



REPUBLIC OF LEBANON
MINISTRY OF PUBLIC HEALTH

Interoperability MOPH Plan

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Led several IT projects including: systems interoperability and unique ID, electronic health record, Primary health care network information system PHENICS...and many others.



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مرصد دعم السياسات الصحية
MOPH-WHO-AUB PARTNERSHIP

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What is interoperability

- **Interoperability** is the ability of different information systems, devices or applications to connect, in a coordinated manner, within and across organizational boundaries to access, exchange and cooperatively use data amongst stakeholders, with the goal of **optimizing the health of individuals and populations.**

Levels Of Interoperability

The Healthcare Information and Management System Society (HIMSS) has come up with four levels to define [what qualifies as interoperability](#):

- **“Foundational”** interoperability develops the building blocks of information exchange between disparate systems by establishing the inter-connectivity requirements needed for one system or application to share data with and receive data from another. It does not outline the ability for the receiving information technology system to interpret the data without interventions from the end user or other technologies.

Levels Of Interoperability

- **“Structural”** interoperability defines the structure or format of data exchange (i.e., the message format standards) where there is uniform movement of healthcare data from one system to another such that the clinical or operational purpose and meaning of the data is preserved and unaltered. Structural interoperability defines the syntax of the data exchange. It ensures that data exchanges between information technology systems can be interpreted at the data field level.

Levels Of Interoperability

- **“Semantic”** interoperability is the ability of two or more systems to exchange information and to interpret and use that information. Semantic interoperability takes advantage of both the structuring of the data exchange and the codification of the data, including standard, publicly available vocabulary, so that the receiving information management systems can interpret the data. Semantic interoperability supports the electronic exchange of patient data and information among authorized parties via potentially disparate health information and technology systems and products to improve quality, costs, safety, efficiency, experience and efficacy of healthcare delivery.

Levels Of Interoperability

- **“Organizational”** interoperability encompasses the technical components as well as clear policy, social and organizational components. These components facilitate the secure, seamless and timely communication and use of data within and between organizations and individuals. Inclusion of these non-technical considerations enables interoperability that is integrated into end-user processes and workflows in a manner that supports efficiencies, relationships and overall health and wellness through cooperative use of shared data both across and within organizational boundaries.

What Is A Health Information Exchange (HIE)?

- A Health Information Exchange (HIE) is a technology solution that enables Healthcare providers and organizations to share patient information electronically between systems **according to nationally recognized standards.**

Interoperability in MOPH



Ministries, Public funds,
Syndicates, Universities,
INGOs, NGOs..



Physicians



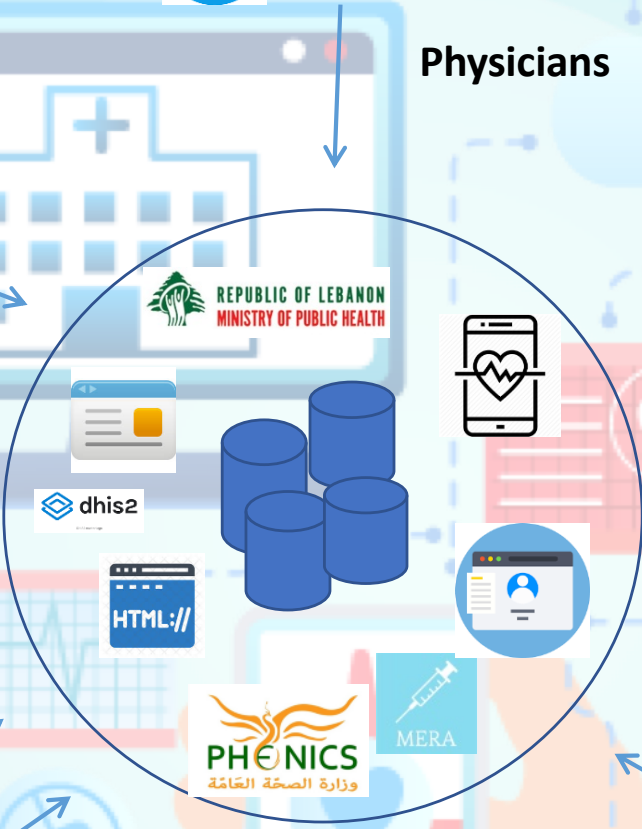
Schools



Nurseries



Primary Health
care centers



Dispensaries



Hospitals



Labs, Pharmacies, other health care providers

Data exchange between MOPH and hospitals (example)

- Billing system (flat files upload)
- Death registry (Data entry and flat files upload)
- Births registry (Data entry and flat files upload)
- Maternal mortality (Data entry)
- Implantable devices tracking system (Data entry)
- Communicable diseases reporting “DHIS2” (Data entry)
- Other systems and reports (Dialysis report, PHENICS referrals, ...)

Challenges

- Lack of a unique patient identifier
- Different coding systems
- Different data structure
- Different data exchange structure and technologies
- Readiness of the systems to use modern standards and technologies to exchange data
- Trust
- Security and data confidentiality

Interoperability solution

Build a centralized system to store, maintain and publish all parameters used in the information systems which include but not limited to:

- **Health care providers:** Hospitals, dispensaries, physicians, nurses, pharmacies, laboratories, ..
- **Locations:** Mohafaza, qada, villages
- **Patient demographic and personal data:** sex, marital status, profession, education, ...
- **Medical data:** drugs, vaccines, diagnosis, lab tests, Radiology, allergies, medical acts and procedures, ...
-

Interoperability solution

Adapt and implement standards to exchange data between systems:

- HL7
- FHIR
- HIPAA
- ...

Interoperability solution Pilots in MOPH

- EPI registry interoperability
 - Adaptation of HL7 standard (**VXU^04**)
 - Implementation of data exchange tool (Mirth Connect)
 - Pilot data exchange with EPIC
- PHENICS interoperability

Interoperability solution

Next Step

- Adapt HIE standards for all systems
- Implement HIE systems and tools.
- Share the standards and technologies with all stockholders.
- Replace the current data exchange tools with the new HIE tools

Thank you