



Al-Mustaqbal University College  
Intelligent medical systems department  
Class: First  
Subject: Introduction to Medical Informatics  
Lecturer: Dr. Ali Kareem Abbas  
Lecture: (4)

## Health Information Standards and Exchange

The term HIE can be used as either a noun or a verb. As a noun, it relates to any organization that offers the technology to allow for digital access and transfer of a patient's medical records. As a verb, it relates to the direct electronic sharing of medical information between healthcare professionals.



### Definitions

Health Information Exchange (**HIE**) is the electronic movement of health-related information among organizations according to nationally recognized standards.

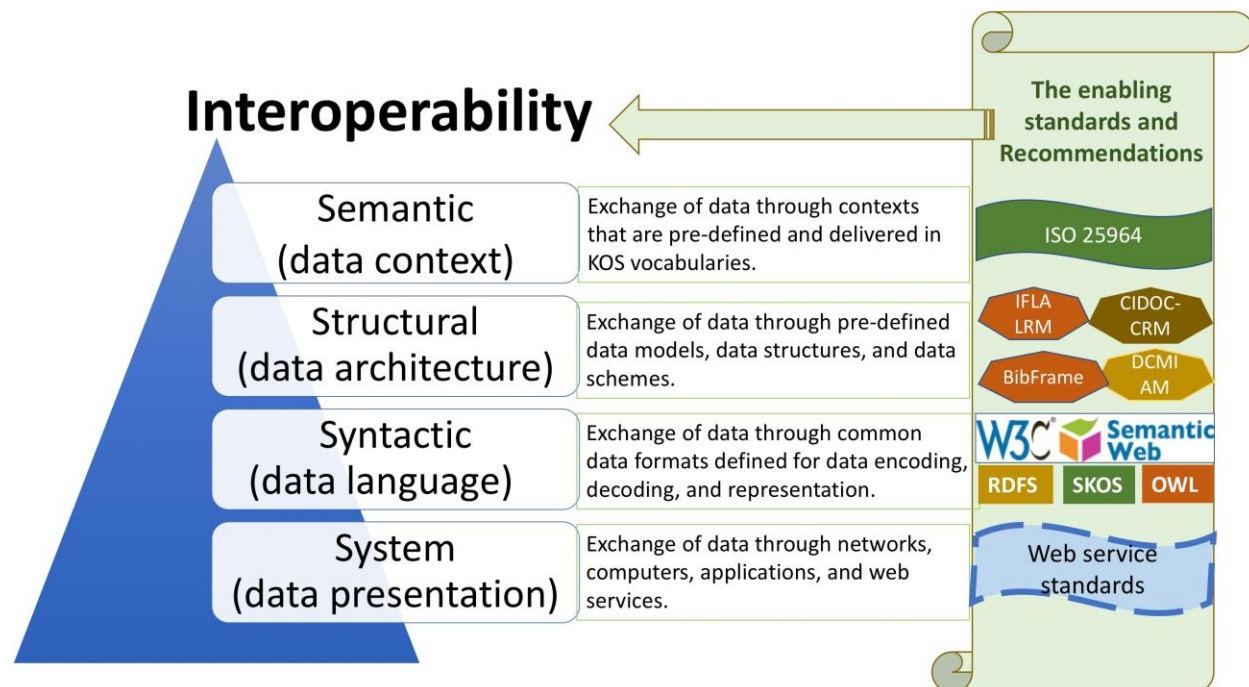
Health Information Organization (**HIO**) is an organization that oversees and governs the exchange of health related information among organizations according to normally recognized standards.



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Health Information Service Provider (**HISP**) is an organization that provides services and support for electronic exchange of health information.

**Interoperability** is ability of two or more systems to exchange information and to use the information that has been exchanged.

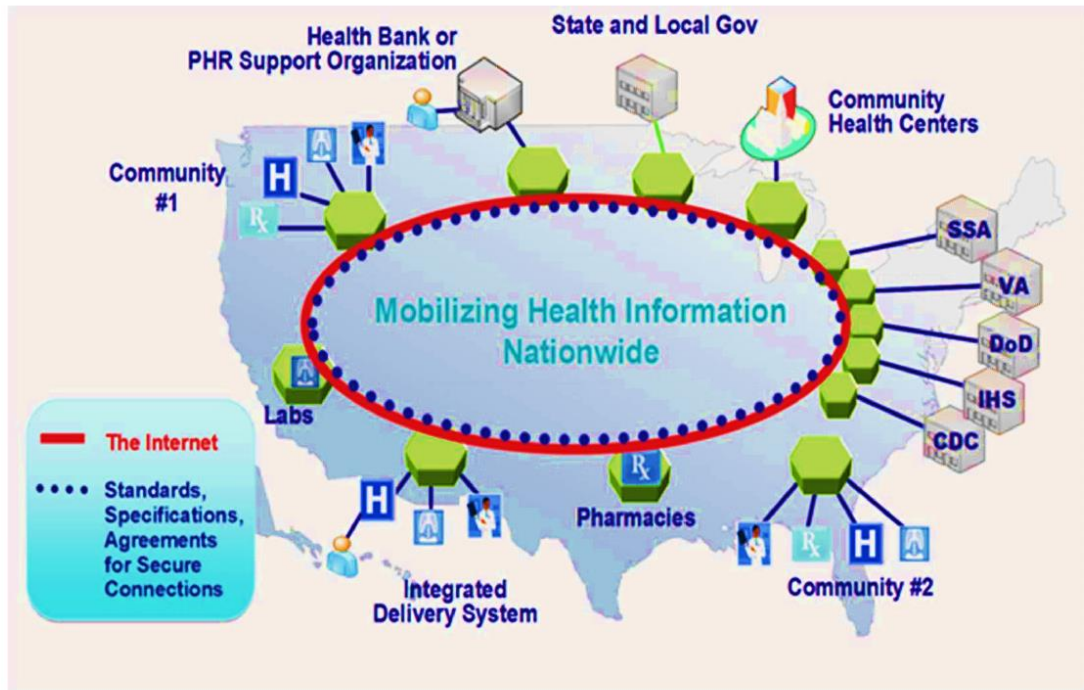


**eHealth Exchange** ( formerly known as **NwHIN** ) , network-of-networks that establishes standards, services and policies that define how HIOs will engage in the secure exchange of health information over the internet.



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## HIE Architecture (cont.) > NwHIN



*NHII (2004) → NHIN (2010) → NwHIN (2011)*

Nationwide Health Information Network (NwHIN)

**Opt-In** patients choose to participate in the HIE, no health information can be exchanged unless the patient signs a specific informed consent document permitting the sharing of data.

**Opt-Out** patients choose to not participate in the HIE, grant permission for the exchange of personal health information as part of the broader informed consent that they sign when they receive care from a clinician.

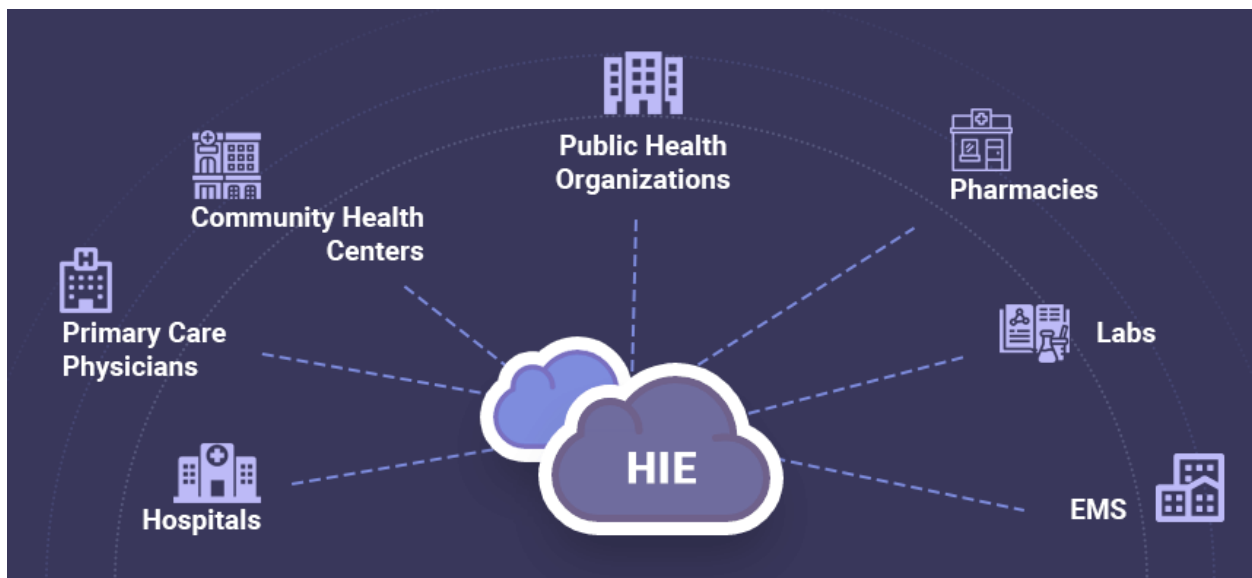
**Push Technology** are clinicians sending (pushing) information to another provider mostly by email or other secure messaging process.



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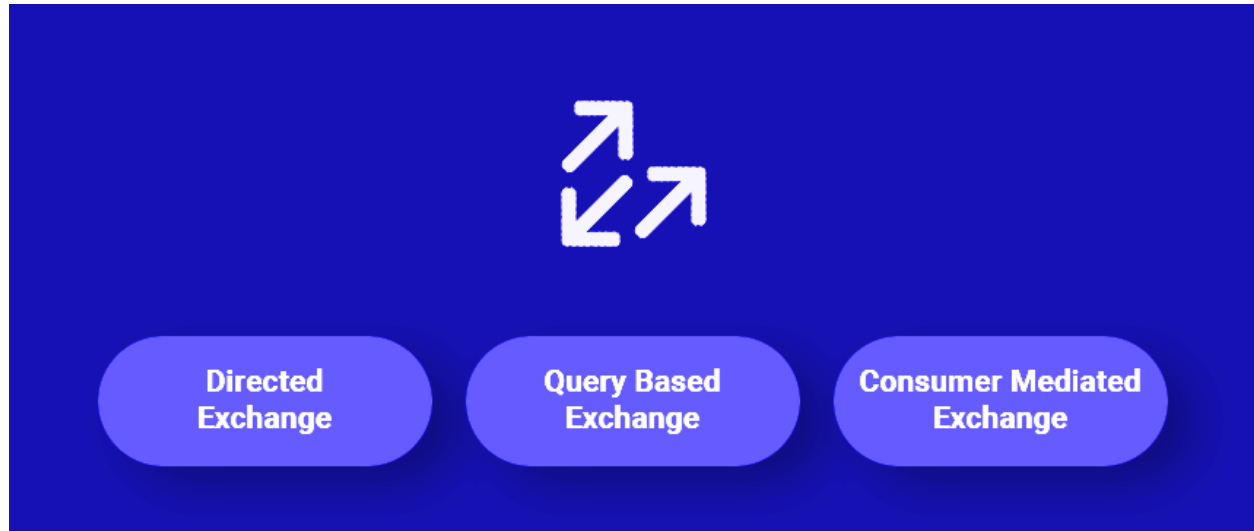
**Pull Technology** clinician sends an electronic request for health information to a server to perform a query, for example, a server maintained by a (HISP), the server performs a query for the data, and then responds with any matches.

Regional Extension Centers (**REC**) technical assistance, best practice information, and education to support providers' implementation and Meaningful Use of EHRs.





## Types of Health Information Exchange



### Directed Exchange

- This type of health information exchange allows medical professionals the ability to send and receive secure documentation over the internet using secure, encrypted messaging.
- Using this method, information that can be shared includes lab results, discharge summaries, patient referrals, and more.
- This kind of information exchange is critical in interoperability for all kinds of clinical conditions across many different entities.
- Patients benefit from this type of electronic exchange because participants can get direct clinical referrals and their conditions can easily be explained to other providers with ease.

### Query-Based Exchange

- When healthcare providers need further information on a patient and their medical history, this approach allows them to request information from other medical professionals.



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- This information exchange tends to be used during emergency care situations.
- If a provider is unsure about the situation surrounding a birth, operation, or other medical event, they can use a query-based information exchange to better understand what happened at one entity or another.
- If a doctor needs to understand the symptom that lead to a lack of oxygen or a seizure, they will ask another provider to exchange the information so they know what areas of the brain or what other care options they should pursue.

### **Consumer-Mediated Exchange**

- Patients are granted the internet access they need to manage their own health information, allowing them to transfer their information as needed to their provider of choice.
- They can also correct and update their own personal information as needed and use their medical information to help them maintain their health.
- This kind of health information exchange helps with interoperability and allows patients to take control of their public health and EHR.
- Health is personal and patients who have the ability to choose their provider and give them the health information they need are able to feel more confident in their care and decisions.

### **What are the Benefits of the Health Information Exchange?**

- Improving communication between departments and care providers.
- Reducing costs.
- Furthering patient education.
- Reducing or eliminating unnecessary testing.
- Boosting public health reporting.
- Connecting with electronic health records (EHRs).
- Making the facility operate more efficiently



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- Creating more opportunities to explore cutting-edge technologies and services that can improve patient care
- Timely sharing of patient information to avoid medical errors and readmissions and improve diagnoses

### **What are the Challenges of the Health Information Exchange?**

- Privacy and security concerns, as the digital format can be vulnerable to cyberattacks and account breaches
- Adhering to state and federal regulations related to data management and security, which can sometimes be contradictory or unclear
- Patients withholding information, as some may be reluctant to share their private medical history on a digital platform
- Sharing information across state lines, as differing privacy rules could make it difficult to comply when trying to share patient medical history across the country
- Communication issues between facilities who may not keep the same kinds of records or have incomplete records

### **What is the Future of the Health Information Exchange?**

- 1- Offering new and inventive ways for medical providers to digitally store, maintain, and share patient information.
- 2- There's a drive to make the HIE more integrated across healthcare organizations on a local, regional, and national level, ensuring file sharing is more seamless and compliant with state and federal regulations.
- 3- One of the formats that's making the HIE more accessible is a single-platform resource that makes the transfer of data simple and seamless.



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## General Overview

- Electronic Health Information Exchange (HIE)
- HIE provides Health Care providers and their patients a way to access and securely share a patient's vital medical information electronically
- Thus improving the speed, quality, safety and cost of patient care.
- HIE is highly supported by Government funds, therefore the future is bright.