Hospital IT One Task But Many Challenges

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Information technology adoption is nearly universal among all part of business including Hospitals. However, Hospitals specially in developing and under developed country like Nepal has many limitations & Challenges. Such hospital are struggling to adopt those technologies & systems, which meet regulatory, legitimacy, statutory mandates and clinician expectations too. We can point out below few such challenges:

➢ **1) Interoperability:**

   Interoperability is the ability for different softwares to exchange data to each other. This is the major challenge in Hospital Scenario nowadays. There are plenty of medical diagnosis equipments like CT, MRI, PACS, Ultrasound, Linac, Angiography, and Endoscopy --etc. etc. There should be establishment of connection for communication through which data transferred between them with information system. The term "Hospital IT" is interchangeably called as "Biomedical" or simply "medical device connectivity" or "Medical device integrity". In fact, "Hospital IT" is not just but it broadly covers many Global protocols & standards, which adhere data security, data consistency and privacy too. It has to adhere standards to ensure medical devices intercommunications and external communications to information system. Varieties of technologies, Varieties of vendors & heterogeneous clinical environments comes

under global standards, which enable interoperability between them to connect & communicate to each other. ISO (International organization standard) , DEC(Device Enterprise Communication ,ACM(Alarm Communication Management), IEM (Information Exchange Management) and HL7(Health Level-7) are such standards.

IEM exchanges patient centric messages with hospital information system and HL7 is the standard for interface engine that allows multiple clinical departments to exchange patient data with other clinical departments.

➢ 2) Upkeep old Technology:

Hospital is ready to adopt latest technology that works well and is integrated to facilities. However, the old devices or equipments or old technology cannot be dismantled or removed from the hospitals. Such old equipments might have compatibility issues with emerging information technology, as R& D for those equipments might not be done adequately. Meantime, original vendor may no longer support those products even vendor no longer sell the tools or parts of the equipments. Example: Radiotherapy Cobalt machine is no longer supported with recent dicom interfaces, Varis Vision OIS is incompatible with recent HMIS.

➢ 3) Clinician or Physician Adoption:

Technology challenges are not just about the system themselves. The end users like clinician, technician, oncologist, physician ...etc. should update their skills to be handy & efficient usage of such technology. New HMIS (Hospital Management Information System), EMR (Electronic Medical Record), EHS (Electronic Health Record) are well built in latest IT domain but few clinician still struggle to use E-mail & web browsing.

➢ 4) Asset documentation & Tracking:

Many HMIS have provision of Asset documenting & Asset tracking but standards says each Assets should have service tags, Bar codes, Serial numbers that need to be updated in software with hard copy references. Generally Biomedical engg. Having such documents, not with IT often fails to update in HMIS or EMR or EHR.

➢ 5) Data Security, Data Backup & Data integrity :

Data security is protecting confidential data from public, limiting access to authorized users, manage & monitor with Risk Assessment, Store the data in secure way preferably in encrypted format and retrieve the same with consistency and intact. Many hardwares and softwares needs to be implemented with recommended backup

solutions preferably in cloud. But hospitals are not ready to spend huge amounts for such configurations.
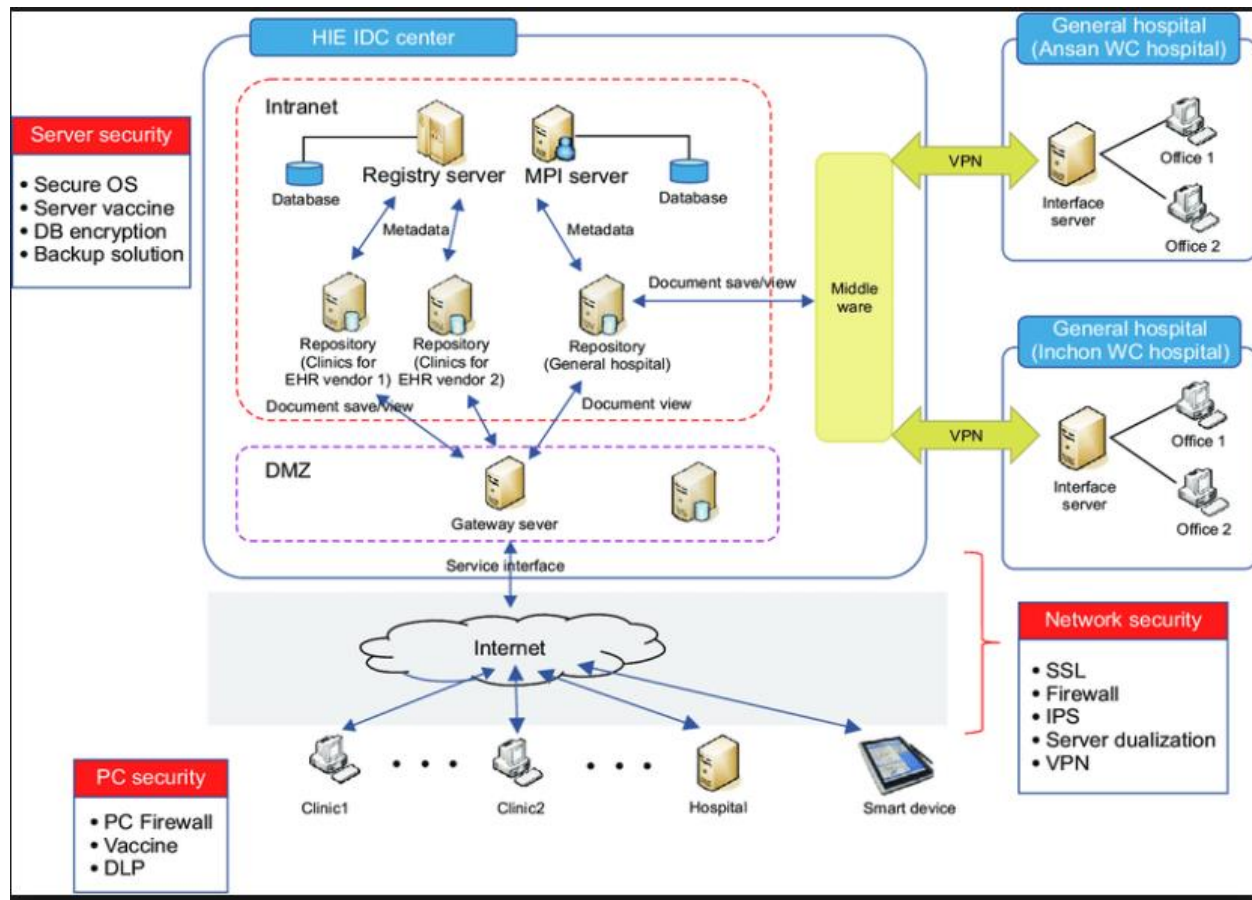
Example of hospital IT infrastructure with security

(Picture from Researchget.net)

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