

# Positioning IIS within EHR: “Ask not what EHR can do for you, ask what you can do for EHR”

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10/21/2004

1

## Topics

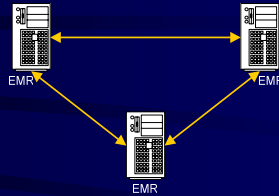
- Introduction
- Four models of EHR deployment
- What can IIS contribute?

10/21/2004

2



## Model 1: Peer to Peer



### Features:

- No central server
- Each system communicates as needed with neighboring systems
- Standard for communications (e.g., HL7) both for data formats, message types, and communications techniques
- Can support real-time messaging or batch communications depending on the capabilities of the participating systems

## Model 1: Peer to Peer *(continued)*

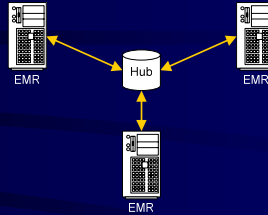
### Strengths:

- Allows incremental deployment as systems are ready
- No replication of data
- Any system can participate (even geographically peripheral) if they adopt the standards
- No burden of central coordination
- No dependence on a central database
- May be less expensive to deploy

### Limitations:

- Need to know the destination system for your information request
- Might allow some systems to fall behind and not support inter-system communication
- Will not scale well to many, many systems
- Does not facilitate community-wide data analysis

## Model 2: Information Broker



### Features:

- Central hub operated by regional authority, public or private
- Hub contains master index of all patients contained in all participating systems but does *not* contain any actual clinical records
- Each participating system is flagged in the index as possessing data for a particular patient
- A participating system queries the hub when it wants to find a record that might exist elsewhere
- Community-wide standard for communications (*e.g.*, HL7) both for data formats, message types, and communications techniques.
- Can support real-time messaging or batch communications

10/21/2004

5



## Model 2: Information Broker *(continued)*

### Strengths:

- System can discover where relevant records are housed community-wide
- No replication of clinical data
- System as a whole better protected from inappropriate disclosure
- Scales well

**Example:**  
*Santa Barbara County, CA  
Care Data Exchange*

### Limitations:

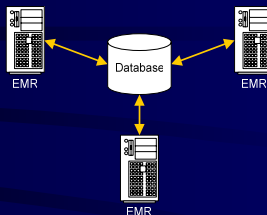
- Strong central coordination required
- Dependence on the central hub for inter-system communications
- Harder for individual systems to participate
- Requires two steps to get data: query to the hub, then second query to the authoritative system
- Potential for large effort to keep demographic records free from duplication
- Other systems may be unavailable at query time
- Harder to implement incrementally
- Harder for more peripheral systems to participate

10/21/2004

6



## Model 3: Union Catalog



### Features:

- Central database operated by the regional authority which contains complete, consolidated record of all people and their medical data: a "union catalog"
- Systems required to periodically supply data to the central database
- Standard for communications (e.g., HL7) both for data formats, message types, and communications techniques
- Can support real-time messaging or batch communications depending on the capabilities of the participating systems

## Model 3: Union Catalog *(continued)*

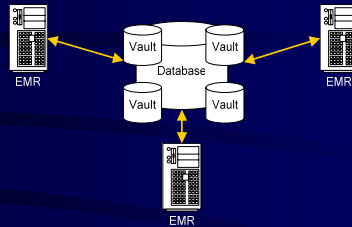
### Strengths:

- Querying system's response to a data request is quicker
- Less real-time dependence on other participating systems
- Facilitates community-wide data analysis
- Scales well so long as appropriate investments are made in central resources

### Limitations:

- Strong central coordination required
- Dependence on large central database for inter-system queries
- Data timeliness issue: data submission from participating systems to central database may lag
- Potential for large effort to keep people *and* clinical records free from duplication
- Potential for inappropriate disclosure as medical data from unrelated system joined together in advance of specific query or need
- Harder to implement incrementally
- Harder (or impossible) for more peripheral systems to participate
- Likely fairly expensive option

## Model 4: Library Network



### Features:

- Central database operated by the regional authority which assembles complete, consolidated record of people and their medical data (similar to Model 3), but assembled “on the fly” from separately-maintained “vaults”
- Central database contains master index of all patients contained in all participating systems (similar to Model 2)
- Systems required to periodically supply data to the central database
- Standard for communications (e.g., HL7) both for data formats, message types, and communications techniques
- Can support real-time messaging or batch communications depending on the capabilities of the participating systems

10/21/2004

9



## Model 4: Library Network *(continued)*

### Strengths:

- Less real-time dependence on other participating systems
- Implements a stricter “need to know” policy for data access
- Facilitates community-wide data analysis
- Scales well so long as appropriate investments made in central resources

### Limitations:

- Strong central coordination required
- Dependence on large central database for inter-system queries
- Queries may take longer to fulfill due to “on the fly” data consolidation
- Data timeliness issue: data submission from participating systems to central database may lag
- Potential for large effort to keep people *and* clinical records free from duplication
- Harder to implement incrementally
- Harder for more peripheral systems to participate
- Likely fairly expensive option

**Example:**  
*Indianapolis Network for Primary Care*

10/21/2004

10



## Four Models: Evaluation

- No one, right answer
- Peer to peer model might be interesting if standards can be maintained and participation becomes overwhelming broad (*e.g.*, e-mail)
- Any of these options takes years to build
- Identify and monitor leading projects

10/21/2004

11



## What Can IIS Contribute?

- Data, even consolidated data
- Existing clinical systems relationship with many relevant stakeholders: providers, payers, professional associations
- Governance: experience in negotiating and implementing wide variety of agreements
- Leverage public health contacts and responsibility for use of an LHII for managing large-scale emergency
- Self-reinforcing projects

10/21/2004

12

