

# Introduction

## Health Information and Quality Authority

**To drive continuous improvements in  
the quality and safety of health and  
social care in Ireland**

# Background

- Health Act 2007, establishment 15 May 2007
- Independent - reporting to Minister for Health and Children
- Close relationship with people using the service, professionals, providers, public, communities, media, stakeholders
- Person-centred ethos of “working with” not “doing to”

# Functions

- **Set standards for Health and Social Care**
- **Monitor quality and safety in Healthcare**
- **Social Services Inspection**
- **Health Technology Assessment**
- **Protective Disclosure**
- **Health Information**

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# Activities in Health Information

- Develop the **standards** for the **collection and sharing** of information across the health and social services
- Develop standards for **interoperability** of information systems
- Identify **gaps** in the collection and sharing of information and make recommendations on the corrective action to be taken
- Collaborate with key stakeholders to co-drive the **development and implementation of ICT** across the health system
- **Evaluate, interpret and publish** available information on our health and social care services and on population health

# Current projects

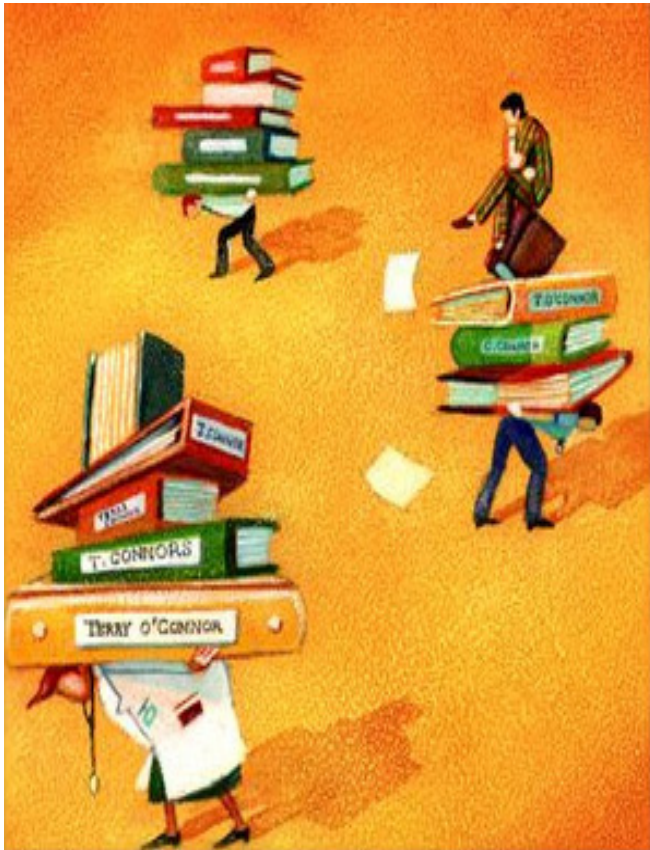
- Information governance
- Information gaps
- Health information standards
- National standards for quality and safety
- UHI for individuals
- UHI for professionals and organisations
- Electronic health record



# **Towards a national electronic health record for Ireland**

**Jane Grimson**  
**Director of Health Information**

# Paper records



- lack structure
- Fragmented and cumbersome
- fragile and degradable
- one task at a time
- one place at a time
- information inaccessible
- difficult to reuse information
- no decision support tools

## ***But....***

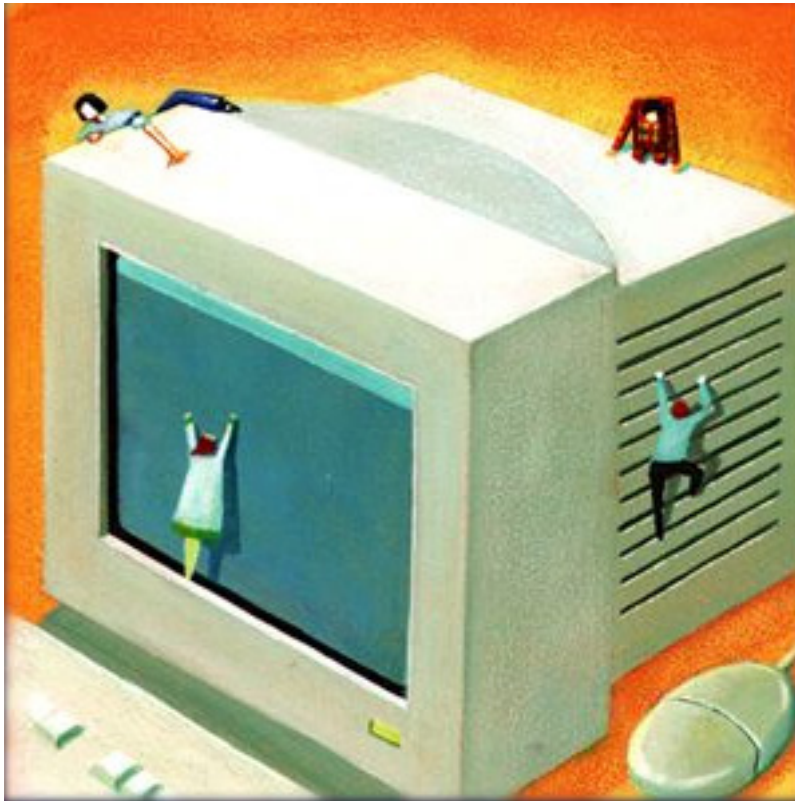
- easily browsed
- portable and self-contained
- directly accessible

# Advantages of the EHR



- availability, transfer and retrieval
- linkage
- multiple views
- enhanced security
- quality and safety
- embedded decision support
- abstraction, reporting, audit, research, ...

# Challenges



- Controversial
- expensive
- evidence of cost-benefit not clear
- takes a long time
- complex
- multimedia data
- complex transactions
- lack of confidence in computers amongst users
- concerns about security and confidentiality
- clinical engagement
- change management

# Confusion



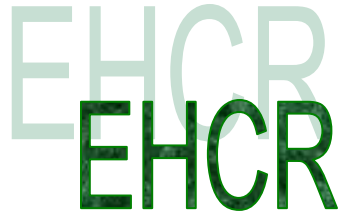
- What's the best approach?
- How much will it cost?
- Will it deliver the benefits?
- How do we get there?
- What standards should we use?
- .....

The logo for Personal Health Record (PHR) consists of the letters 'PHR' in a bold, yellow, 3D-style font with a slight shadow.

Personal Health Record



Electronic Patient Record

The logo for Electronic Health Care Record (EHCR) shows the letters 'EHCR' in a green, 3D-style font. A larger, semi-transparent version of the same letters is positioned behind it.

Electronic Health Care Record

The logo for Computerised (or Computer-based) Patient Record (CPR) features the letters 'CPR' in a multi-colored, 3D-style font where each letter has a different color (C is red, P is yellow, R is blue).

Computerised (or Computer-based) Patient Record

The logo for Electronic Medical Record (EMR) consists of the letters 'EMR' in a brown, 3D-style font.

Electronic Medical Record

The logo for Electronic Health Record (EHR) features the letters 'EHR' in a blue and red, 3D-style font.

Electronic Health Record

The logo for Integrated Care EHR (ICEHR) features the letters 'ICEHR' in a black, bold, sans-serif font, tilted at an angle.

Integrated Care EHR

The logo for Government Computer-based Patient Record (G-PRC) features the letters 'G-PRC' in a blue, 3D-style font.

Government Computer-based Patient Record

The logo for Federated Health Care Record (FHCR) features the letters 'FHCR' in a yellow and orange, 3D-style font.

Federated Health Care Record

# Definition (ISO, 2005)

## The Integrated Care EHR:

- is a repository of information regarding the health of a subject of care in computer processable form, stored and transmitted securely, and accessible by multiple authorised users
- has a commonly agreed logical information model which is independent of EHR systems.
- primary purpose is the support of continuing, efficient and quality integrated health care and it contains information which is retrospective, concurrent and prospective.

# International experience

- Successful implementations are typically homogenous and tightly integrated environments e.g. US Veterans Association, Partners Health, Kaiser Permanente
- Large HMO's with large populations and large numbers of diverse healthcare professionals all interacting with records
- Best evidence of cost-benefit of widespread deployment of EHRs
- Difficult to re-use this approach to national level e.g. greater heterogeneity in terms of systems, management and organisation

# Critical success factors (Protti, 2008)

1. Leadership
2. Clinical Involvement
3. Information Governance
4. Commitment to Standards
5. Unique Identifiers
6. EHR Model
7. Reliable, rapid and secure infrastructure
8. Strong Project Management
9. Performance measurement and transparency
10. Appreciation of increasing patient involvement
11. Governance
12. Business Case and Benefits Realisation

# EHR Model

- Federated model: logical view of EHR extracts
- Centralised: kept up to date at all times
- Pros and Cons
- Consensus is centralised approach is
  - likely to be more robust, cost-effective
  - most widely adopted approach at national level

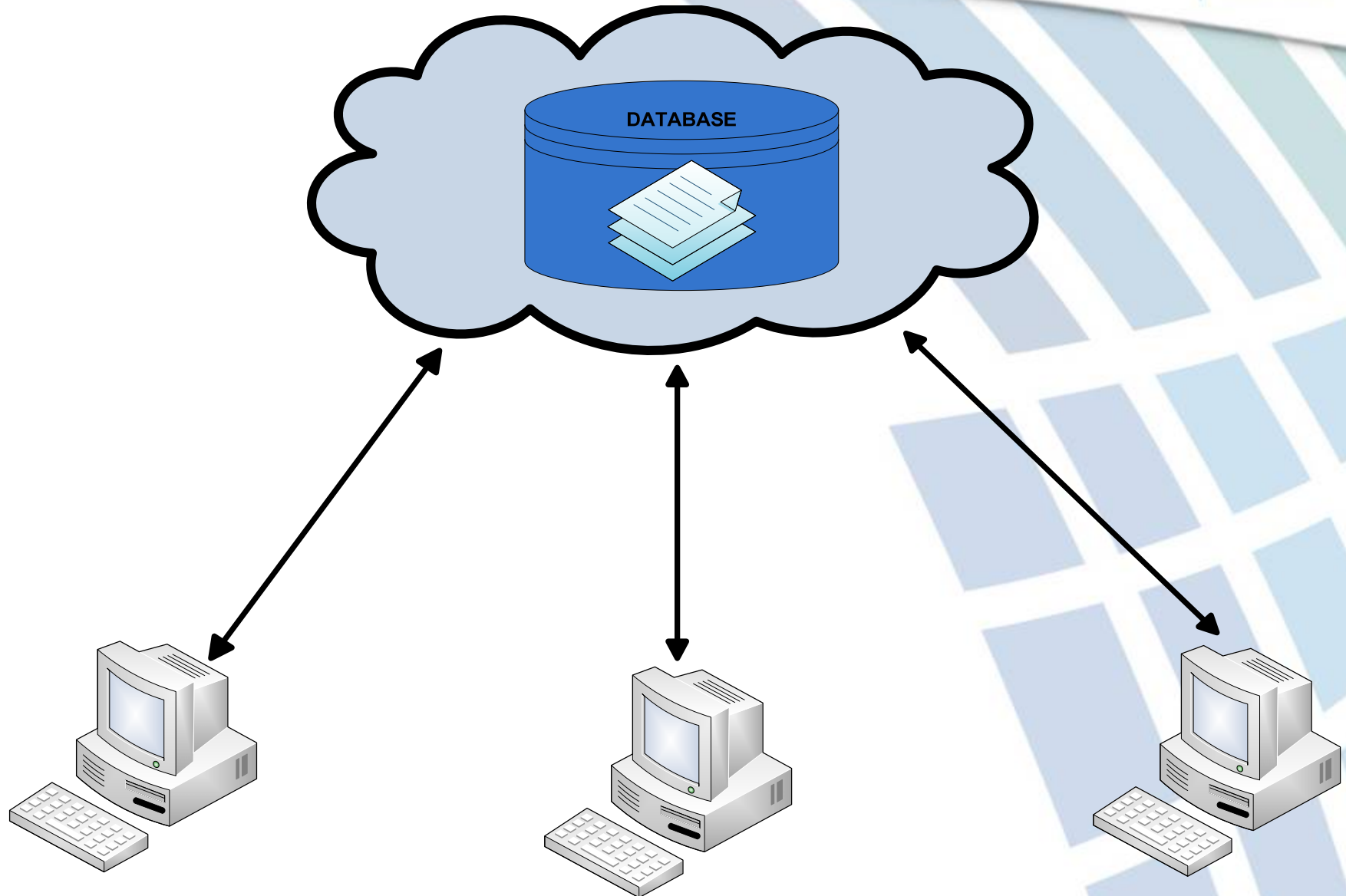
# Centralised Model

- Regional Level e.g. Canada
- National Level e.g. England, Finland, Sweden, the Netherlands, Turkey
- Two approaches to centralised model
  - Centralised national repository where information is regularly uploaded and shared e.g. England (partially), Finland and Turkey
  - Storing information locally typically as separate repository and accessing it via a central repository e.g. England (partially), Canada, Netherlands and Sweden
- Implementation may involve hybrid with most data stored centrally but large data stored locally and downloaded as required

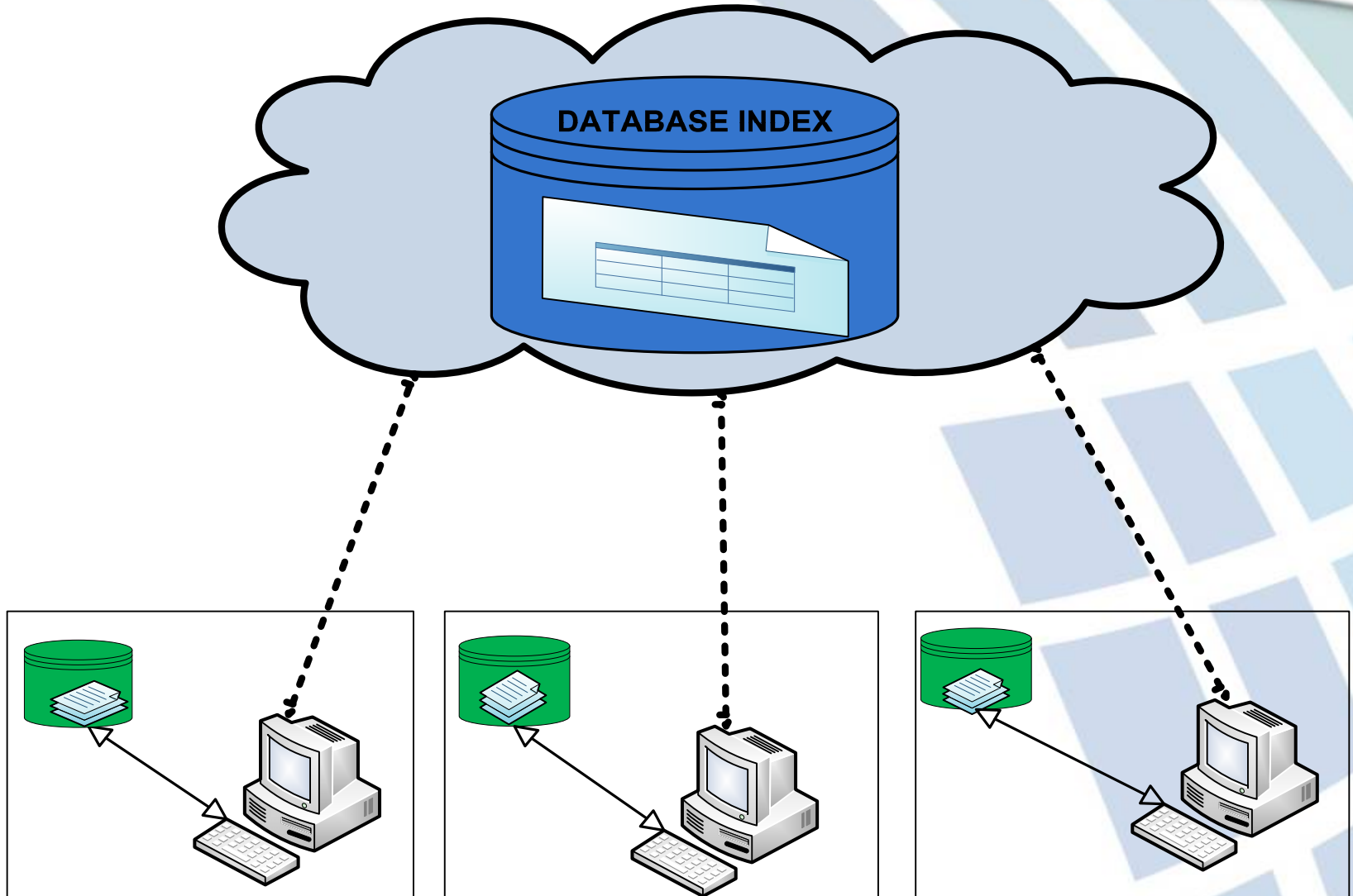
# Canada Health Inforway

- Interoperable EHR (iEHR)
- Each jurisdiction is responsible for maintaining its own EHR but adheres to national standard
- replicated in each region where the individual has accessed services
- 4 alternative approaches considered:
  - Big database in the sky
  - Replication of data to all point of service systems (40k)
  - Big Index in the sky
  - Shared Reference Information Source

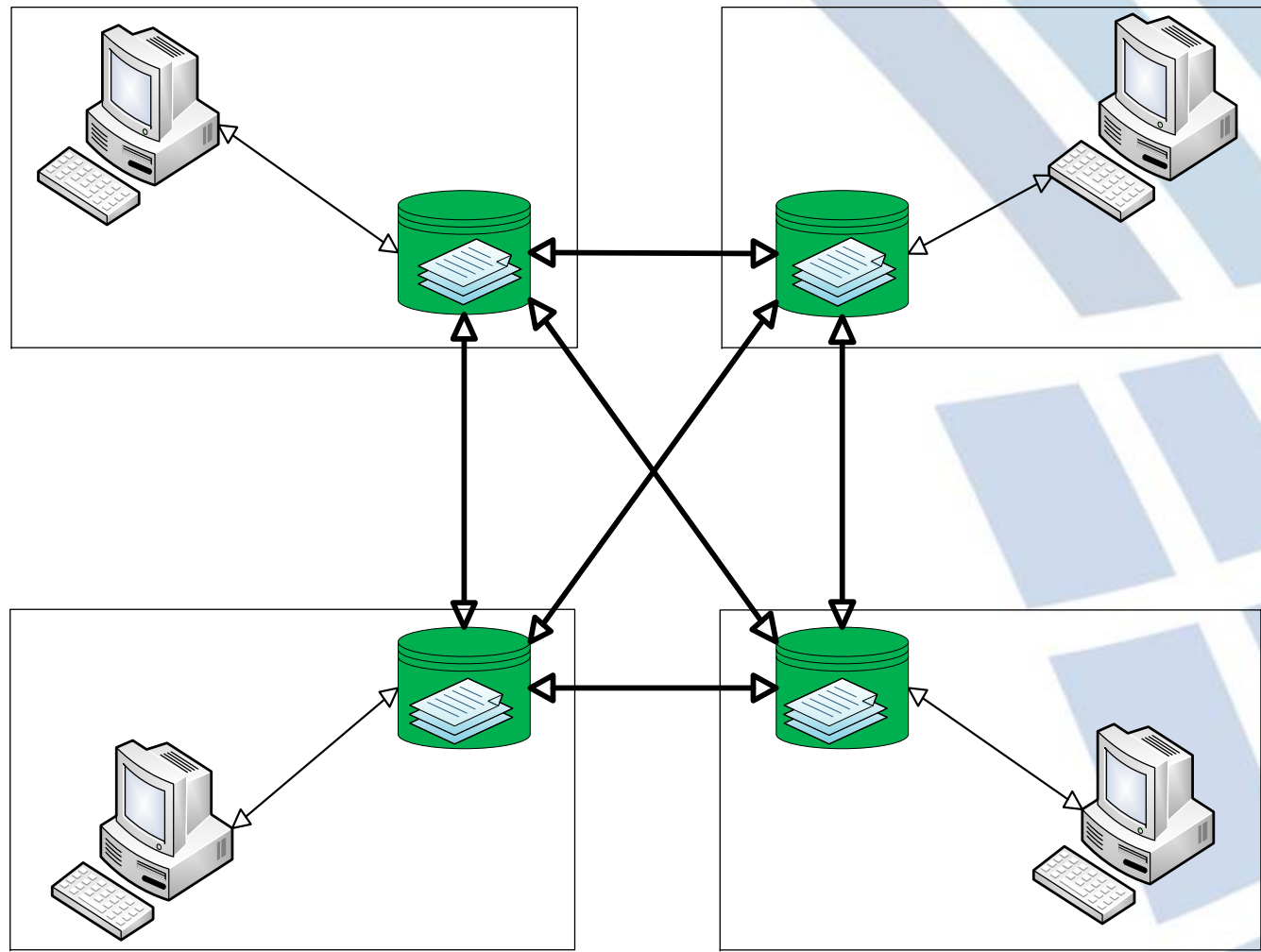
# Big database in the sky



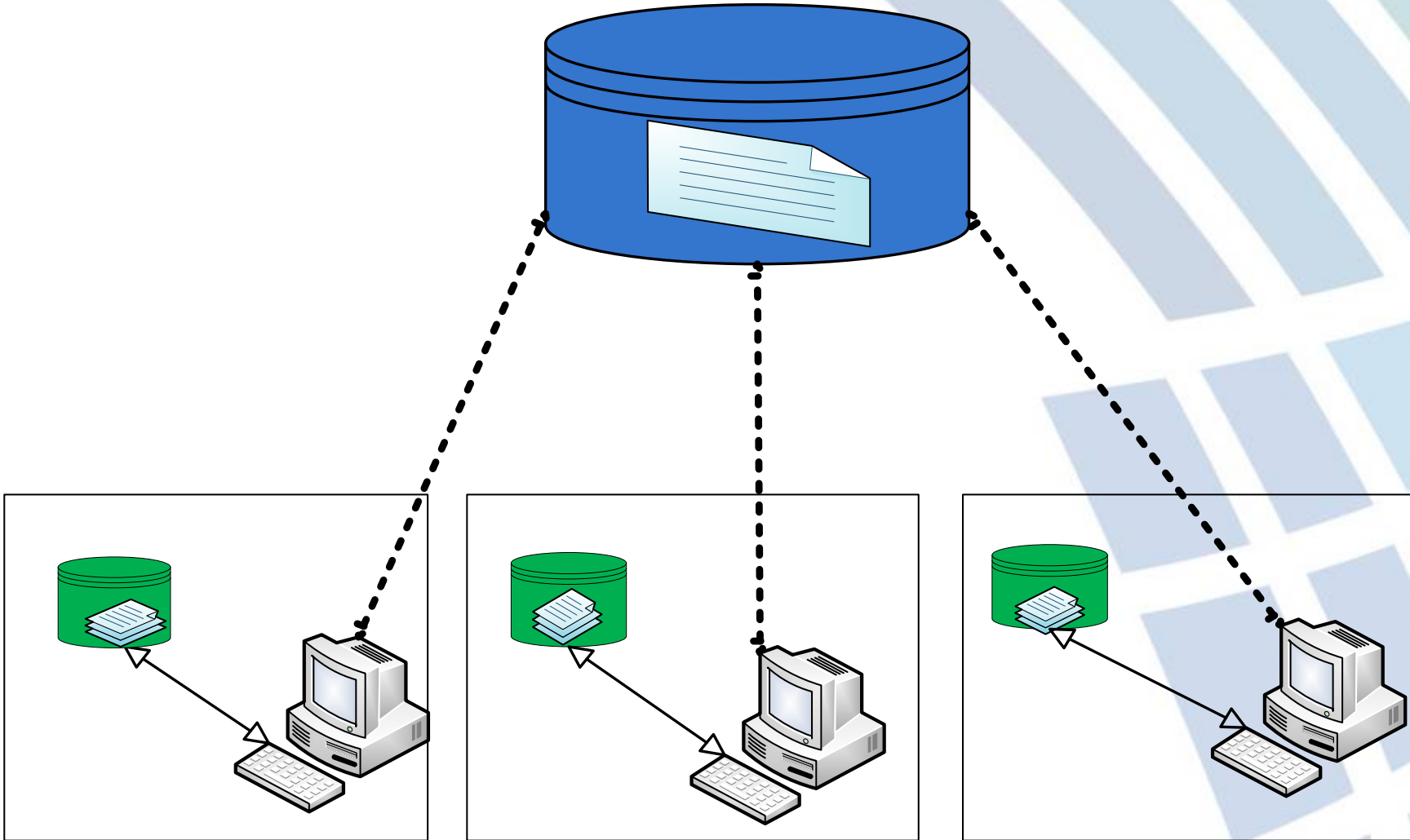
# Big Index in the sky



# Replication



# Shared reference information source



# Shared reference model chosen

- Main driver was cost of integration –
  - 40,000 IT systems could require 1.5 billion interfaces!
- Shared Reference Model reduces number of interfaces to 80,000
- Maximises performance e.g. improved response time and consistent access to data across thousands of core systems
- Maximises ability to apply privacy and security policies
- Enables evolution of semantic interoperability of health info across service delivery points
- Enables high degree of scalability and flexibility

# England: Connecting for Health

- Two components to England's EHR programme or Care Record Service
  - National
  - Local
- National component consists of Summary Care Record accessed via National Data Spine
- Local component consists of detailed interoperable records held locally

# National context

- Type of approach e.g. Top-down vs bottom-up; Centralised vs Distributed depends on national context
- Turkey national health IT strategy initiated in 2004 in immature ehealth environment
  - logical to adopt a centralised approach
- Netherlands and Denmark have many years experience in electronic messages
  - more decentralised, bottom up approach more appropriate

# Type of record

- Most common type of record is the summary record containing key health information
- Summary Care Record (England)
- Out-of-Hours / Emergency Care (Netherlands)
- Individual EHR (Australia) contains supported self managed care questionnaires

# Summary

Country	Terminology	Standard	National Index
Canada	Interoperable EHR	HL7 v3	Index
England	Care Record Service and Summary Care Record	HL7 v3	Index + national DB
Finland	eArchive ePrescription eAccess	HL7 v3, CDA R2	Index
The Netherlands	Waarneem Dossier Huisartsen (Summary Patient Record for Locum GP)	HL7 v3	Index
Sweden	National Patient Oversight	CEN 13606	Index
Turkey	National Health Information System	HL7 v3, CDA R2	National DB

# Assumptions

- There is general agreement that some form of national EHR should be introduced
- This EHR should be patient-centred and should cover both the public and private sectors
- The EHR will be shareable
- The EHR will be based on a common model
- Individuals should be able to opt out of participating
- The solution should leverage emerging international best practice
- Individuals should have access to their own record and also be able to see who has accessed their record
- Unique identifiers for individuals and for health professionals and organisations are in place
- Appropriate privacy and security arrangements are in place
- The appropriate legislative framework and governance arrangements are in place.
- It should be possible to extract de-identified/anonymised data for secondary uses.

# Questions

1. What type of record is envisaged i.e. a comprehensive cradle-to-grave record of all health information relating to an individual, a summary record, an emergency record, a medication record?
2. What is the most appropriate implementation model i.e. a single centralised repository of records, a single centralised index with records stored locally, or a combination?