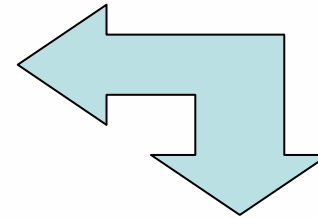
## The Nursing Profession's Leadership Role

Nurses & Informatics: Transforming Healthcare Conference  
Toronto, Ontario  
September 15, 2005  
Richard Alvarez, President and CEO  
Canada Health Inforoute

Creating Healthy Connections

# Last Year, In Canada

- **35 million Diagnostic Images**
- **440 million Laboratory Tests**
- **2.8 million Inpatient hospitalizations**
- **382 million Prescriptions**
- **3.4 million Vioxx Prescriptions in 2003 for patients that had to be contacted in 2004**
- **322 million office-based physicians visits - 94% resulting in handwritten paper records**
- **60,000 physicians faced 1.8 million new medical papers in 20,000 journals and 300,000 clinical trials worldwide**



2,000 transactions/minute  
require documentation &  
information flow

**Information is the  
lifeblood of our  
healthcare system**



In spite of spectacular advances in medicine, the foundation of healthcare delivery is still primarily **paper-based**



# Electronic Health Records

## The International Scene

**Most industrialized countries have recognized the need to implement electronic health records quickly to improve quality and safety of patient care and system efficiency**

- United States
  - United Kingdom
  - Australia
  - France
- ...and in Canada



# Calls for Accelerated EHRs

**First Ministers continue to recognize the necessity of EHRs in their “10-Year Plan to Strengthen Health Care”**

- **Accelerate** development and implementation of the electronic health record, including e-prescribing.
- Recommended a National Pharmaceuticals Strategy that would “broaden the practice of e-prescribing through **accelerated deployment** of the Electronic Health Record”

**Health Council of Canada’s first report recommends an “immediate broadening of the use of IT”**

*“Electronic patient records will pay **huge health dividends** in improved patient safety and lives saved”.*

*“Canada can and should achieve this goal **for all Canadians in five years** – not fifteen”.*



# And Why Not? The Stakes are Enormous



# Reality Behind the Headlines

Lack of Patient Data affects access, safety & quality, productivity

For Every ....	.... in Canada
1000 hospital admissions	→ 75 people suffer an <b>adverse event</b>
1000 patients discharged from hospital	→ 90 suffer a <b>serious problem</b> with drugs received on discharge
1000 laboratory & radiology tests	→ Up to 150 are unnecessary <b>duplicates</b>
1000 women at risk of cervical cancer	→ 300-400 are <b>not screened</b>
1000 patient visits with a Specialist	→ 680 Specialists received <b>no patient info</b>
1000 post-heart attack patients	→ 370-460 <b>don't receive</b> recommended Beta-blocker therapy

**In study of 168 traditional medical records 81% did not have the information required to make patient care decisions**

**CIHI estimates up to 24,000 deaths each year result from preventable adverse events in hospitals, in large part due to incomplete information**



# How do we fix this?

## Canada's health care renewal agenda

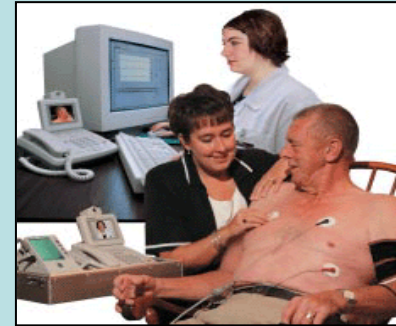
### A 10-year Plan to Strengthen Health care - Priorities

- Improving access
- Wait time reduction
- Health human resources
- Home care
- Primary care reform
- National pharmaceuticals Strategy
- Public health
- Health innovation
- Aboriginal health
- Accountability

*“Electronic health records and telehealth are key to health system renewal ”*

First Ministers 10-Year Health Accord, Sept 2004

**Better Information Management is a critical element underlying renewal**



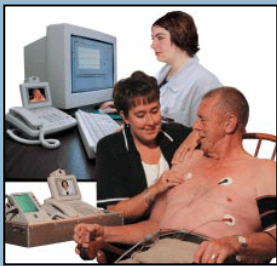


# Electronic Health Records - Access

## The Benefits of Electronic Health Records and *Infoway's* Priorities

### ***Infoway* Electronic Health Record**

Demographics  
Diagnostic Images  
Laboratory Results  
Drug Profile  
Clinical Reports  
Immunizations  
Telehealth



- Increased interpretations by remote specialists
- Improved wait-times for diagnostic imaging services
- Improved availability of community based health services
- Reduced patient travel time and cost to access services
- Increased patient participation in home care
- Increased patient access and use of their health record

### **Access**

- Availability of Services
- Ability to Access Services
- Patient Participation

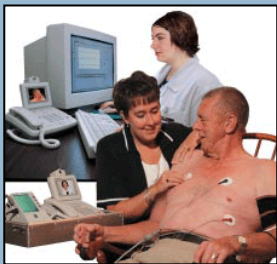


# Electronic Health Records - Quality

## The Benefits of Electronic Health Records and *Infoway's* Priorities

### ***Infoway*** **Electronic Health Record**

Demographics  
Diagnostic Images  
Laboratory Results  
Drug Profile  
Clinical Reports  
Immunizations  
Telehealth



- Decreased medical errors
- Improved interpretation of diagnostic and laboratory results
- Decreased adverse drug events
- Decreased prescription errors
- Improved prescribing practice
- Increased speed and accuracy in detecting infectious disease outbreaks

### **Quality**

- Safety
- Effectiveness
- Appropriateness

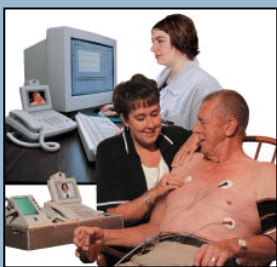


# Electronic Health Records - Productivity

## The Benefits of Electronic Health Records and *Infoway's* Priorities

### ***Infoway*** **Electronic Health Record**

Demographics  
Diagnostic Images  
Laboratory Results  
Drug Profile  
Clinical Reports  
Immunizations  
Telehealth



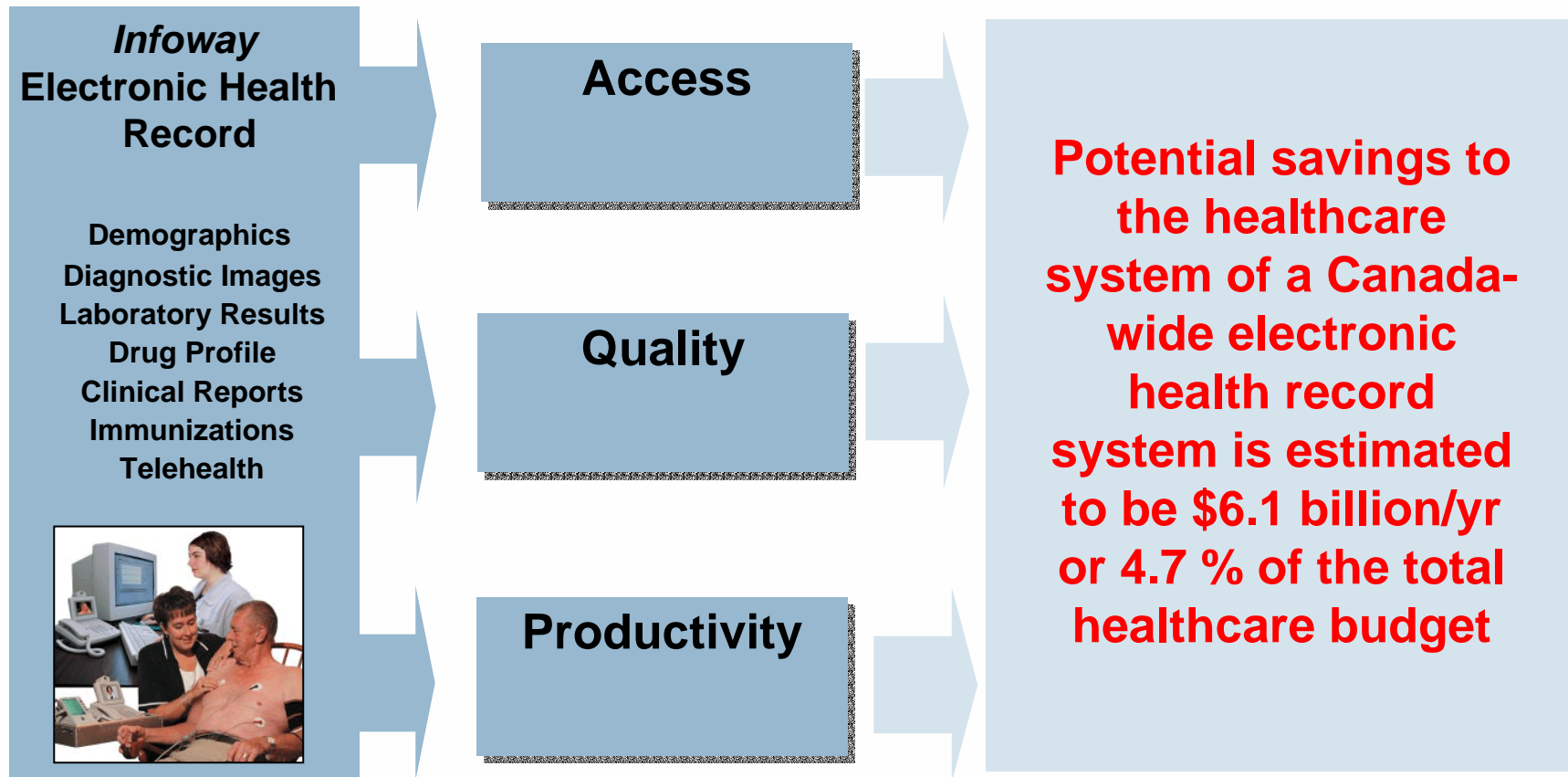
- Increased access to integrated patient information
- Reduced duplicate tests and prescriptions
- Reduced physician prescription call-backs
- Reduced patient and provider travel costs
- Improved vaccine management
- Improved information management resulting in reduced costs

### **Productivity**

- Efficiency
- Care Coordination



# Electronic Health Records The Financial Impact



Benefits = \$3.4 billion/ year<sup>2</sup>

# EHRs' Impact on Evolving Nursing Role

- As we move to more integrated, multidisciplinary teams, nurses will play an increasingly important role, being more on the front line.
- EHRs will become the glue that binds these teams together, driving a more patient-focused healthcare system.
- EHRs will help nurses provide a safer patient environment by providing complete medical histories – the right information at the right time.
- Today's nurse faces an avalanche of paperwork and red tape, the right information technologies can streamline these processes allowing nurses more quality time with their patients
- Having more time to devote to patients increases job satisfaction & retention



# Canada's Strategic Response to EHRs Challenges

- F/P/T governments' recognition that challenges best met with a national commitment that can
  - *Develop solutions that operate across organizations, clinical systems, & jurisdictions*
  - *Share risks and costs across a broad constituency*
  - *Collect and share best practices*
  - *Help establish and drive standards for interoperability*
  - *Provide platforms for National Public Health Surveillance systems*
  - *Increase the market size and hence private sector responsiveness*
- Canada Health Infoway launched as an independent, not-for-profit corporation, equally accountable to 14 F/P/T governments
- \$1.2B Capitalization - invests on a 75/25 basis with provinces & territories for eligible project costs

**A unique approach was adopted, based on collaboration  
across Canada's healthcare jurisdictions**



# Canada Health Infoway

## Mission

To foster and accelerate the development and adoption of electronic health information systems with compatible standards and communications technologies on a pan-Canadian basis, with tangible benefits to Canadians. To build on existing initiatives and pursue collaborative relationships in pursuit of its mission.

## Goal

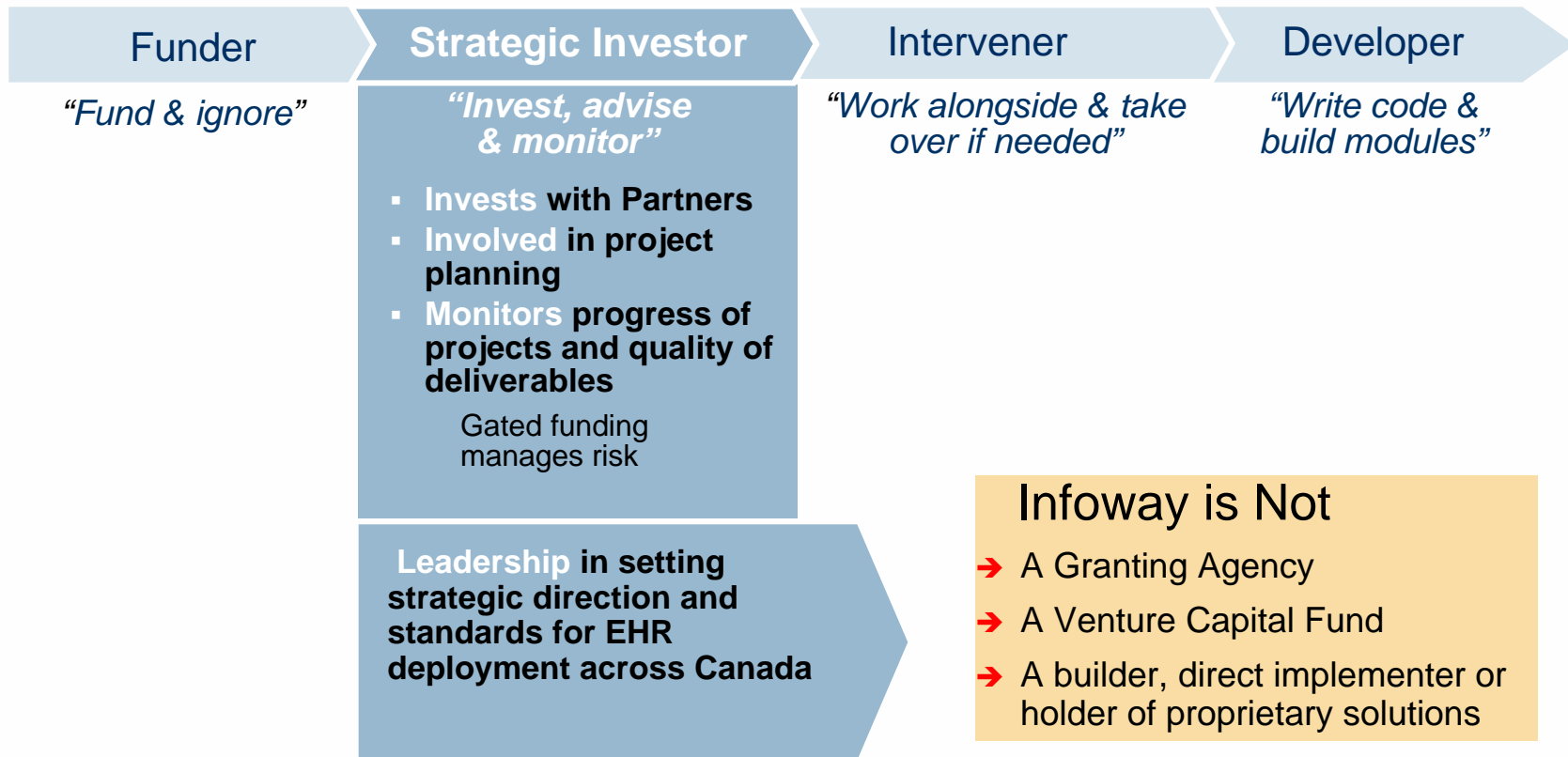
To have an interoperable electronic health record in place across 50 percent of Canada (by population) by the end of 2009.





# Infoway's Role – Strategic Investor

**Infoway focuses on initial investment in a solution & its deployment. Our unique role is in providing strategic leadership.**



# Seven Business Strategies

**Targeted Programs**

**Leveraged Investment**

**Collaboration with Health Ministries and Other Partners**

**Joint Investments with Public Sector Partners**

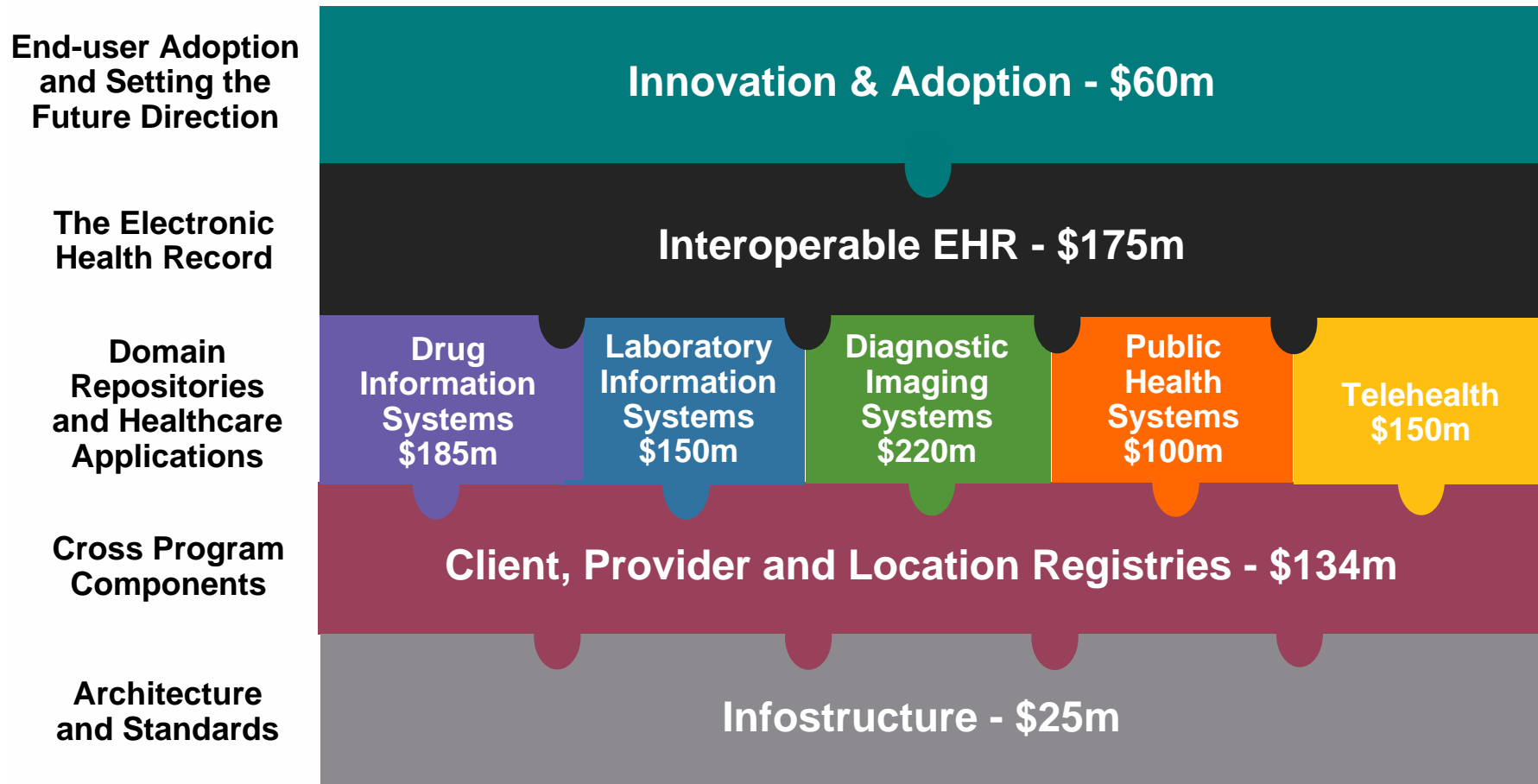
**Focus on End-Users**

**Alliances with the Private Sector**

**Measure Benefits and Adjust**



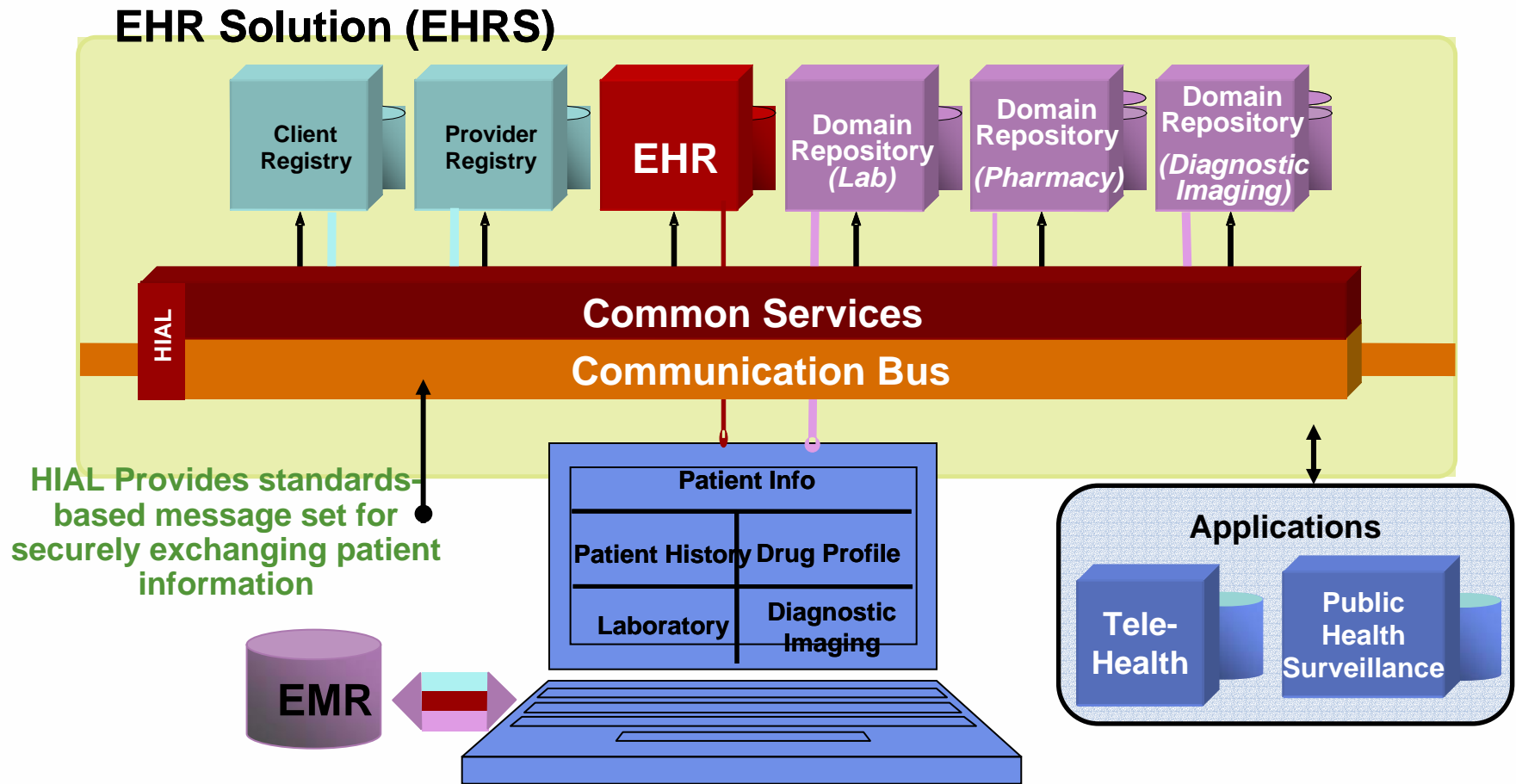
# Nine Strategic Investment Programs



**A 3-year joint technology and investment plan was developed with each jurisdiction that provides a long-term roadmap as to how these EHR components will rollout**

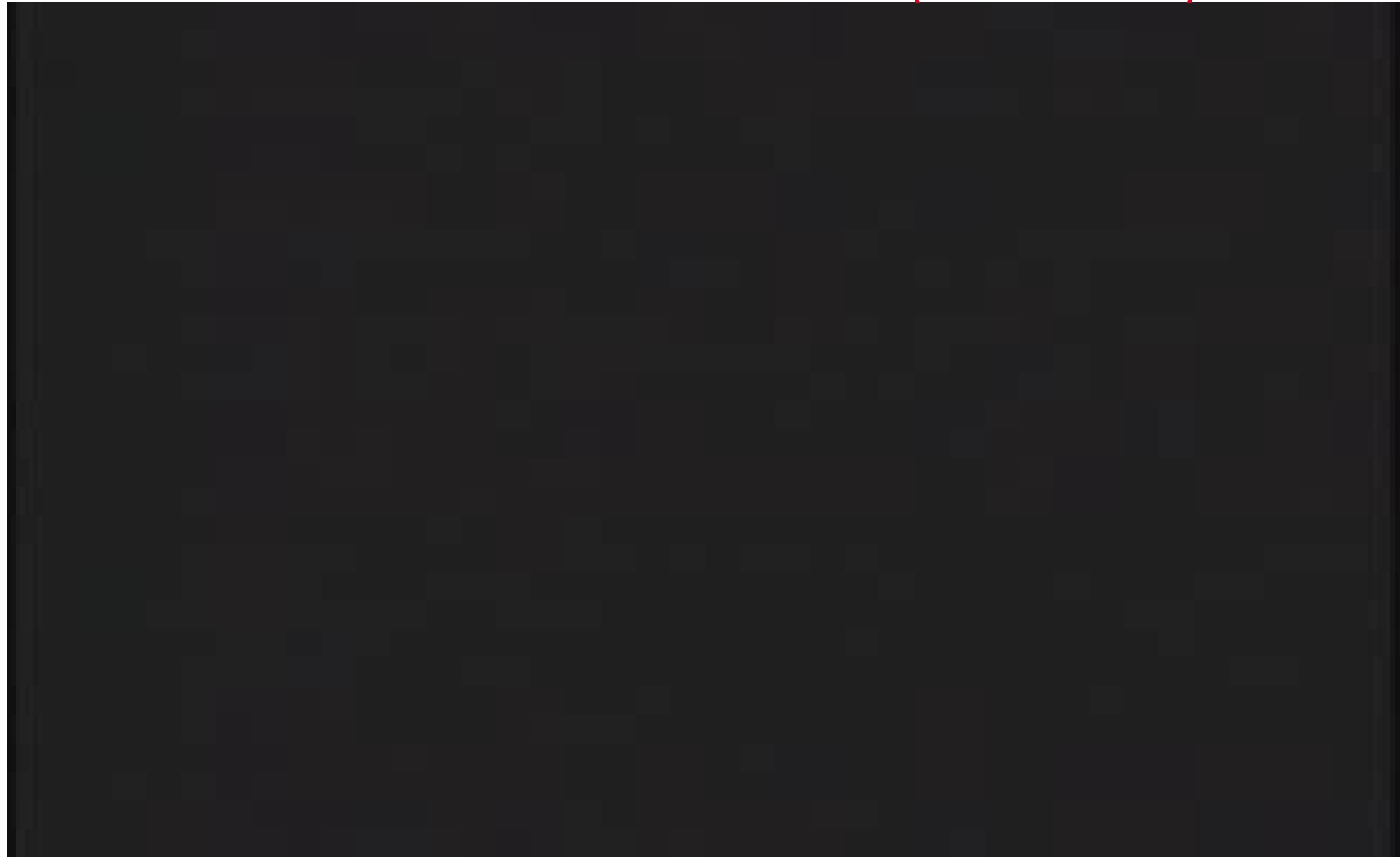


# Tying it all together - The EHRs Nurses Will See



An interoperable EHR captures all key clinical data on one screen (role-based)

# A Live View “EHR Video Demonstration” (NetCare)



# The Role of the Nursing Profession In Delivering the Reality of EHRs

- Because Nurses are so directly affected, for each project, nurses help
  - Define the vision and benefits
  - Select/design the solution
  - Design new workflows and the work environment
  - Define implementation plans
  - Develop communication, training and transition management plans and activities
- Infoway has developed End User Acceptance Strategy, with nurses as one of three major end-user groups.
- Strategy supports accelerated acceptance, adoption of EHRs, and reflects regional consultations with providers re benefits, barriers and suggestions for acceleration.



# End User Acceptance

## The Strategic Challenge

- Obtaining a return on major investments in EHR infrastructure requires substantial change in the work behaviours of health professionals across fourteen jurisdictions within four years
- Change must occur across a complex landscape
  - End users work in a wide range of settings from small medical practices to large hospitals and health regions, and belong to various professional organizations
- End user acceptance is a critical enabler of EHR solutions
  - Without acceptance, improvements in patient care from EHR will not be optimized
- End user acceptance is slow and must be accelerated





# End User Acceptance Strategy

The Opportunity - Three Themes - Ten Initiatives

	Initiative
Learning Foundation	Understand engagement principles and practices
	Develop a continuous learning environment
	Promote health professions training in EHR
Promoting Behavioural Change	Demonstrate the EHR value proposition
	Build new workflow models
	Promote support for end users
	Stimulate consumer demand
Managing the Context	Engage and support super users
	Influence the jurisdictional EHR environment
	Leverage national leadership



# Moving Forward – Progress Targeted Programs

- Tight focus on nine programs
- All 9 Program Investments Strategies approved & guiding EHR projects across the country.
- Total value of 9 approved Program Investment envelopes is \$1.044 billion or 87% of Infoway's capitalization of \$1.2 B
- 105 projects and accelerating

–in every province and territory.....



# Infoway's Projects Providing Value Coast to Coast

105 active and completed projects\* ...

Valued at \$321 million in all investment programs

The 61 projects jointly developed with provinces and territories are shown

44 national projects are also underway



- Registries
- Diagnostic Imaging
- Drug Info Systems
- Lab Info Systems
- Telehealth
- Interoperable EHR

\*For a complete project list, see [www.infoway-inforoute.ca](http://www.infoway-inforoute.ca)

# An Example Diagnostic Imaging Systems

- 20 active, 2 completed, in 10 jurisdictions
- Reduces patient transfers & waiting for results
- Improves interpretation of diagnostic results
- Cut travel to view film; increase remote readings
- 20% productivity radiologists, 10% specialists
- Productivity adds capacity of 5-10 M exams
- “Shared Service” = economies of scale
- Avoids \$350 M yr duplicates, film, handling
- \$1 Billion in total annual savings estimated



*“With the system up and running, I have become a better diagnostic radiologist. I don’t think there’s any doubt”*

Dr. K Wong, Radiologist,  
Fraser Valley

**Better results at less cost**

**Infoway Toolkits capture all phases of the projects  
to reduce cost and risks for other jurisdictions**



# Example: Drug Information Systems

7 projects in 7 jurisdictions



**Alberta:** Province-wide DIS with e-prescribing, drug profile, adverse-reaction alerts

**Ontario:** Ontario's Drug Program information, initially Emergency room access

**Saskatchewan:** Province-wide DIS for 95% of meds prescribed

Developing clinical drug messaging standards. Drug claims message standards already developed

.... When VIOXX was pulled from the market, it took our practice just one hour to produce a report on patients who had been prescribed the medication, allowing us to contact every one of them the same day.”

*Dr. Sue MacLean, Founding Partner, Markham Family Physicians; Infoway's Senior Medical Advisor*

**Expect \$3.6 billion annual savings, Canada wide, avoiding adverse drug reactions and drug compliance issues**



# So Where Were We?

## As of March 31, 2004

	WEST				ON	QC	EAST				TERRITORIES		
	BC	AB	SK	MB			NB	NS	PE	NL	YK	NT	NU
<b>INVESTMENT PROGRAMS</b>													
EHR													
Telehealth					▲								
Laboratory													
Drug		●	▲		▲					▲			
DI	●			▲	●		▲	▲		▲			
Provider Reg.	●	●	●	●			▲						
Client Reg.	▲	●		▲	▲		▲	▲	■	●			

▲ Phase 0/1 Projects      ● Phase 2 Projects      ■ Completed



# So Where Are We?

## As of March 31, 2005

		BC	AB	SK	MB			NB	NS	PE	NL	YK	NT	NU
INVESTMENT PROGRAMS	iEHR			▲	▲		▲						▲	
	Telehealth				●	●		▲			▲		▲	▲
	Laboratory	▲	▲			▲				▲				
	Drug		●	●		●	▲			▲	▲	▲		
	DI	▲●	▲	▲	▲	▲●	▲	▲	▲		●		▲	
	Provider Reg.	●	●	●	●		▲		▲					
	Client Reg.	●	●	●	●	▲	▲	▲	▲	■	●	▲		
	Public Health													

▲ Phase 0/1 Projects    ● Phase 2 Projects    ■ Completed





# Where Will We Be?

## As of March 31, 2006

	WEST				ON	QC	EAST				TERRITORIES			
	BC	AB	SK	MB			NB	NS	PE	NL	YK	NT	NU	
INVESTMENT PROGRAMS	Public Health	▲				▲	▲	▲	▲	▲	▲			
	Telehealth	●	▲	▲	●	▲●	●	●	▲	▲	●	▲	▲	●
	iEHR	▲	▲	▲	▲	▲	●	▲	▲	▲	▲	▲	▲	▲
	Laboratory	●	●	▲	▲	●	▲	▲	▲	▲	▲			
	Drug	▲	●	●		●	●			●	●	▲		
	DI	■●	●	●	●	■●	▲●	●	●		●		▲	
	Provider Reg.	■	■	■	■		●	●	●	●	●			
	Client Reg.	●	■●	●	●	▲	●	●	▲	■	■	▲		

▲ Phase 0/1 Projects    ● Phase 2 Projects    ■ Completed



# The Future of EHRs & Their Impact on Nursing

- EHR systems will become more proactive, helping automate basic tasks ie. recording patient vital signs, while also becoming important knowledge and decision-support systems helping alert the nurse to potential adverse reactions, anomalous situations, and new medical practices
- EHRs will become a critical component of Tele-triage and other Telehealth applications
- As these technologies become more prevalent, Professional Development events and Universities will need to integrate them into the nursing curriculum



# Challenges

- Progress has been slower than planned
- Ability of some jurisdictions to support several programs
- Adoption / Acceptance by healthcare professionals
- Capitalization insufficient for 100% Canada-wide



## Our 2005-06 Focus

- Accelerate the Pace
- Interoperability and Integration
- End-user focus – Physicians, Nurses, Pharmacists
- EHR Funding
- Measure and Communicate Benefits



# Conclusions

- EHRs are key to healthcare reform, and will drive significant improvements in its efficiency, quality, safety, and sustainability
- There are many challenges – including adoption
- The Nursing Profession needs to play a key role in EHR usability design, adoption, and promotion
- EHRs provide the promise of significantly improving the job satisfaction and productivity of the nursing profession
- Infoway invites and welcomes participation of all nursing organizations



EHR Systems are Key to the Modern  
21st Century Healthcare System that  
Canadians need and deserve

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**Thank-you!**

