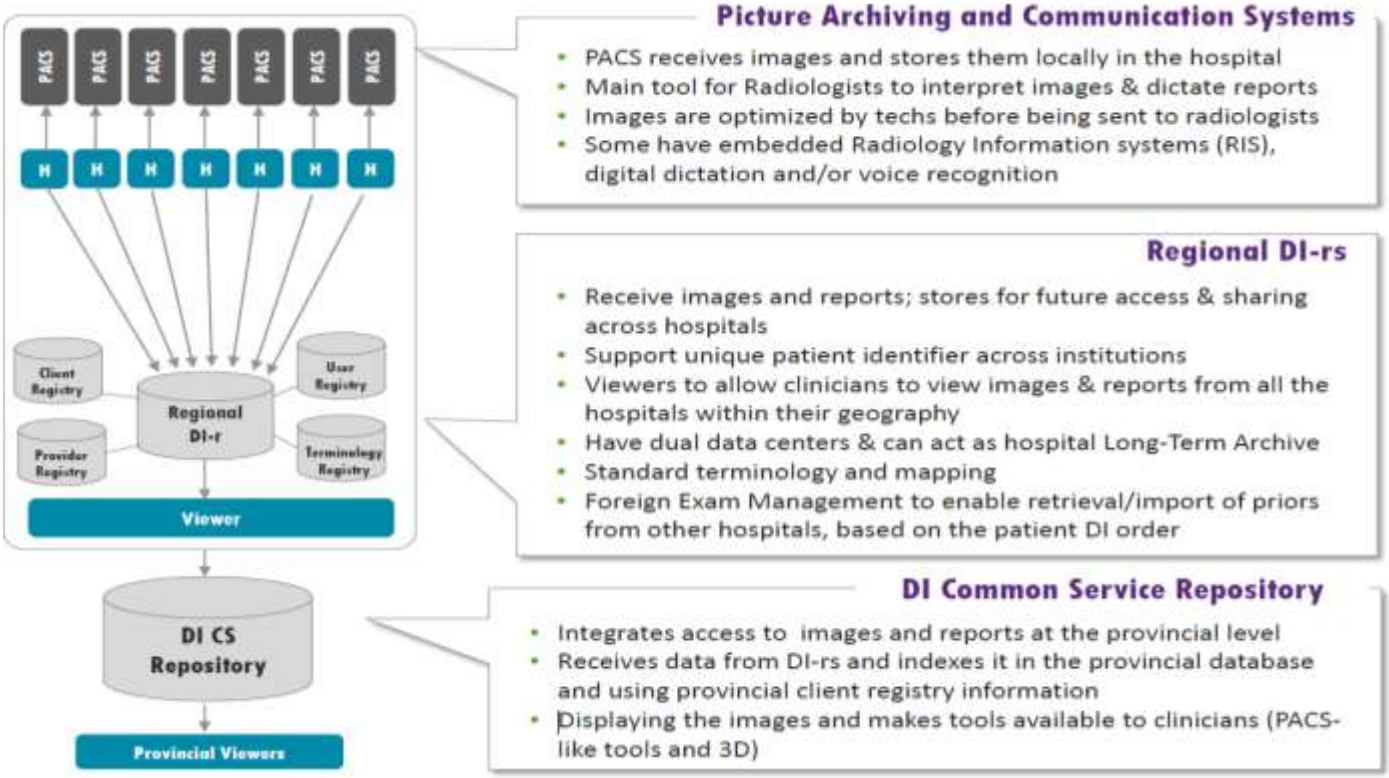
Understanding the DI landscape

Access to diagnostic images and reports helps to eliminate the need for physical transfer of test results, and the costly duplication of scans when a patient moves from one hospital to another. Most importantly for patients, this network allows specialists at one facility to access diagnostic images and reports acquired at other hospitals or IHFs, allowing for more informed, timely medical decisions.



Picture archiving and communications systems (PACS)

PACS receive images from modalities such as such as ultrasounds, Magnetic Resonance Imaging (MRI), mammograms, Computerized Tomography (CT) scans, , Position Emission Tomography (PET) scans, PET/CTs and x-rays, and store them locally in the hospital datacenter, while serving as the main tool for Radiologists to interpret the image and dictate a report. The implementation of these systems has eliminated the need for film and paper diagnostic images.

PACS allow images to be manipulated and changed by technologists before being sent to radiologists (e.g. cropping, cutting, resorting, shuttering, annotations, rotating, changing of brightness/contrast, etc.) Some PACS have embedded Radiology Information systems (RIS), digital dictation and/or voice recognition. PACS systems also enable the imaging to be more deeply interrogated, modified, and possibly ingested by other specialty departments in the hospital. Examples include post processing by vascular and neuro departments, orthopedic templating and surgical planning, and Radiation treatment planning.

Hospitals

Historically hospitals have images taken and stored in local PACS. Reports are dictated within dictation solutions, and filed back into Radiology Information System (RIS) and PACS. Images are stored in hospital LTA (Long Term Archives) or at their regional Diagnostic Imaging Repository (DI-r).

Images and reports that are exclusively stored in hospitals have been recently made available outside of the organization through the provincial DI Viewer. Further provincial availability will be enabled through ConnectingOntario and ClinicalConnect.

Regional Diagnostic Imaging Repositories (DI-rs):

DI-rs are systems that receive images and reports and store them for future access and sharing across hospitals in that catchment. In order to identify and link patients from different hospitals, DI-rs use regional Enterprise Master Patient Indexes (EMPI) or Health Card Number as unique patient identifier across institutions. Each of the repositories has a diagnostic viewer to allow clinicians to view images and reports from all the hospitals within their geography that contribute data to DI-r and leverage user registries to authorize and authenticate the viewer users. DI-rs are also able to act as hospital Long Term Archive (LTA).

The DI-rs also have Foreign Exam Management (FEM) functionality to allow one hospital to retrieve and import relevant priors directly into their local PACS from other hospitals within the DI-r catchment, based on the patient DI order. This is important functionality, particularly to support radiologist workflow. Standard terminology and mapping of DI-r terms are employed to local hospital terms to ensure that procedures are normalized across hospitals (e.g. chest 2v = chest PA/LAT).

DI-rs are archives with a viewer, and are not PACS. In most cases, the archives are the Long Term Archive of PACS output and therefore serve as an extension of the PACS infrastructure.

Provincial DI Data Viewing

Authorized health care providers can share images and reports securely with other providers within their respective DI-rs. DI Common Service enables health care providers to have access to DI results, through their access method of choice, regardless of their location. Support of diagnostic imaging initiatives is part of the agency's overall strategy to improve patient care, safety and access.