The State of the EHR and Electronic Healthcare in Canada

The Unvarnished Version

November 13, 2003

Electronic Health Record Solution – Infoway's View

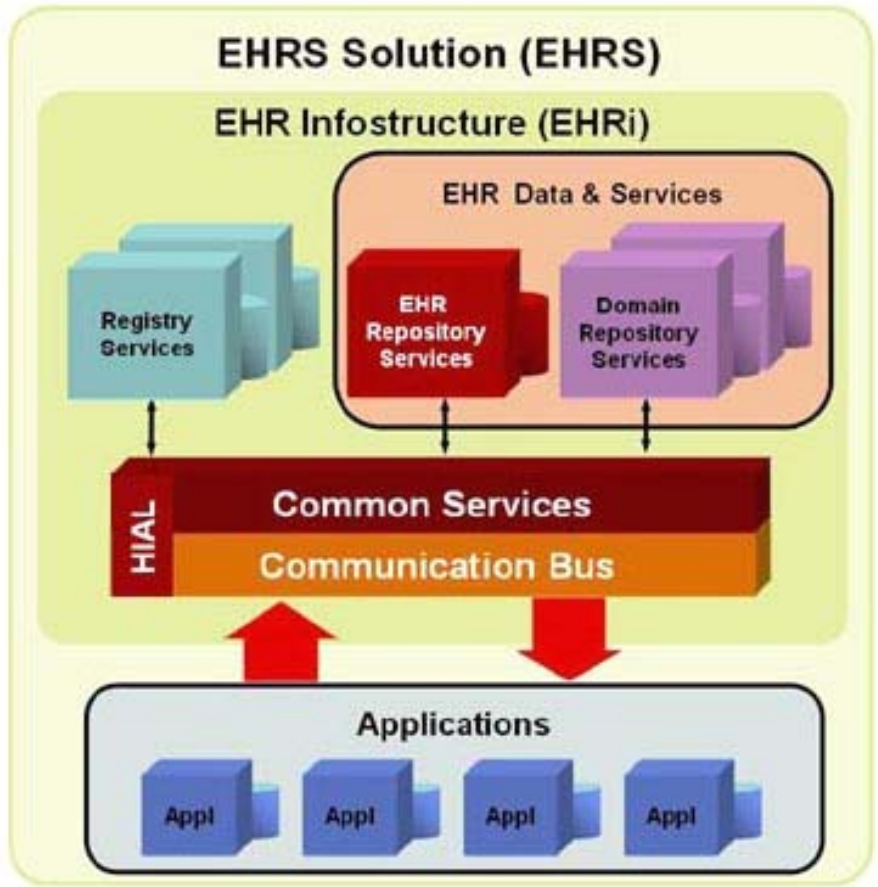
Infoway's Definition of Electronic Health Record:

"An Electronic Health Record (EHR) is a secure and private lifetime record of an individual's key health history and care. It creates significant value, providing a longitudinal (i.e. "cradle to grave") view of clinical information. The record is available electronically to authorized health care providers and the individual anywhere and anytime in support of care"

Canada Health Infoway
Inforoute Santé du Canada

Electronic Health Record Solution – Infoway's View

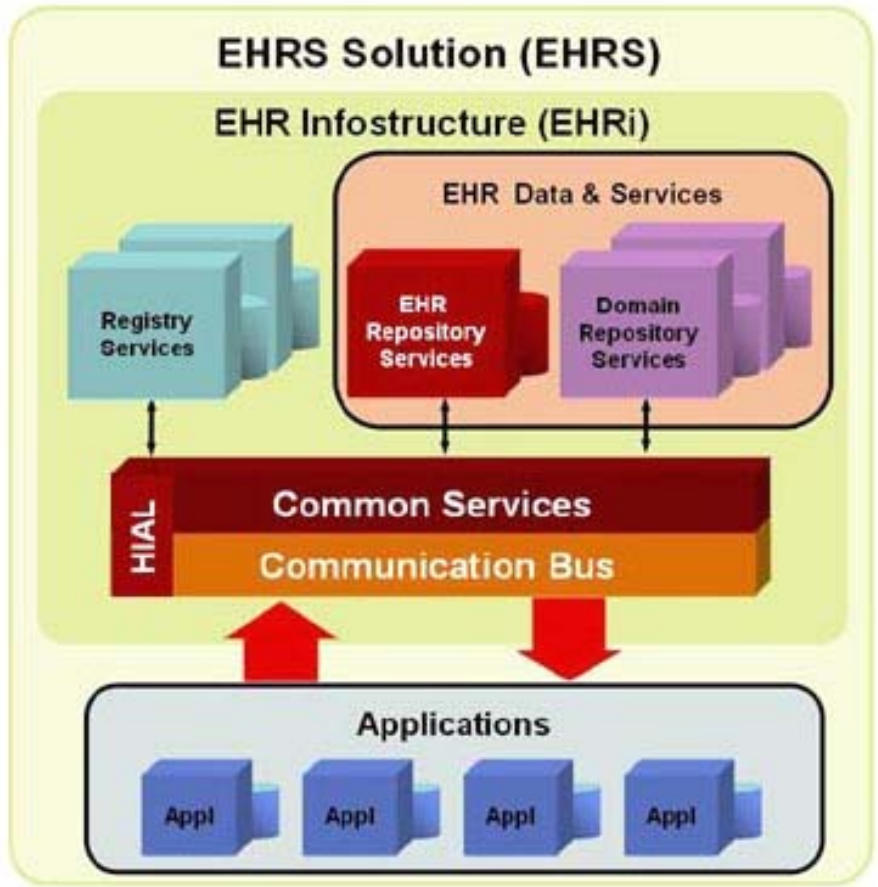
- Patient-centric, womb to tomb
- Patient is logically in one EHR
- Conceptually, EHR is the "data warehouse" of clinical information
- EHR is a combination of clinical domain repositories (e.g. PACS, Pharmacy) and data replicated from point of care systems



Source: Canada Health Infoway: EHRS Blueprint

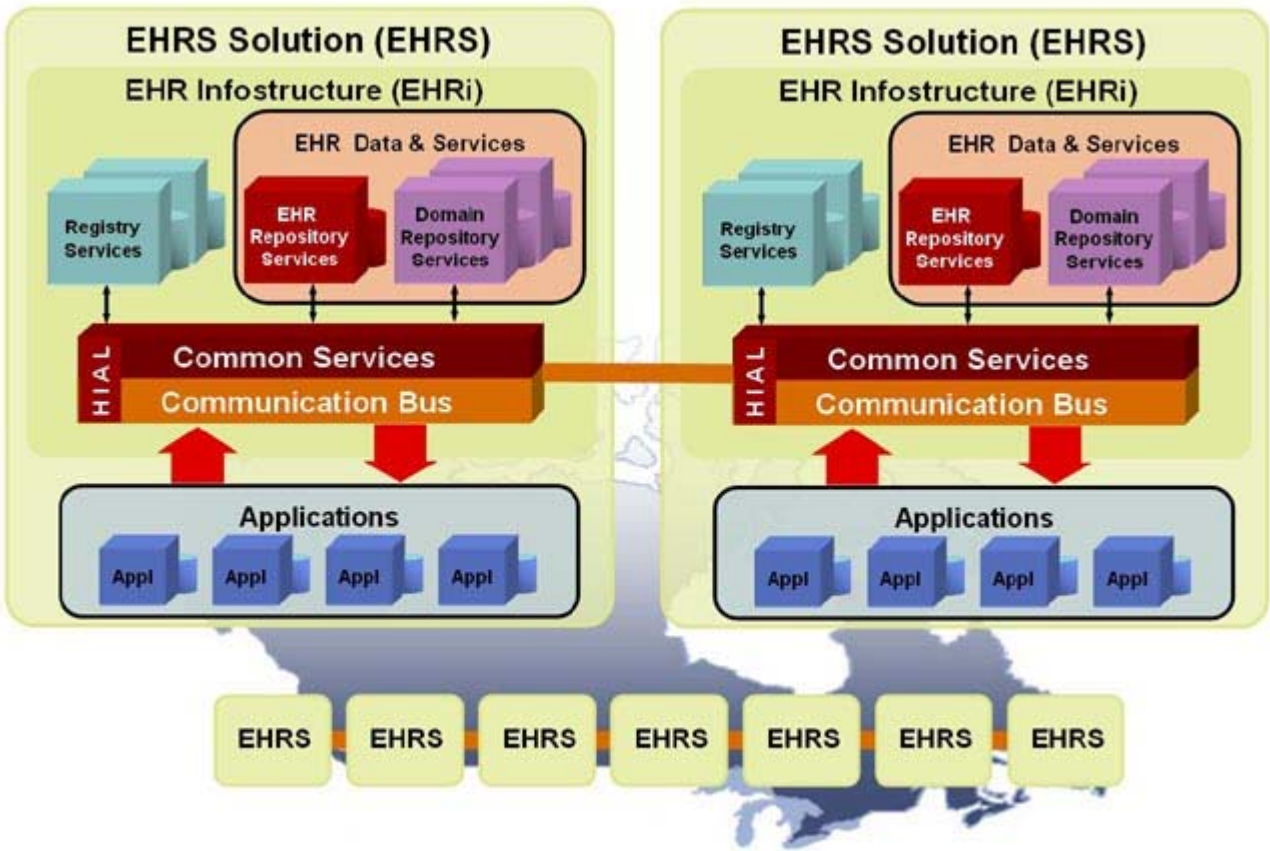
Electronic Health Record Solution – Infoway's View

- Does NOT replace the operational data store for clinical applications
- Includes encounter information and all clinically relevant data
- Each EHR is a component of the larger EHR Solution (EHRS)



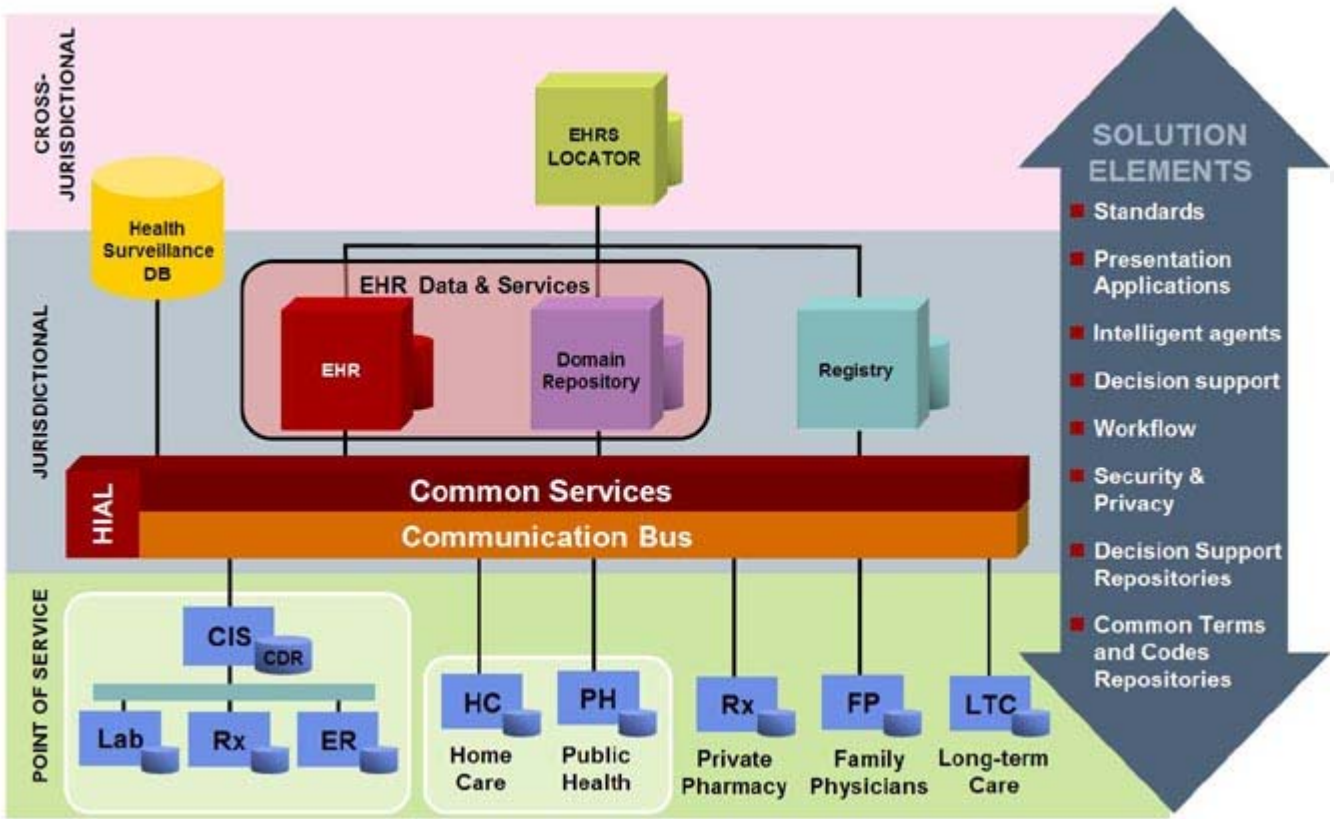
Source: Canada Health Infoway: EHRS Blueprint

Electronic Health Record Solution – Infoway's View



Source: Canada Health Infoway: EHRS Blueprint

Electronic Health Record Solution – Infoway's View



Source: Canada Health Infoway: EHRS Blueprint

Electronic Health Record Solution – Infoway's View

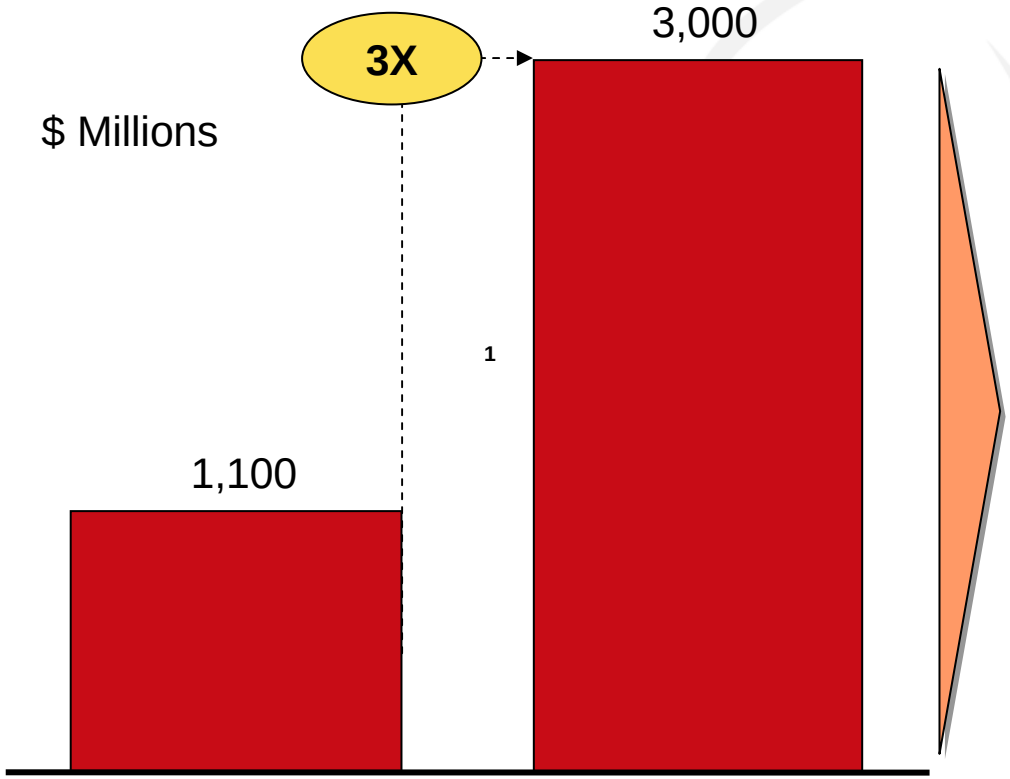
- 2003/04 Business Plan envisions having the basic elements of interoperable EHR solutions in place in 50% of country within six years.
- Availability of $1.1 Billion in investment capital
  - $600M allocation in Feb 2003 along with expanded mandate for Telehealth development
- 20% ($158M) committed to 17 projects in 2002/03
- *Infoway's* Role
  - Strategic Investor focusing on initial investment in a solution and it's deployment
  - Setting standards and requirements for products and outcomes
  - Establishing success criteria
  - Flow or withholding of funds based on status and quality of projects
- Business Plan available at www.infoway-inforoute.ca

Canada Health Infoway
Inforoute Santé du Canada

Infoway Business Plan

- Six major investment programs:
  - Telehealth $100 - 150
  - Laboratory $150 - 200
  - Diagnostic Imaging $220 - 280
  - Drug Information $185 - 240 (3rd generation)
  - Registries $80 - 110
  - Infostructure $190 - 260

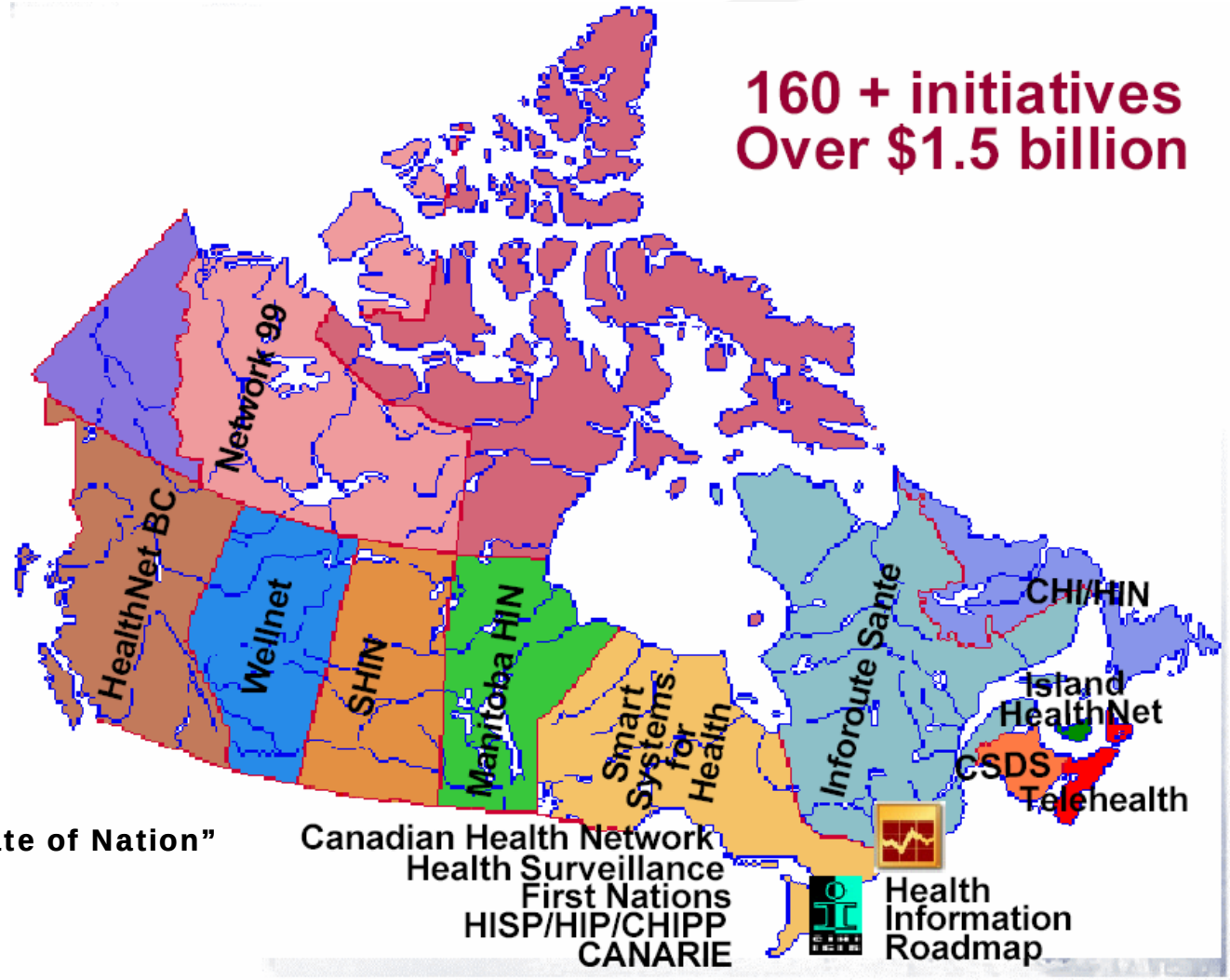
Infoway has only a fraction of the money needed



- *Infoway* funding as of 2003/04
- Estimated requirements for pan-Cdn EHR impl'n

- There is still a $ 1.5 to 2 billion gap in funding
- There is a need to find ways to leverage *Infoway's* funds beyond $1.1 billion

A Look Across Canada



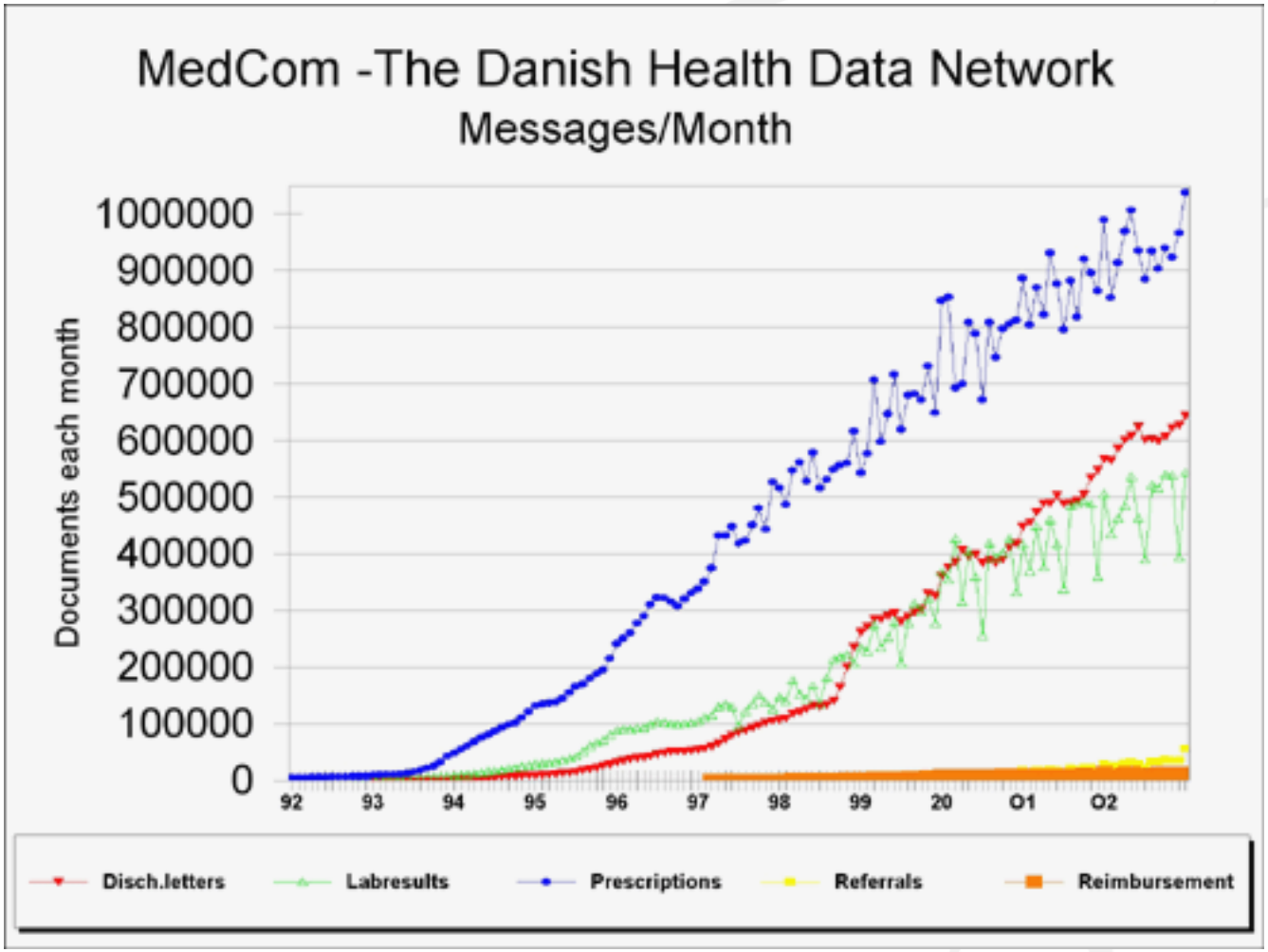
Slide from
COACH "State of Nation"

Danish Experience

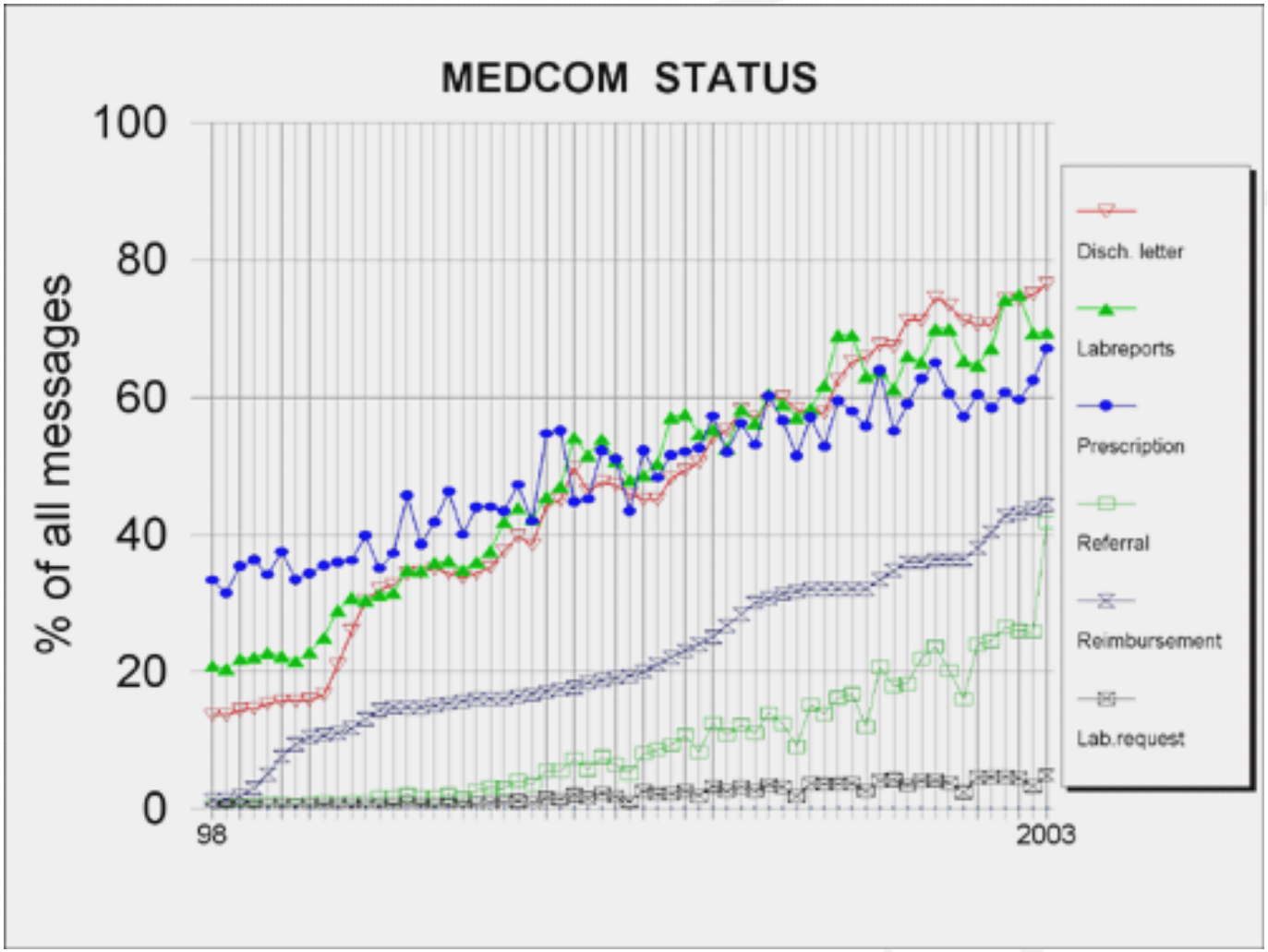
- Danes spend ~$20 Billion per year (8.4% of their GDP) on health services
- Has ~3500 GPs, 800 full time specialists, 250 part time specialists, 65 hospitals and 332 pharmacies.
- Over 90% of GP offices are computerized and use EMRs.

  Almost 90% use computers to transmit EDI messages
  - Discharge messages
  - Lab requests/results
  - Referrals
  - Prescriptions and reimbursements
- 40-90% of specialists use computers. 15-70% of them use EDI clinical messages (varies by county)
- 75% of the health care sector (>2,500 different organizations) now participate in electronic communication via Health Care Data Network

Danish Experience



Danish Experience



Danish Experience

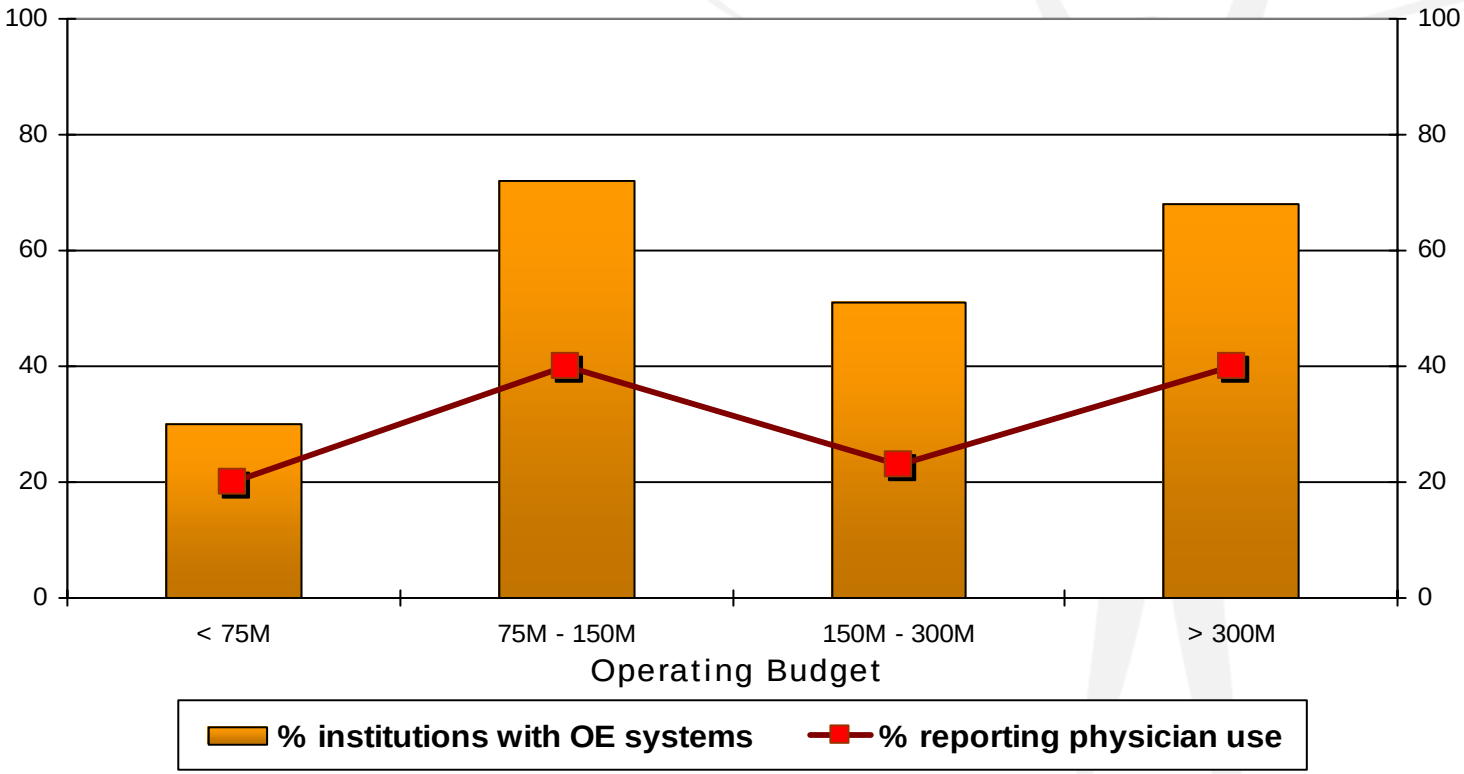
- What are the driving forces to the physician uptake of computers
  - Participation is voluntary
  - Communication benefits
    - Test results – use to take 5 days, now received immediately
    - Discharge summaries – use to take 4+ weeks, now received within 1-3 days
  - Simplified repeat medication prescribing (save time!)
  - Peer influence
  - Provider registries and other information
  - Required computer use for participation in FFS after hours primary care program
  - Adequate support and training
  - Patient perception

Danish Experience

- Where are they going?
  - Internet-based infrastructure for EDI, e-mail, web look-up, telemedicine etc.
  - Development and implementation of communication to and from EPRs in hospitals
  - Continued dissemination and quality assurance of the existing EDI communication

CPOE in Canada: Infoway Data

- It is widely accepted that real value is to be obtained only when clinicians **use** the technology for Physician Order Entry, Results Reporting and Decision Support
- Where these systems exist, the evidence is that **few** clinicians (especially physicians) use Order Entry Systems



Source: Canada Health Infoway

CPOE in Canada: Hospital Pharmacy Survey

- **Hospital Pharmacy in Canada Survey, 2001/2002**

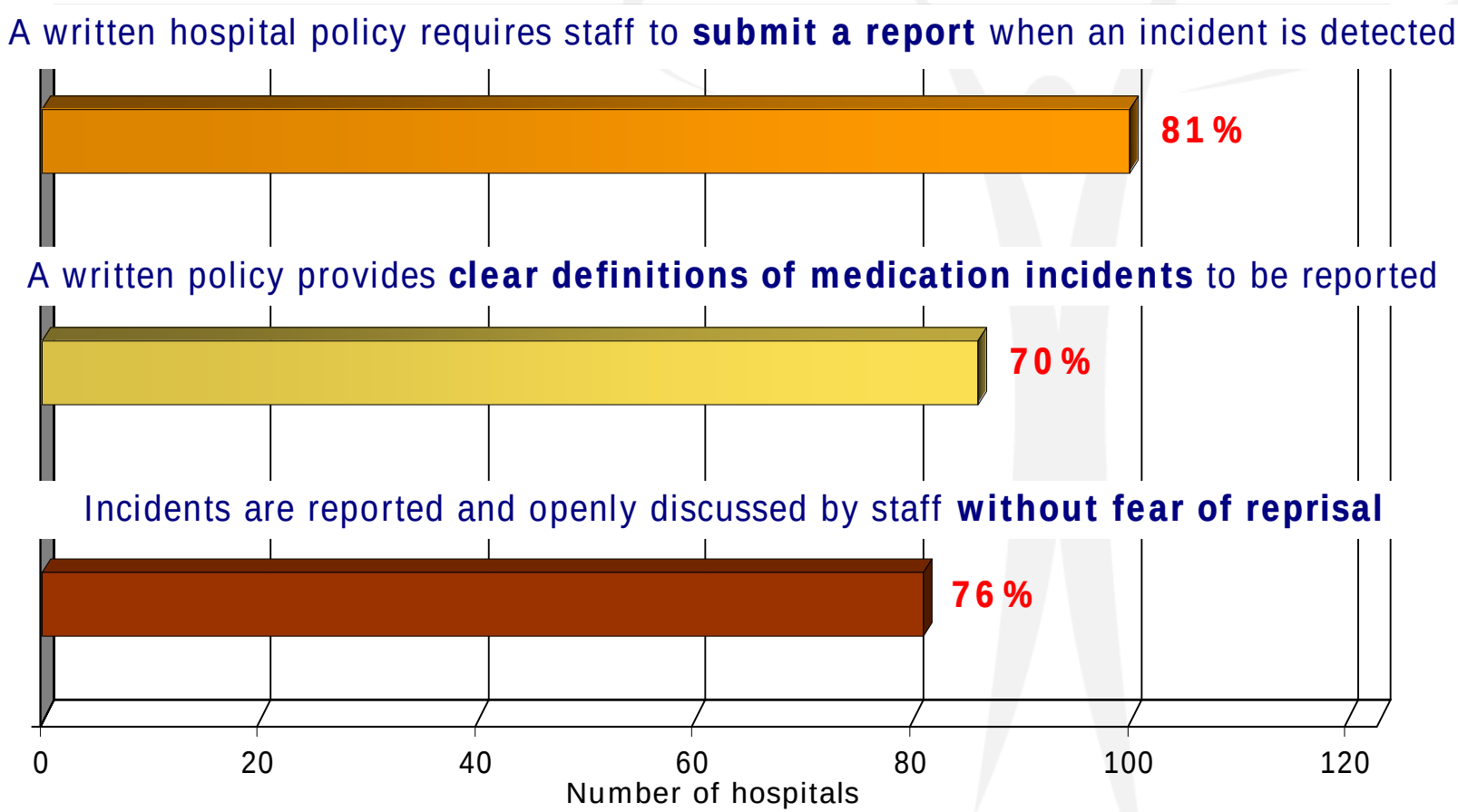
  Hospitals with >100 beds (at least 50% acute) were surveyed regarding prescription handling and patient safety procedures:

  - 92% off all respondents (113/123) reported use of a Medication Incident Reporting System in their facilities
  - Use of state of the art drug management strategies varied widely

Medication Incident – Any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient or consumer.

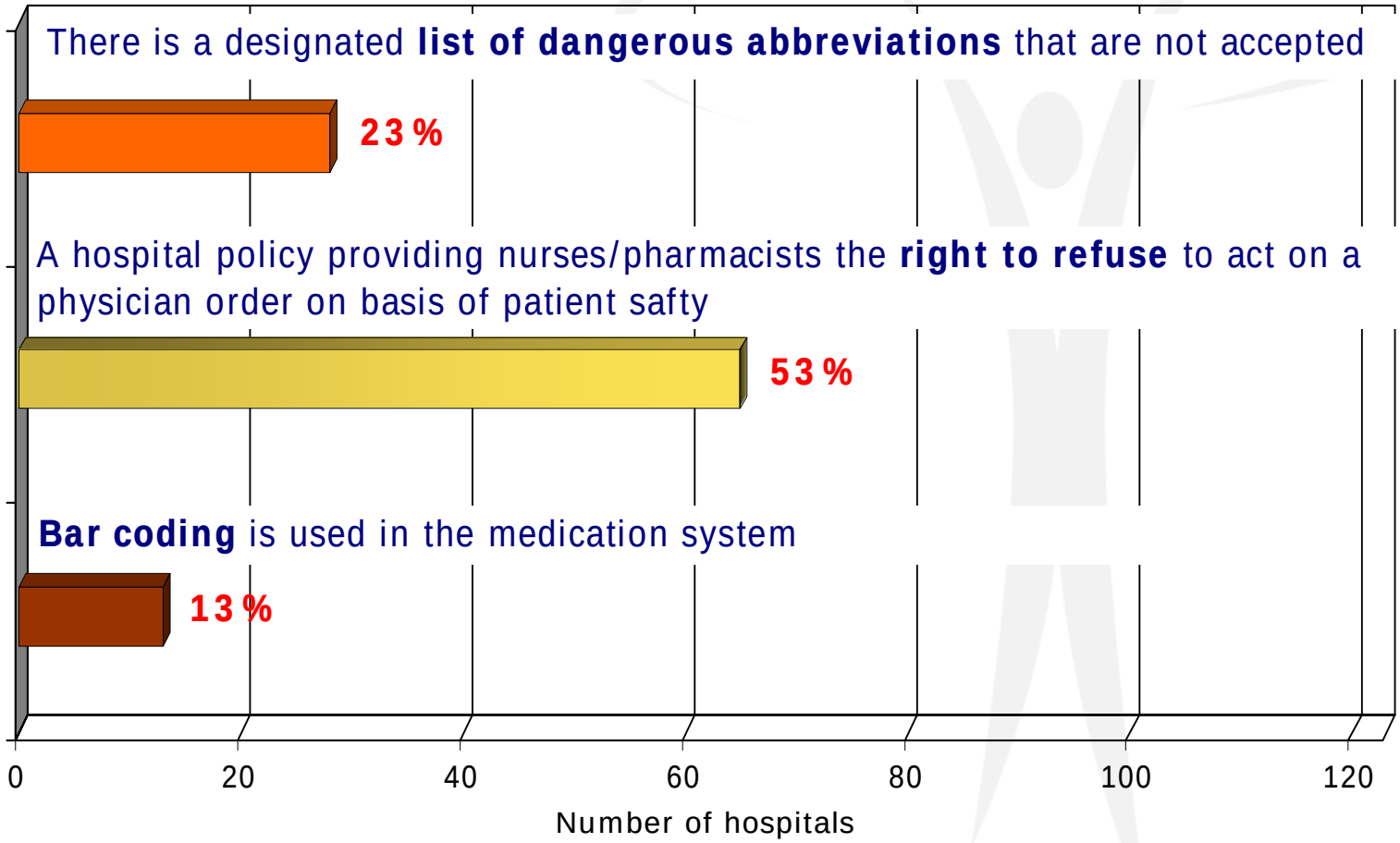
CPOE in Canada: Hospital Pharmacy Survey

- Reporting Systems for Medication Incidents (of all respondents n=123)



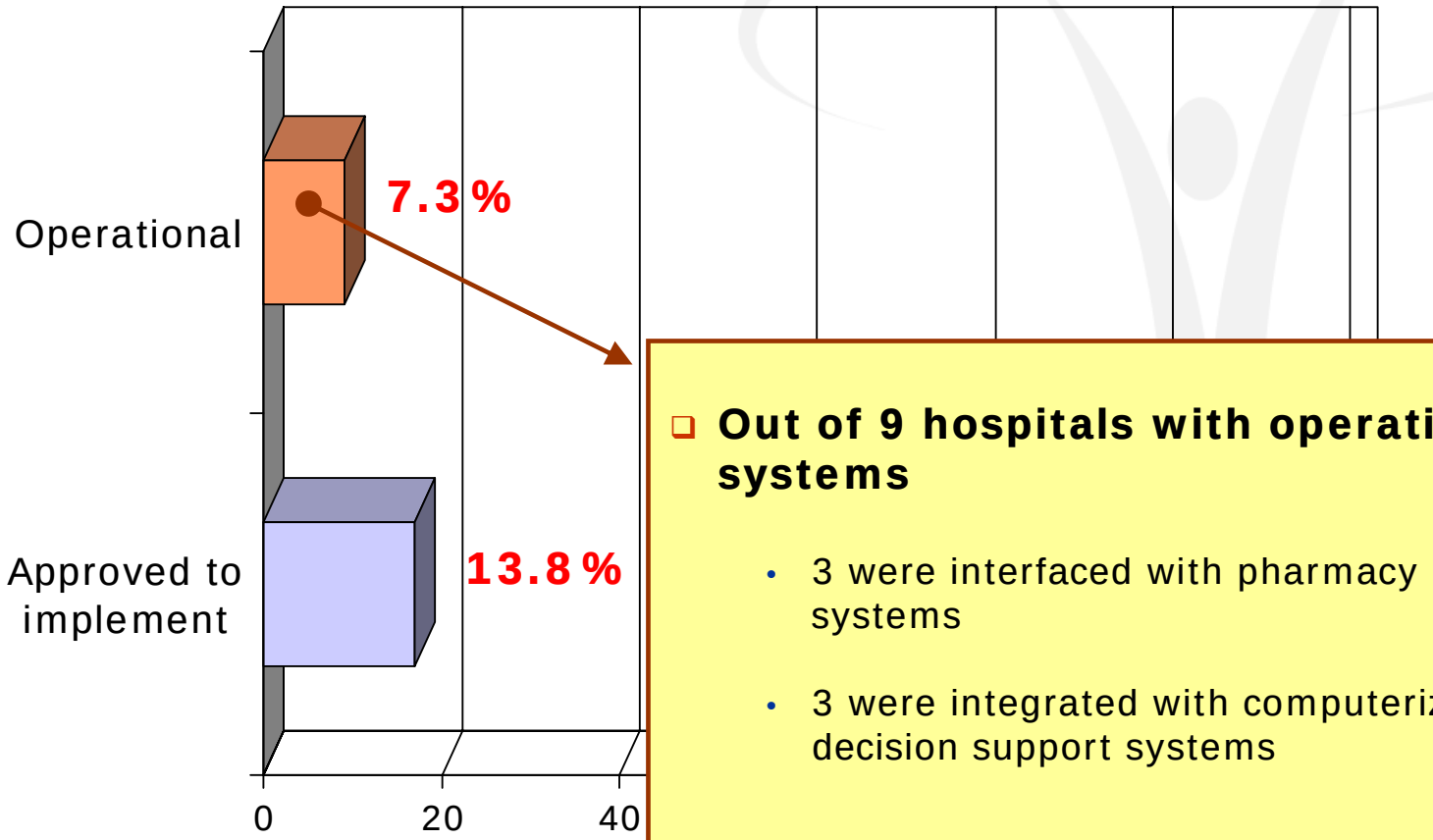
CPOE in Canada: Hospital Pharmacy Survey

- Medication Incident reduction strategies (of all respondents n=123)



CPOE in Canada: Hospital Pharmacy Survey

- Availability of Computerized Physician Order Entry Systems (CPOE)
  (of all respondents n=123)



- **Out of 9 hospitals with operational CPOE systems**
  - 3 were interfaced with pharmacy information systems
  - 3 were integrated with computerized clinical decision support systems

The Case for the EHR

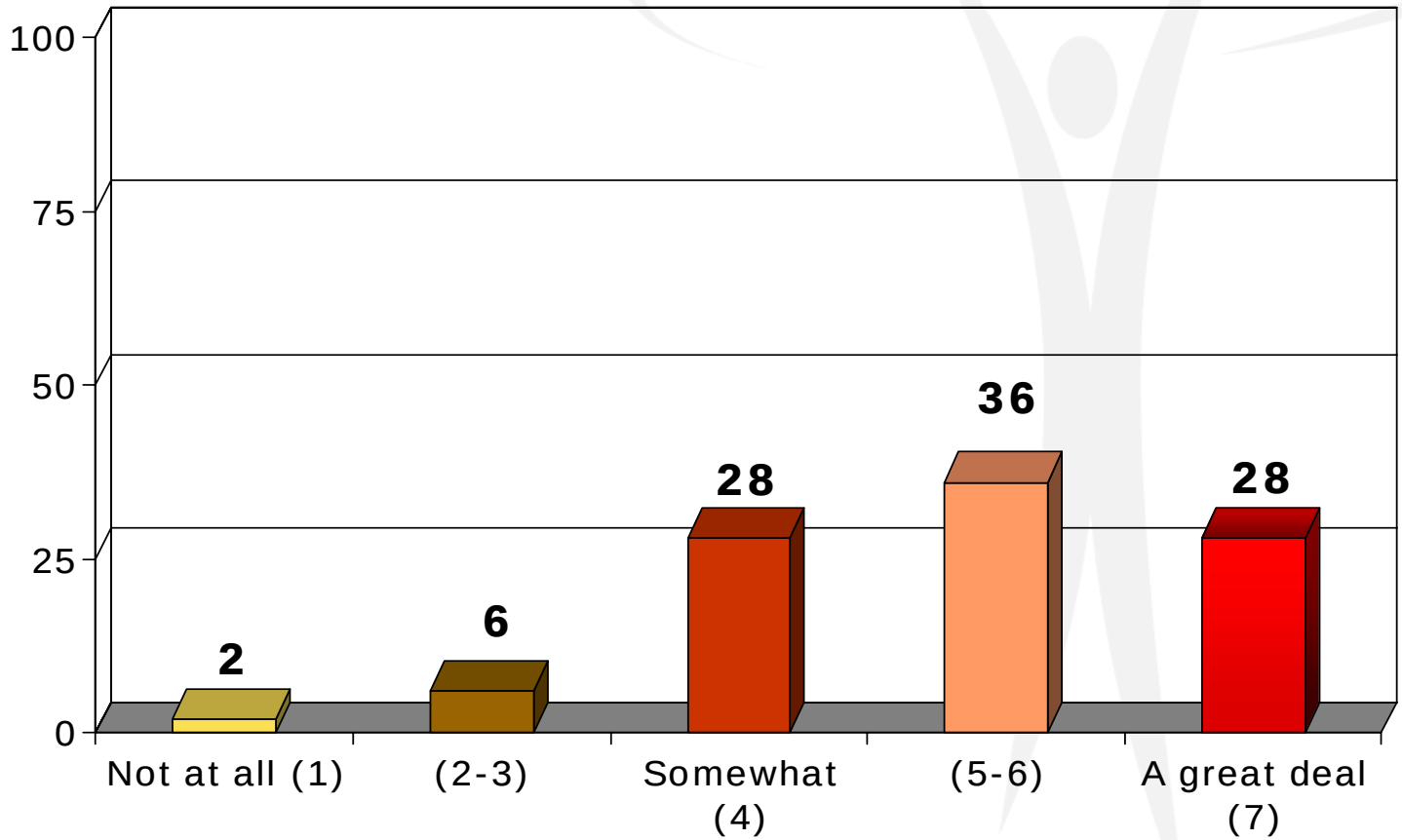
- Public attitudes
- Evidence of quality problems
- Fiscal challenges
- Professional demographics
- Service gap with other industries

Public Attitudes to Electronic Health Records

- Unpublished private polling data collected in May 2003
- Random sample of 2006 Canadians, aged 16 and over
- Shows very strong support for EHR across the country

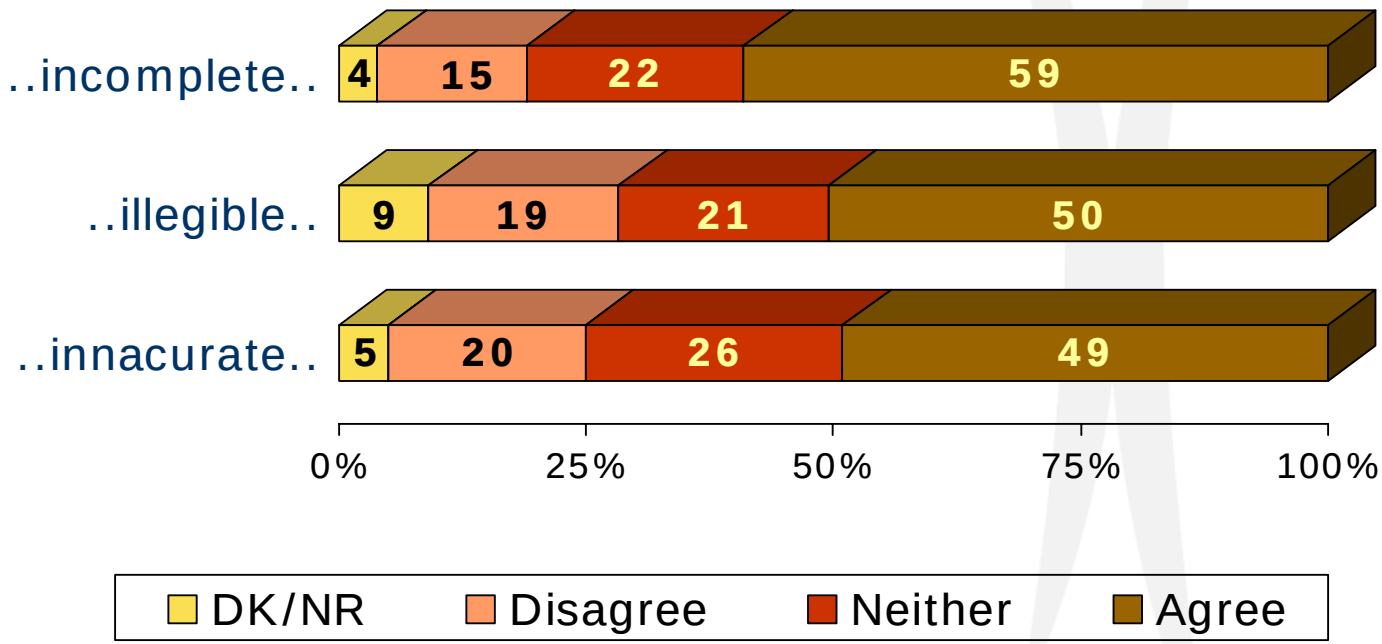
Extent health care system needs to change

- To what extent do you think Canada's health care system needs to change? …. on a 7-point scale



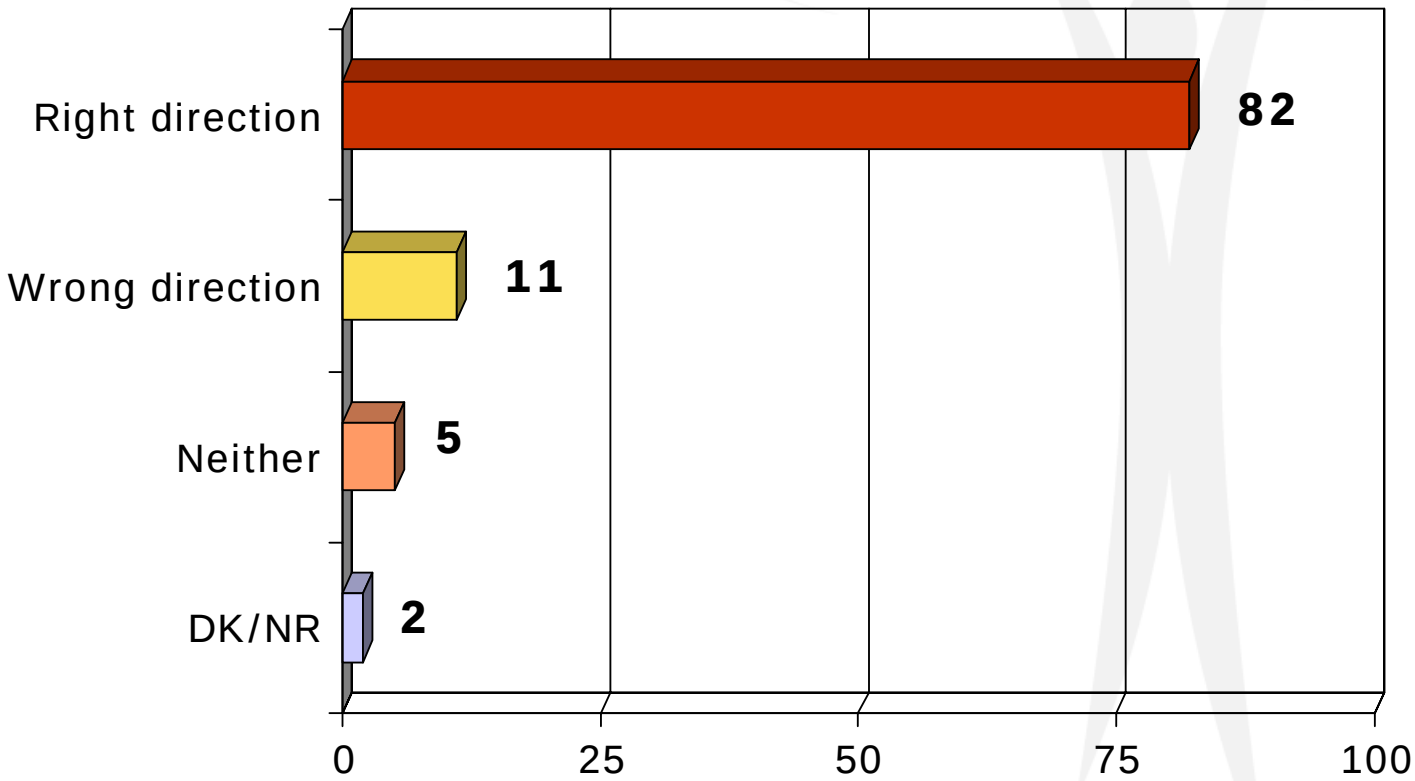
Mistakes in Patient Information

- Serious mistakes do occur due to health care professionals incorrectly diagnosing/treating a patient because they have ...
  ... patient information that is:



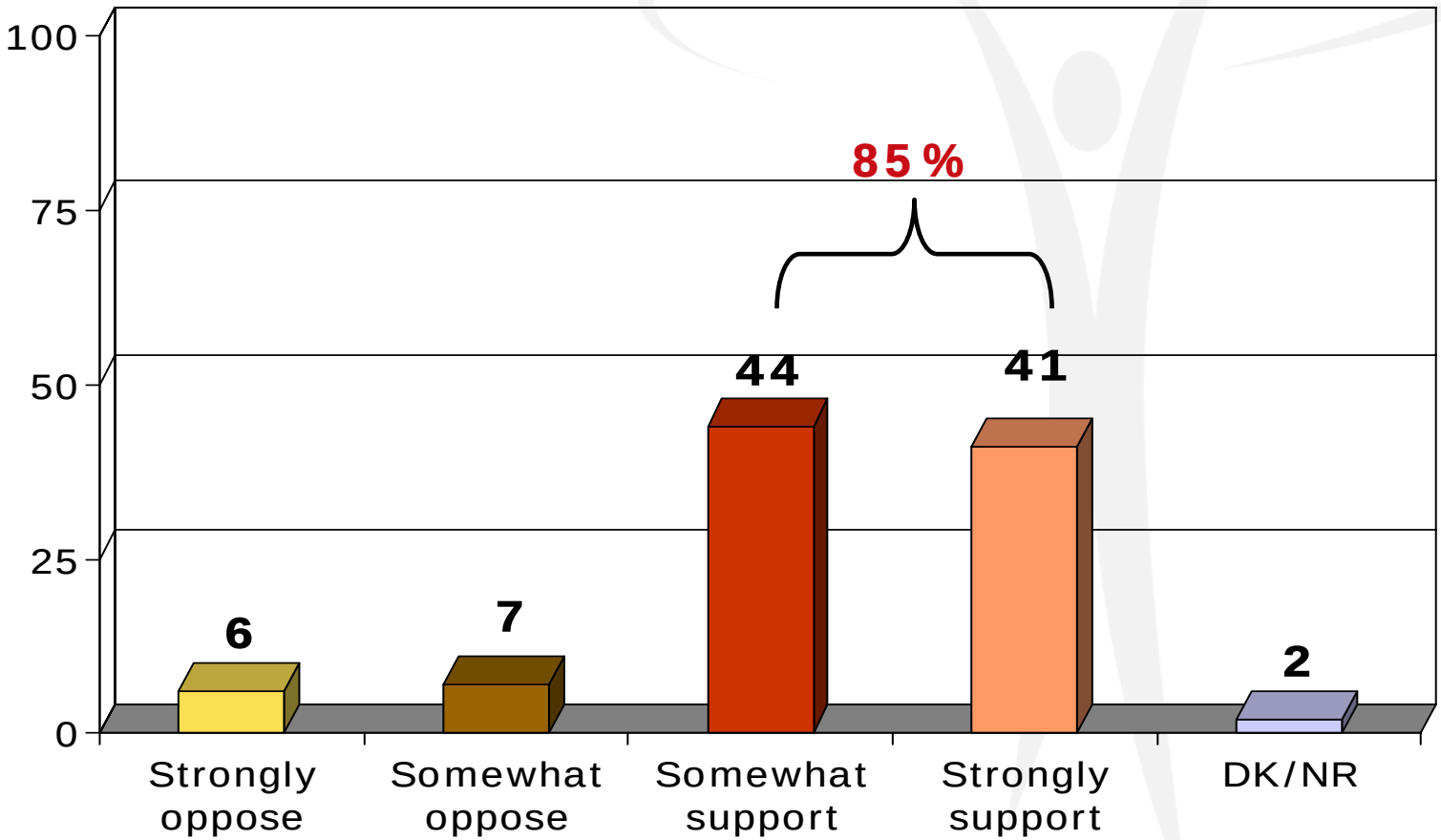
Emphasis on technology, move in right or wrong direction

- Would you say that the greater emphasis on the use of information technology in areas of Canadians' personal health records is a move in the right or wrong direction?



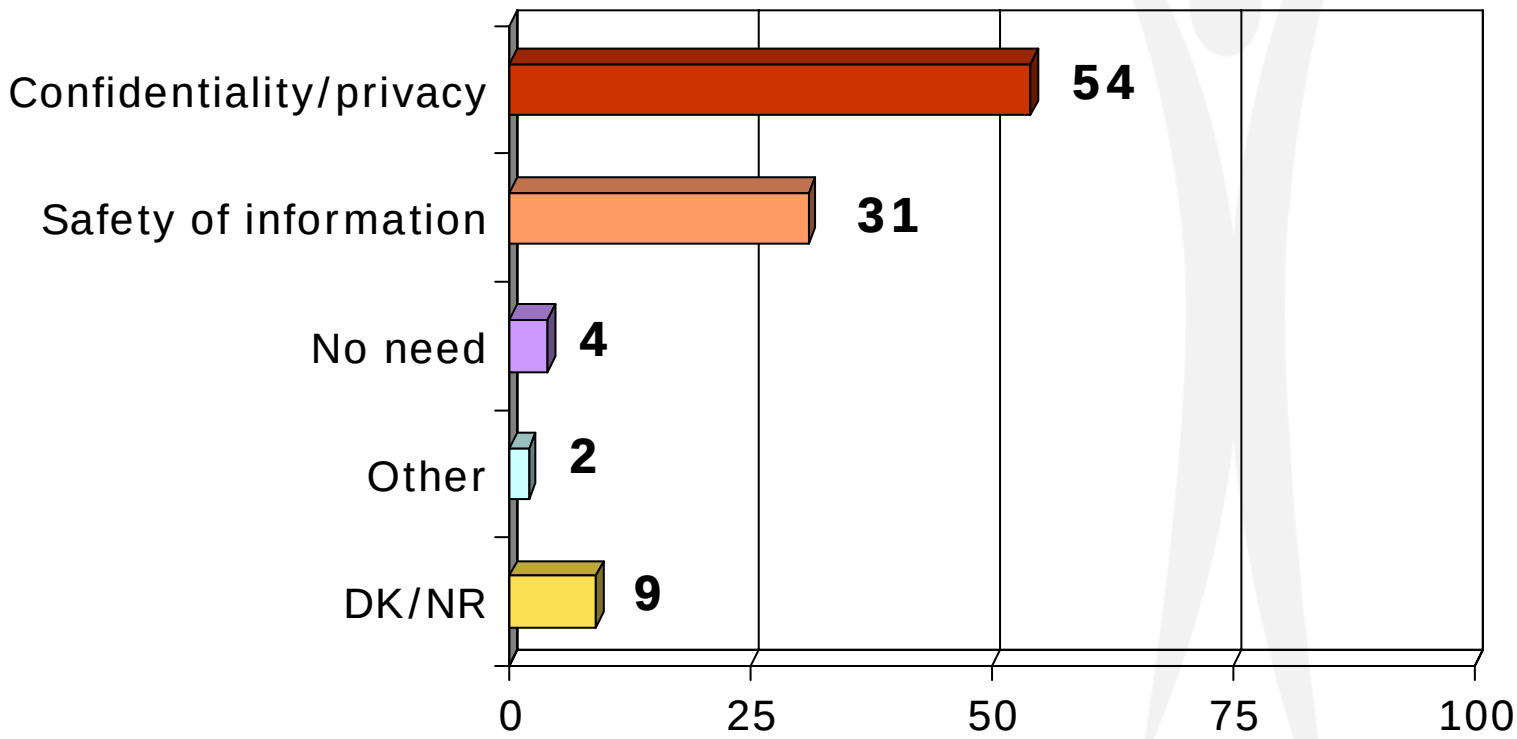
Support for Electronic Health Records

- Do you strongly support, somewhat support, somewhat oppose or strongly oppose the development of EHR?



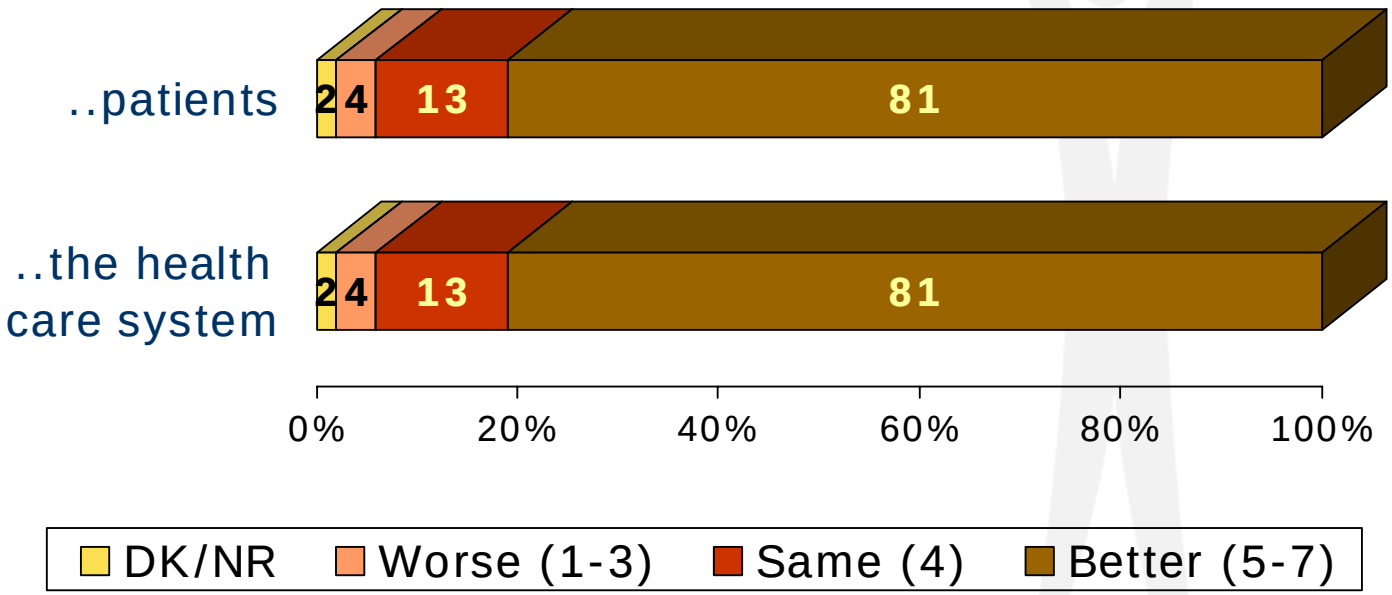
Reasons for opposition

- What is the main reason you would **oppose** the development of electronic health records?



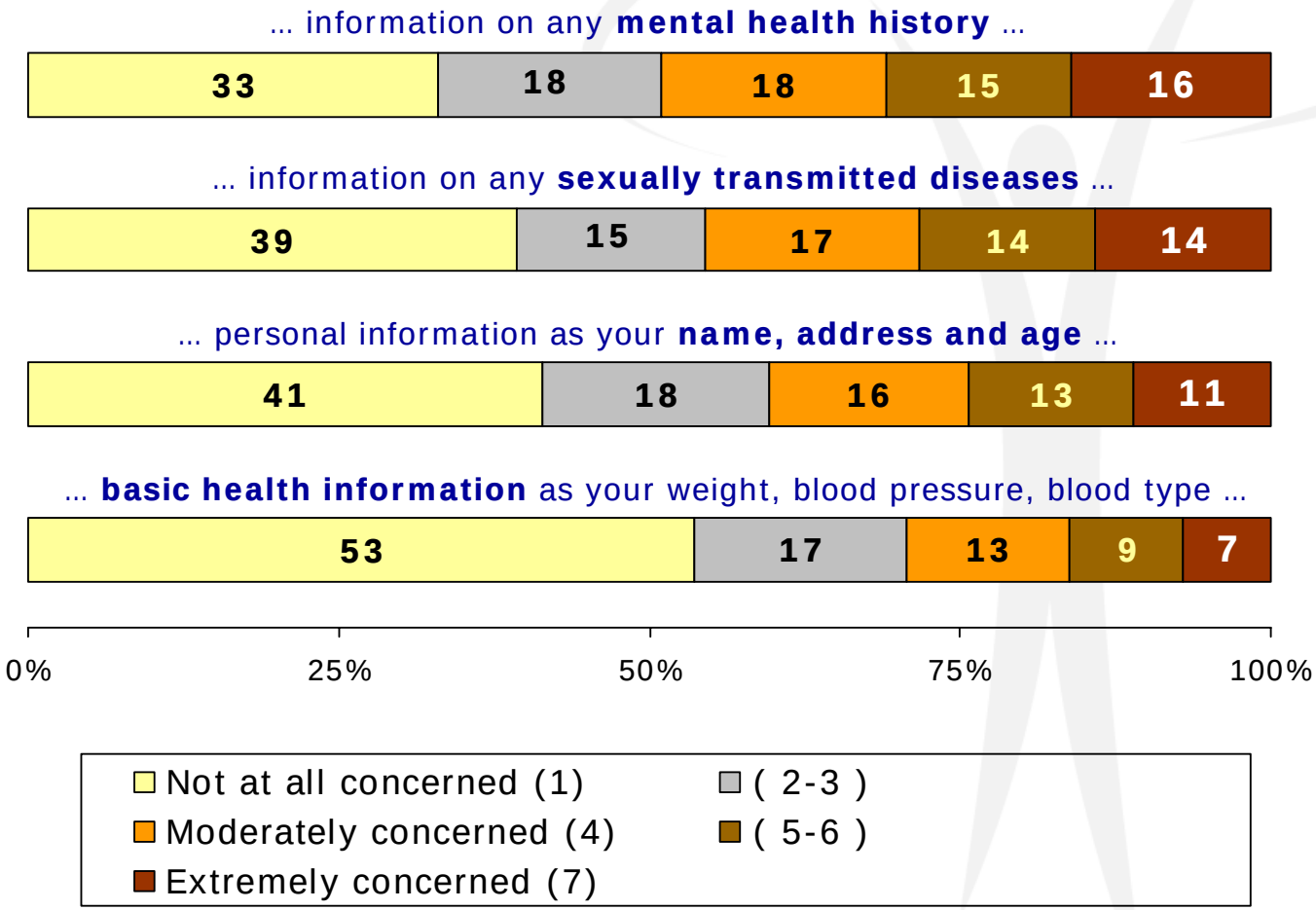
EHR v. paper-based systems

- How would an electronic health record compare to a paper based system when it comes to the effectiveness for ….



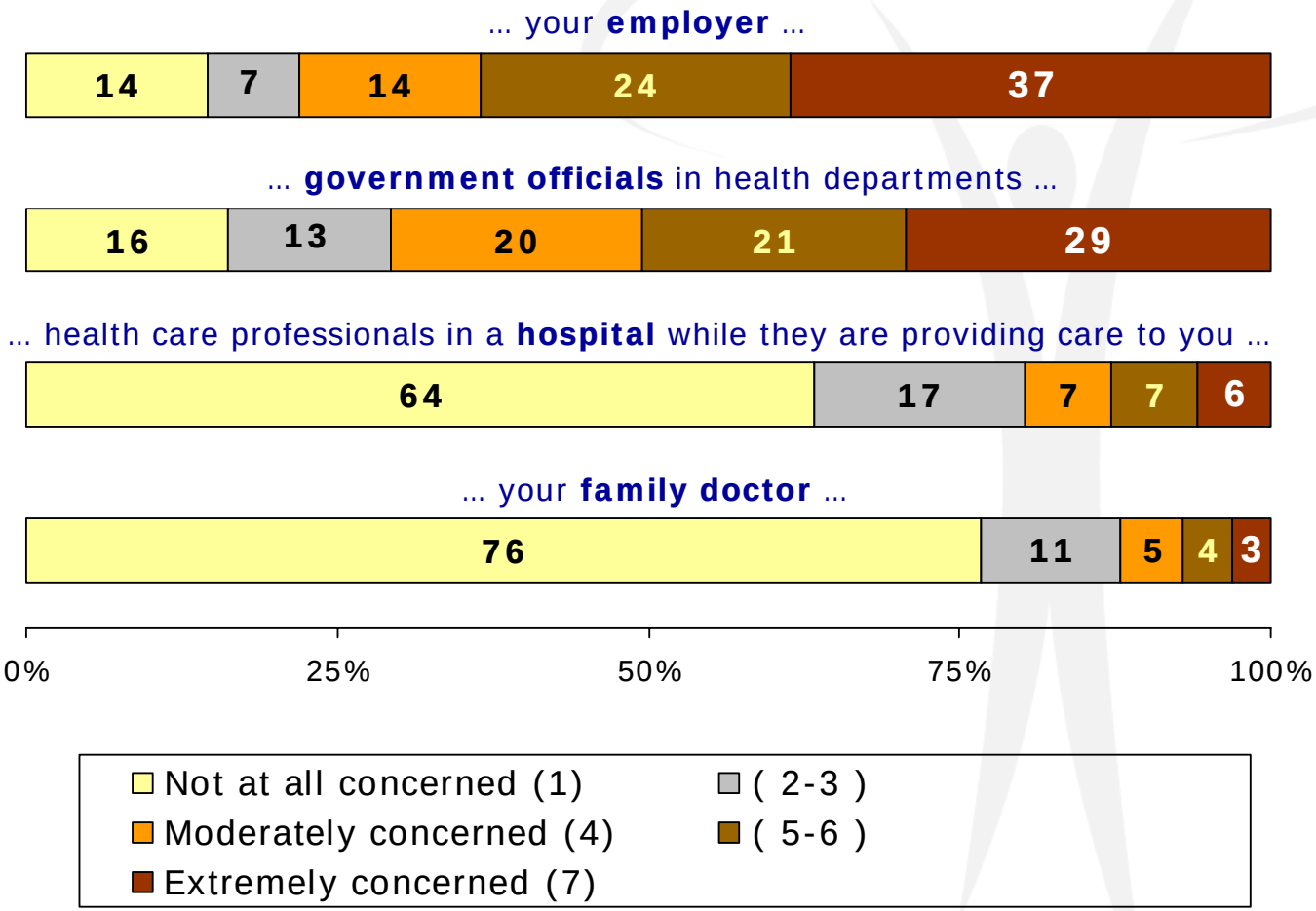
Concern with types of information in EHR

- How concerned would you be with …… being in an EHR?



Concern with who has access to EHR

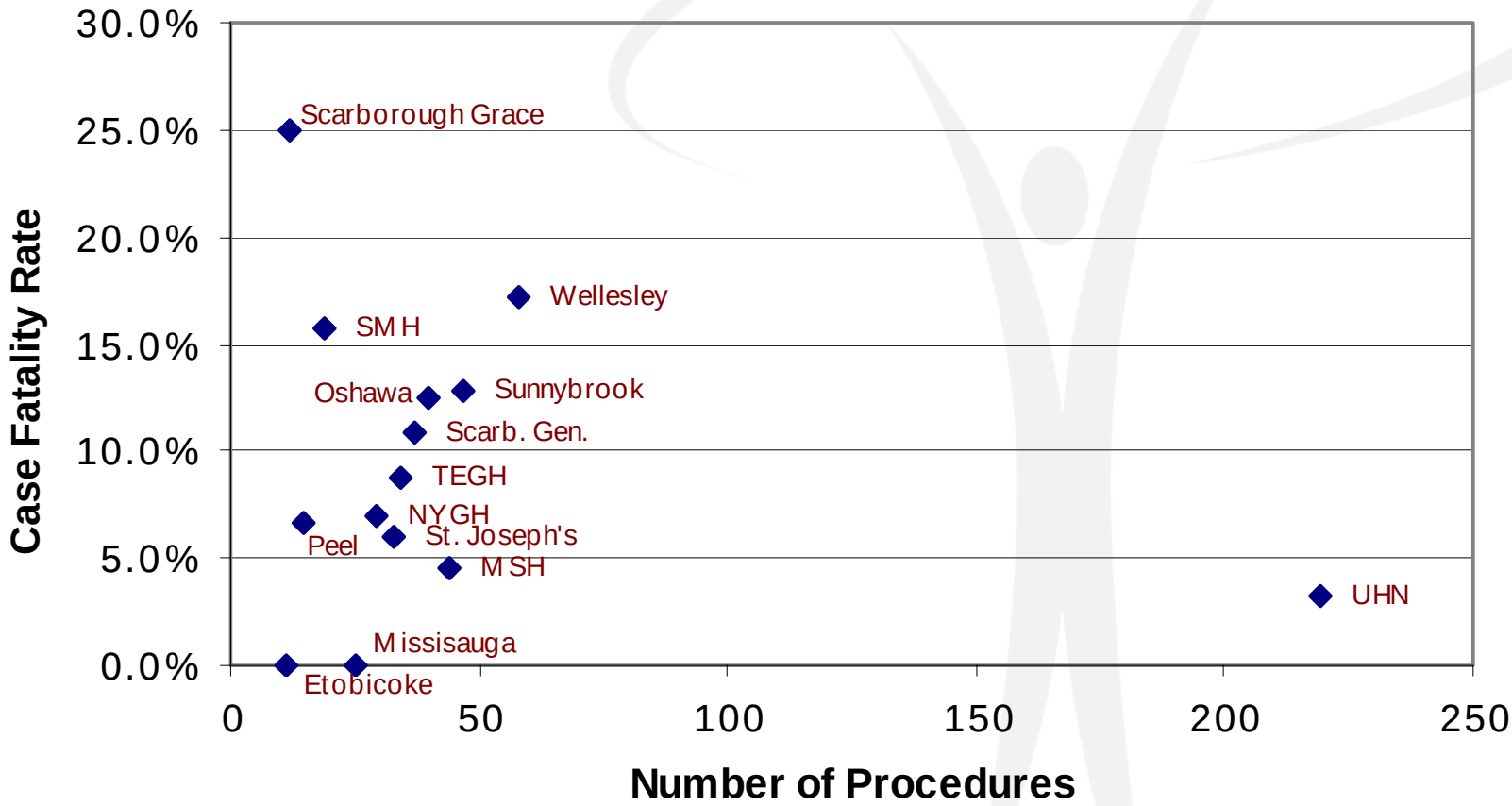
- How concerned would you be with …… having access to your EHR?



Patient Safety: A New Issue (or an old issue newly recognized)

- Quality problems abound:
  - Gaps in care
  - Poor coordination between primary care and specialty care
  - Increasing evidence of treatment errors
  - Need for evidence-based practice
  - Little incentive to preserve health
- "To Err is Human, Building a Safer Health System" (Report from U.S. Institute of Medicine, 2000)
  - Up to 98,000 deaths each year in U.S. due to medical errors
- National Steering Committee on Patient Safety - Royal College of Physicians and surgeons
  - Federal government allocated $10M per year for five years to create and operate a Patient Safety Institute
  - Research Study now being conducted through Univ. of Toronto (Ross Baker and others)
  - Report to be published in Spring 2004

Whipple Procedures: Mortality Rate vs. Case Volume, 1997-98



Quality of care: US Data

Rand Corporation study: The quality of health care delivered to adults in the United States

Elizabeth A. McGlynn Ph.D. et al.

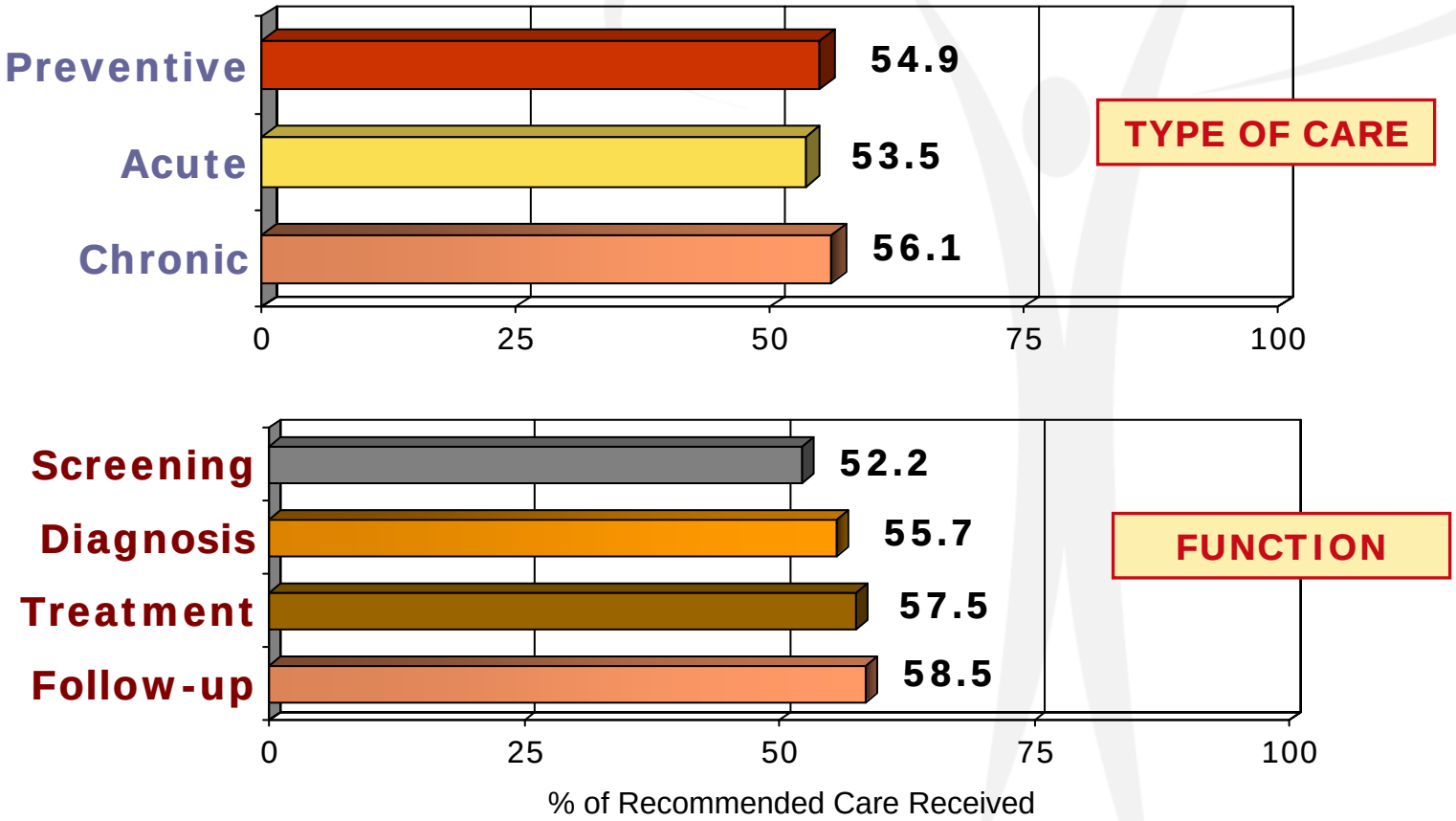
New England Journal of Medicine 2003;348:2635-45

Quality of care: US Data

- Overall, participants received only 54.9% of the recommended care.
  - Random sample of 6712 adults from 12 metropolitan areas of US
  - Performance on 439 indicators of quality of care for 30 acute and chronic conditions as well as preventive care

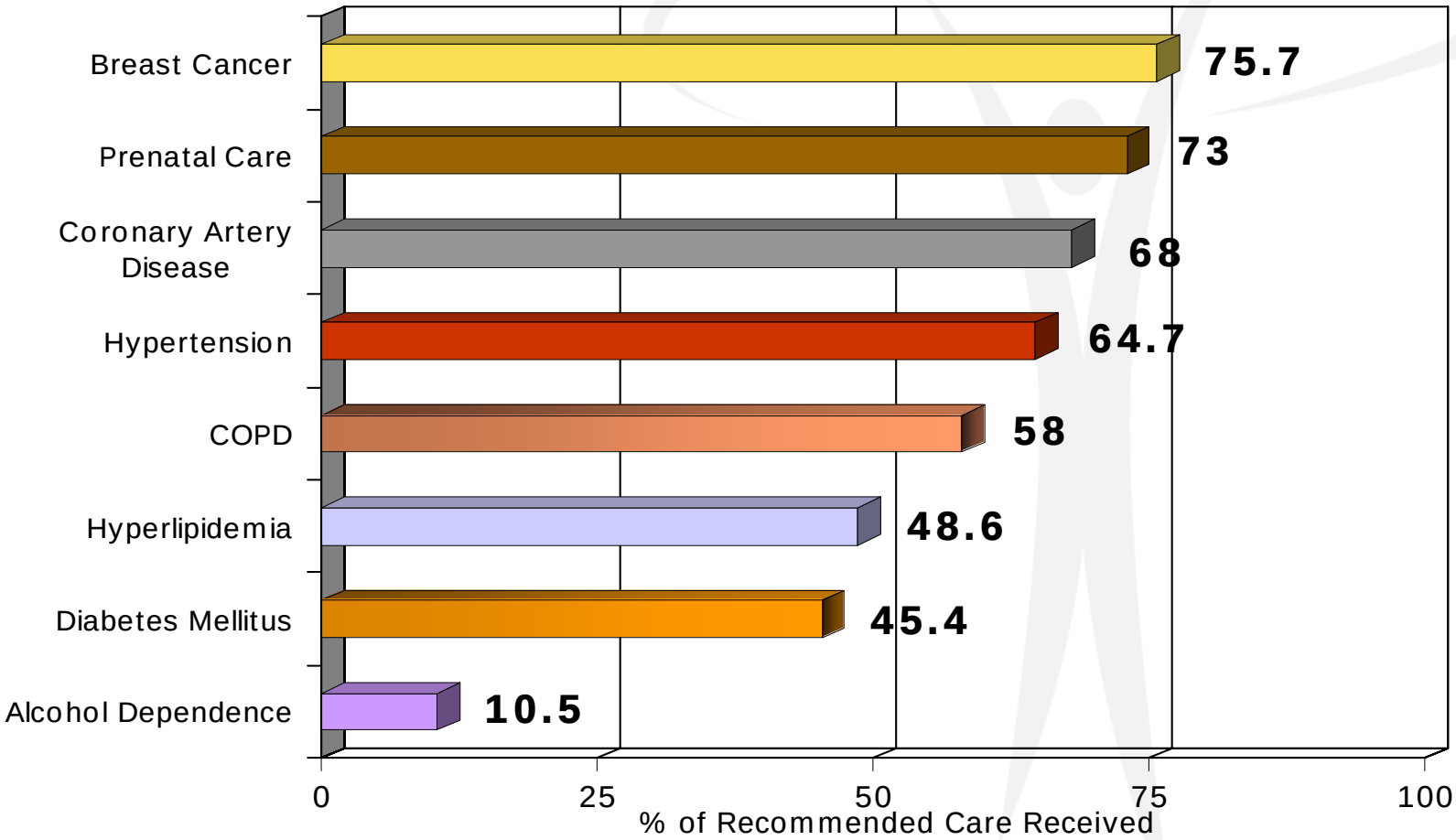
Quality of care: US Data

- Adherence to Quality Indicators, according to Type of Care and Function



Quality of care: US Data

- Adherence to Quality Indicators, according to condition

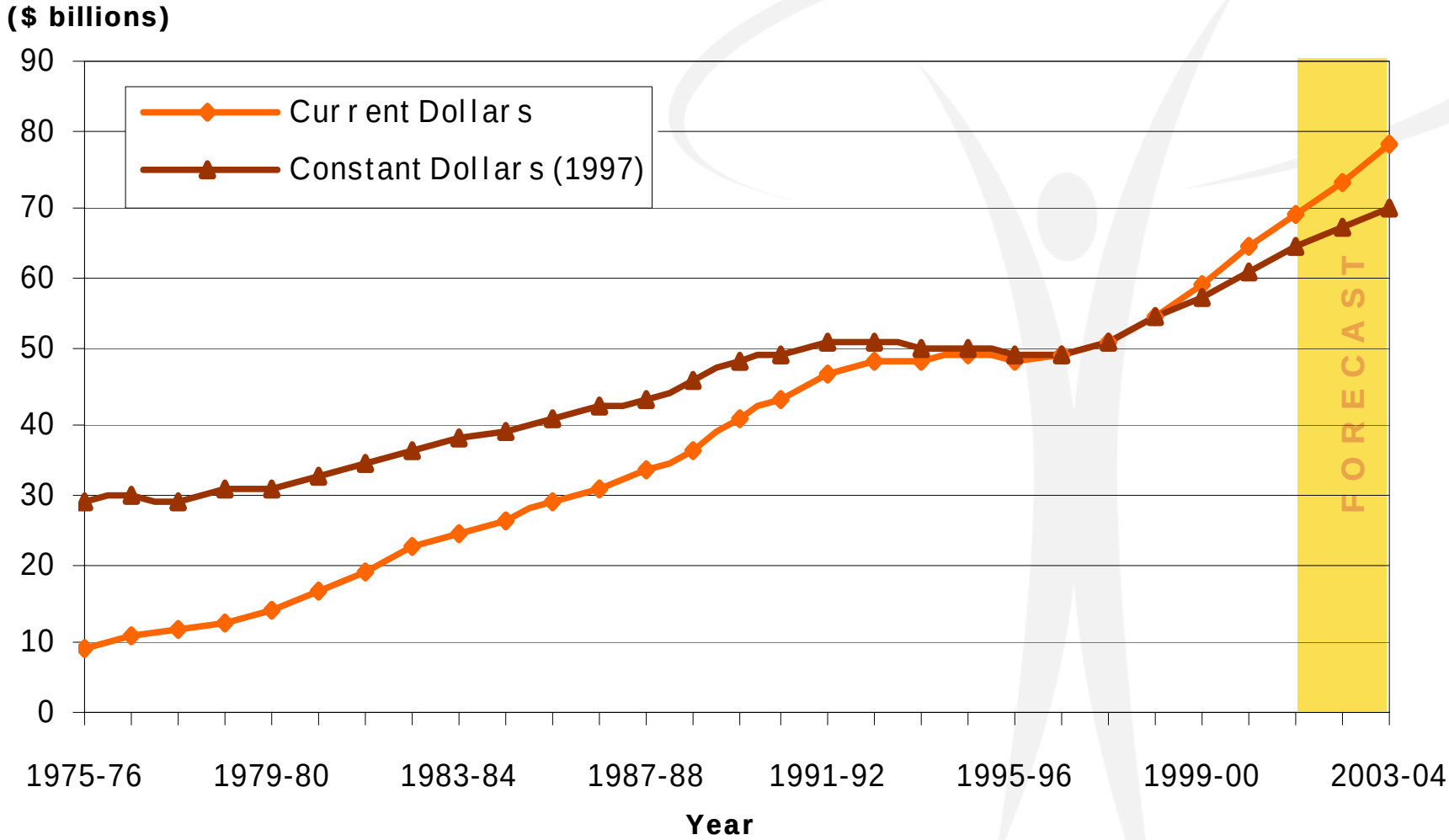


Quality of care: US Data

CONCLUSIONS

- "Deficits in adherence to recommended processes for basic care pose serious threats to the health of the American public"
- Strategies to reduce these deficiencies –
  - Availability of information on performance at all levels
  - Focus on automating entry and retrieval of key data for clinical decision making and for the measurement and reporting of quality

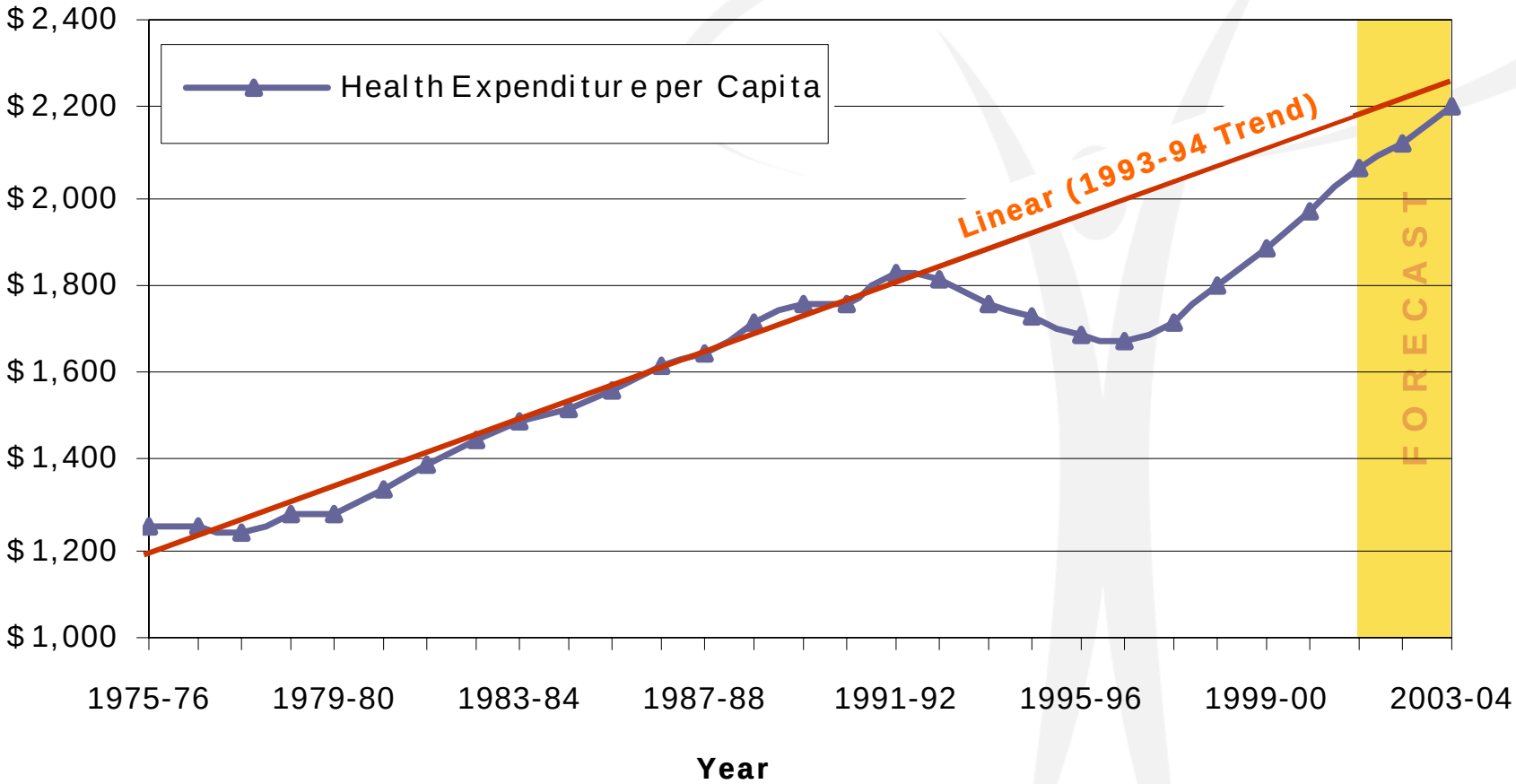
Govt. Health Expenditure in Canada (1975-76 to 2003-04)



Source: Canadian Institute for Health Information; Statistics Canada

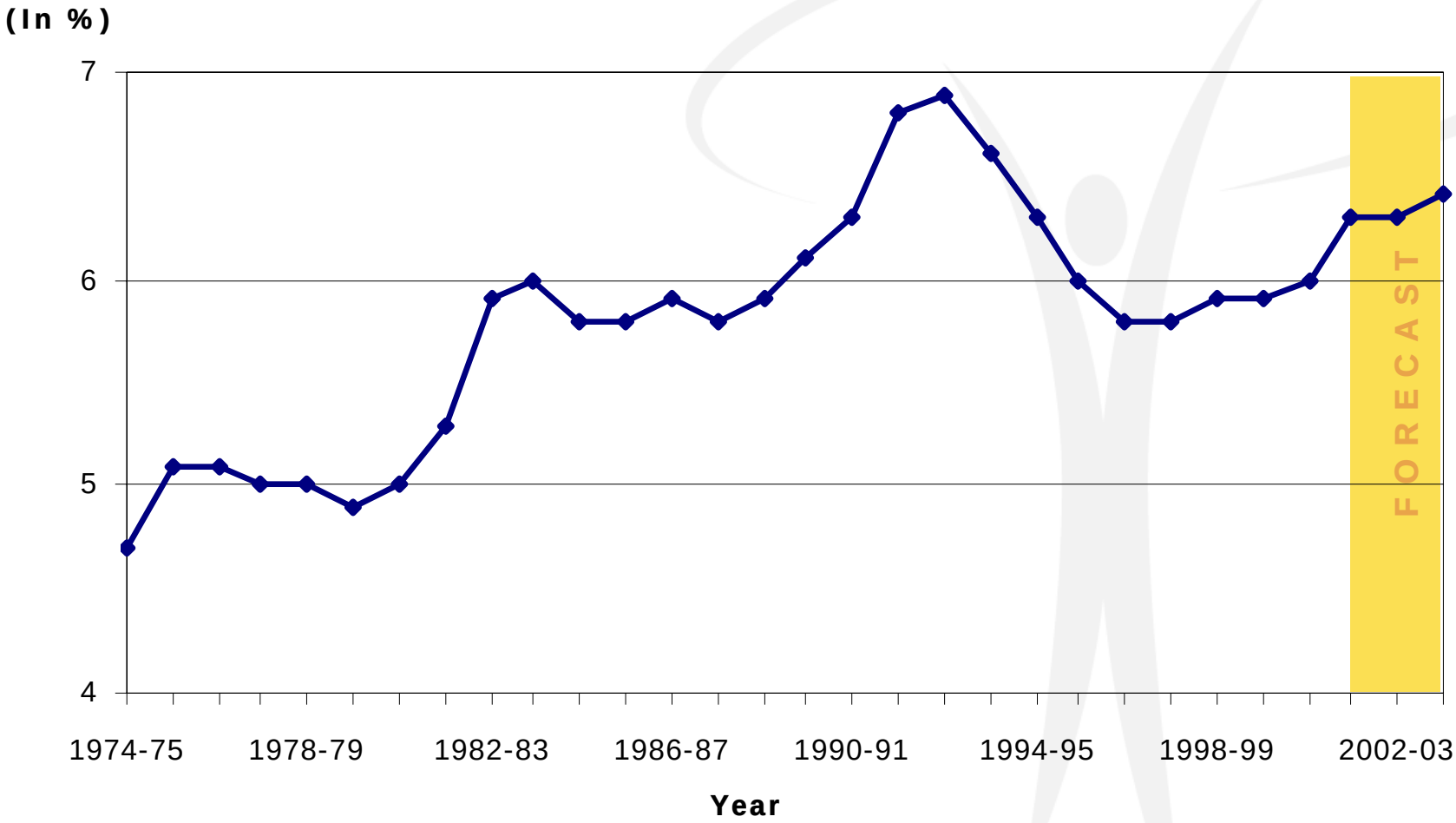
Govt. Health Expenditure per Capita in Canada (1975-76 to 2003-04)

In constant 1997 Dollars



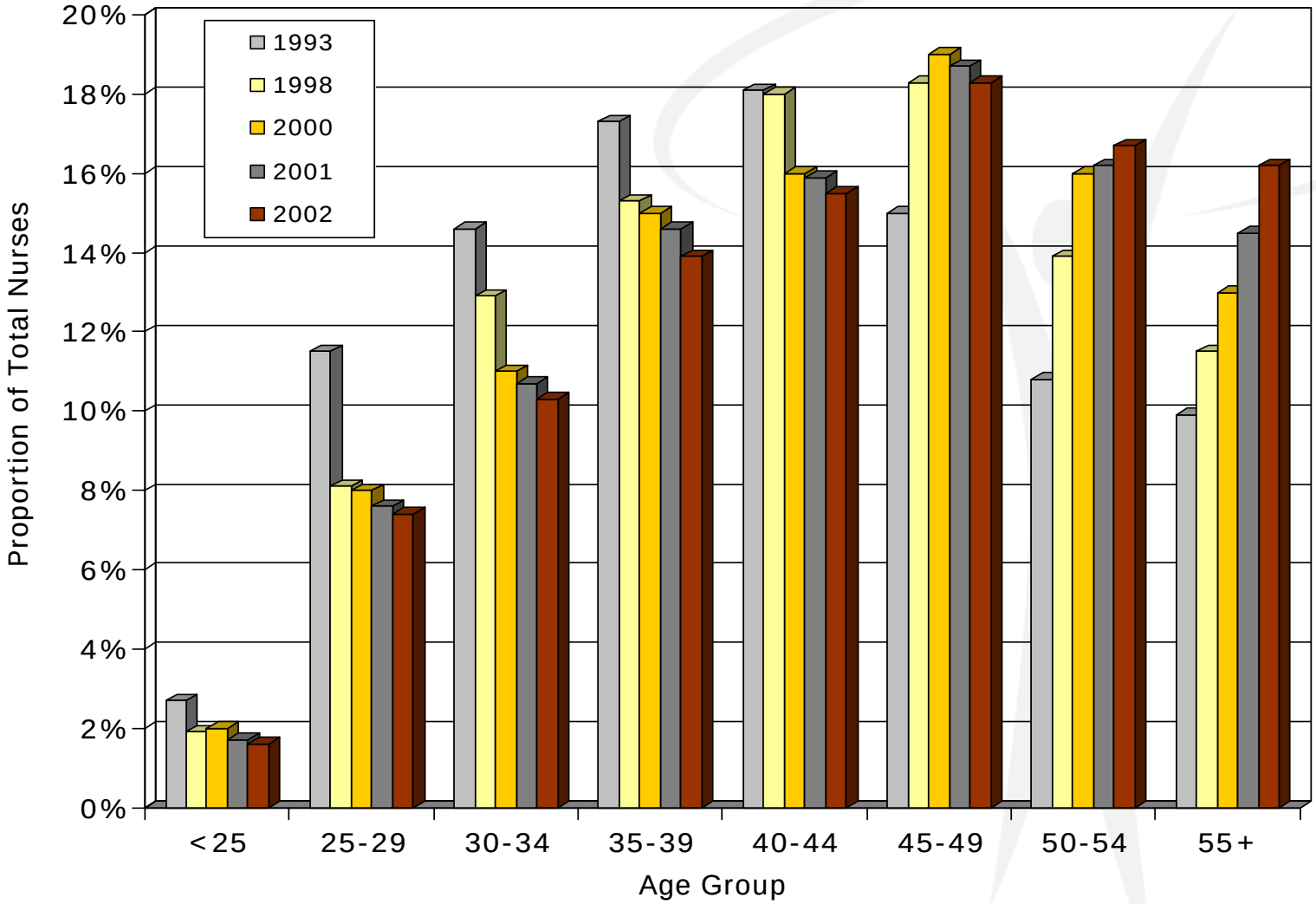
Source: Canadian Institute for Health Information; Statistics Canada

Govt. Health Expenditure in Canada as a proportion of Gross Domestic Product (1974-75 to 2003-04)

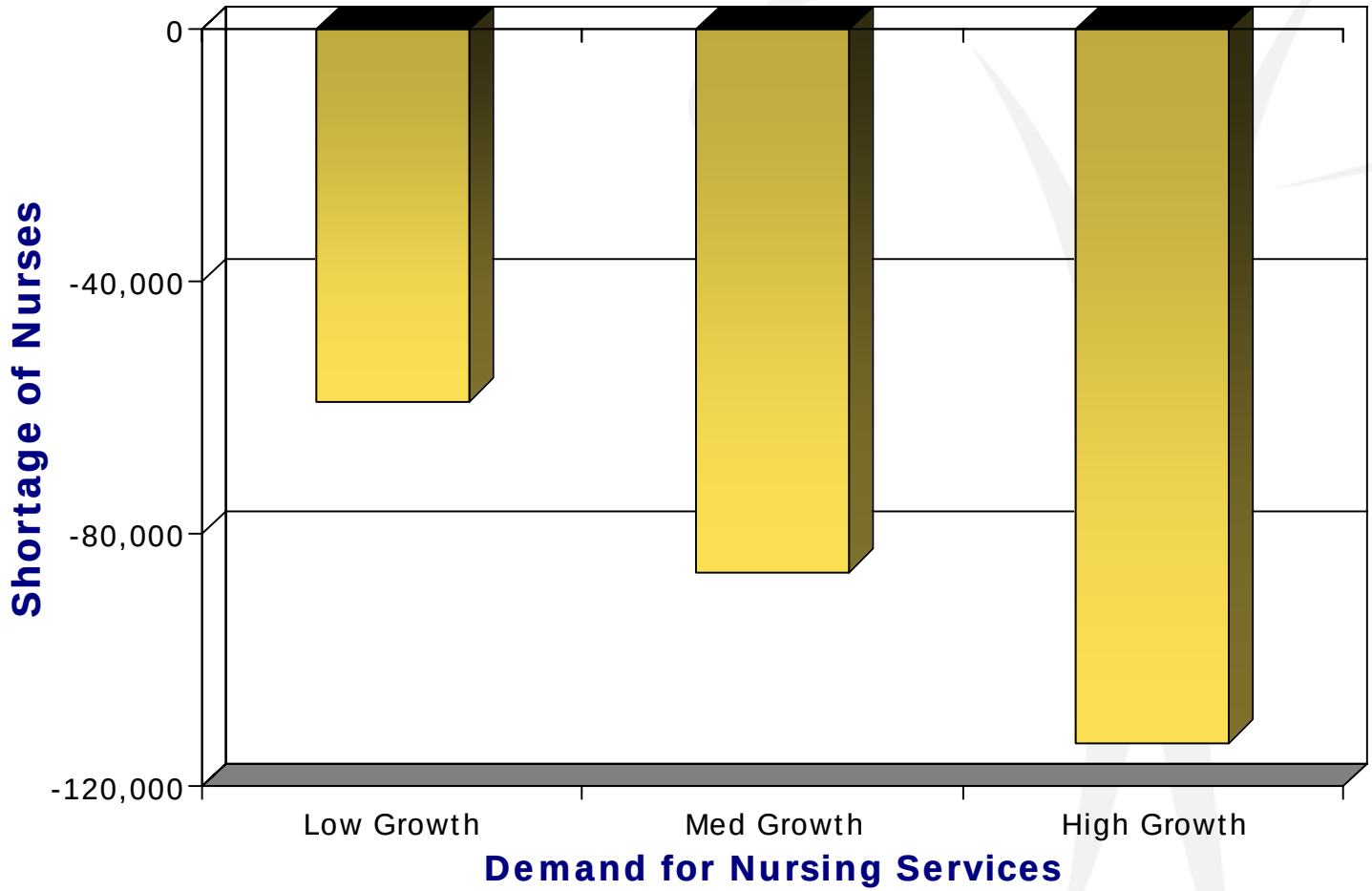


Source: Canadian Institute for Health Information; Statistics Canada

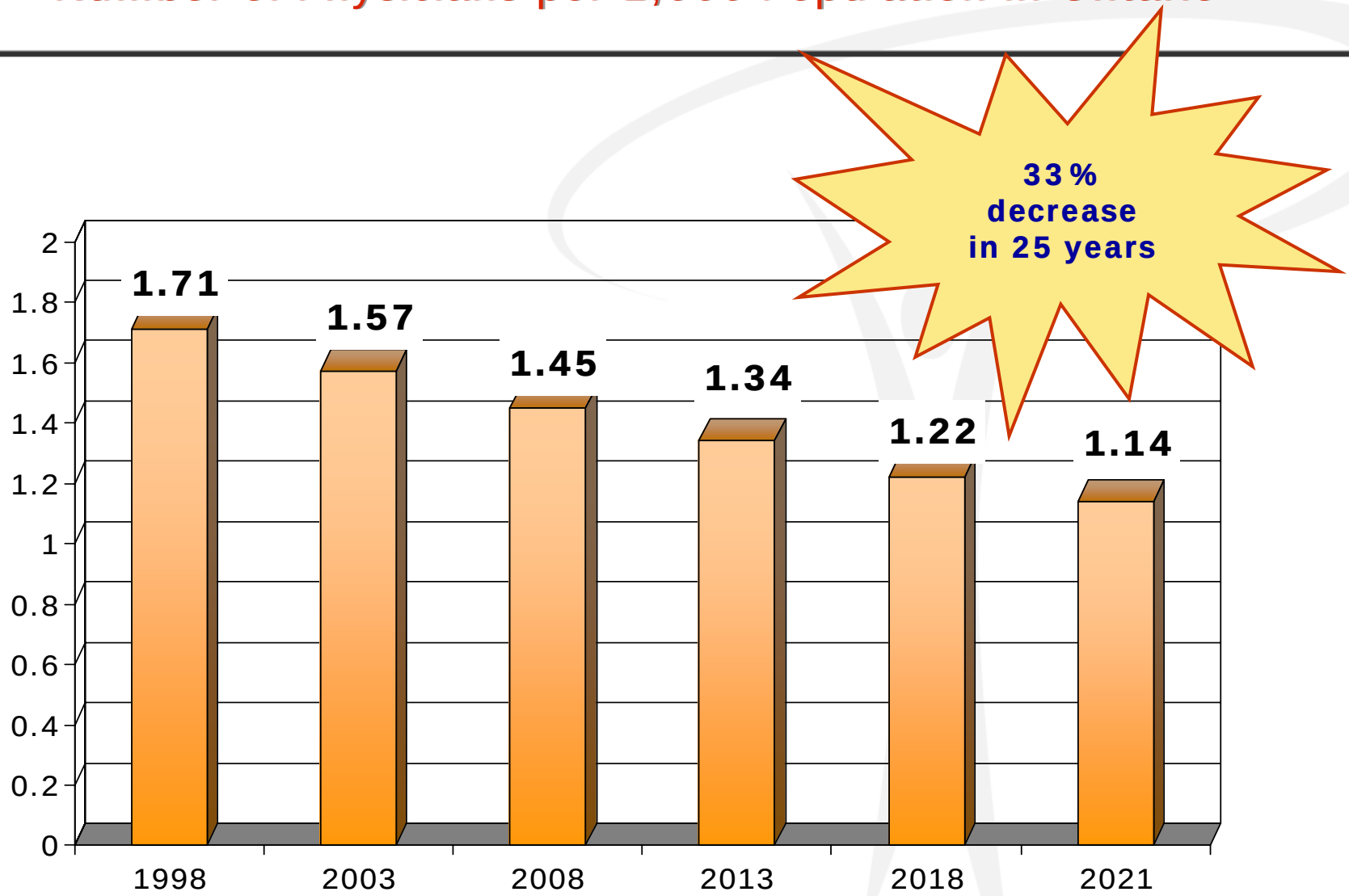
Registered Nurses Employed in Canada – by Age Group



Nursing Deficit in Canada – Projected to 2011



Number of Physicians per 1,000 Population in Ontario



Imagine: A Bank managed by a Health Administrator

- The teller writes your transactions into a paper ledger
- You are told that you can get your money at only one branch because that's where your records are
- You can use your bank card only in bank machines at your own bank (if at all)
- Your balance is incorrect because the teller's handwriting is illegible
- You are told to wait for two hours while your money is sent by taxi from head office
- You have to receive a paper pay cheque every two weeks which you then you have to deposit in person

Imagine: An Airline managed by a Health Administrator

- Each flight has its own booking agent that you can contact only by phone
- Connecting flights cannot be booked in advance – once you arrive at a stopover point, you wait until there is a seat available on a connecting flight
- No confirmed seating – you can be cancelled at any time before the flight
- Being handed a ticket that says

  AC429 yyz-yvr dec10 Q 17:45 19:45

  with no further explanation
- Told that you cannot have access to your flight itinerary without the pilot's permission
- The public is not given information about in-flight mishaps because the pilot might be unfairly maligned

Concluding Thoughts

- We have a very long way to go in Canada
- Annual spending on information systems will have to increase dramatically before we are successful
- The industry drivers to automate have never been stronger
- It is becoming clear that you cannot provide high quality care in the absence of good information systems

COURTYARD GROUP

www.courtyard-group.com

Toronto ■ Edmonton