application to application... system to system... setting to setting... seamlessly
Integrating the Healthcare Enterprise (IHE) is an initiative to create a framework for passing vital health information seamlessly – from application to application, system to system, and setting to setting – across the entire healthcare enterprise.

Healthcare stakeholders agree that technology can enable needed information – sharing across providers and patient care settings. However, a lack of well-defined and broadly accepted guidelines has impeded interoperability of healthcare information systems. Standards, while a necessary part of the solution, are not sufficient alone to fulfill the needs for interoperability. IHE provides a detailed framework for implementing the relevant standards, filling the gap between standards and implementations. While IHE is not a standards body and doesn’t create standards, it offers a common framework to understand and address critical integration needs.

The Four Steps of the IHE Process

**Problem Identification.** Clinicians and IT experts, represented by their professional societies (RSNA, HIMSS, ACC, etc), identify common integration problems in accessing information, clinical workflow, administration and the underlying infrastructure.

**Integration Profile Specification.** Experienced healthcare IT professionals look for healthcare or general IT standards that address that need. Specific technical choices are made and documented in the form of IHE Integration profiles.

**Connectathon Testing.** Answering a call for participation, vendors implement IHE according to the IHE Integration Profiles. They test their systems for interoperability, face-to-face with other vendors’ systems, at an annual IHE Connectathon. This allows vendors to assess the maturity of their implementation and resolve issues of interoperability with other vendor products in a supervised testing environment.

**Integration Statements and RFPs.** Vendors publish IHE Integration Statements to document the integration profiles supported by their products. Users can reference the appropriate integration profiles in requests for proposals, thus greatly simplifying the systems acquisition process.
Nearly one hundred healthcare vendors worldwide have contributed to demonstrating the delivery of ready-to-integrate products to benefit healthcare enterprises, small and large. CIOs and clinicians appreciate its positive impact.

Quotes:
“We are leveraging IHE Radiology Integration Profiles to streamline our radiology department’s operation. We are looking to IHE to assist our EMR in functioning as the user portal for multimedia data.”
Jack Wolf
CIO, Montefiore Medical Center
Bronx, NY

“Since we began our effort to incorporate the IHE in our enterprise, we have watched as our vendors, initially hesitant in embracing the IHE, have become advocates. Other vendors, who previously told us that they had no immediate plans to offer IHE compliance, have suddenly come forward with IHE compliant products. In our complex, multi-vendor environment, IHE offers us an approach to value-added, cost-effective integration.”
Nogah Haramati, MD
Chief of Radiology
Montefiore Medical Center
Bronx, NY

“The cost, time and effort associated with the purchase, implementation and maintenance of enterprise systems in healthcare require that substantial system changes or modifications be done in a carefully considered and deliberate manner. The IHE is an extremely valuable mechanism for maximizing our existing investment in systems and infrastructure while still enabling us to achieve levels of interoperability for which the systems were not originally designed.”
Mary McKenna,
Chief Information Officer
South Manhattan Network
Bellevue Hospital

Retrieve Information for Display: This integration profile enables simple and rapid access to patient information for better care. It supports access to existing persistent documents in well-known presentation formats such as CDA, PDF, JPEG, and others. It also supports access to specific key patient information such as allergies, current medications, summary of reports, and more for presentation to a clinician. It complements workflows from within users’ on-screen workspace or application. When linked with two other integration profiles – Enterprise User Authentication and Patient ID Cross-referencing for MPI – this profile’s reach can extend across organization boundaries. This integration profile leverages HTTP, Web Services, IT presentation formats and HL7 CDA.

Patient Synchronized Applications: This integration profile leverages the HL7 CCOW standard to enable a user at a workstation to view information related to a given patient contained in otherwise unlinked IT applications. It reduces the complexity and delay of navigating multiple applications to find relevant patient information. It also improves patient safety by reducing the chance of medical errors caused by viewing the wrong patient’s data. Its ability to work with two other IHE profiles – Enterprise User Authentication and Patient ID Cross-referencing for MPI – creates a seamless environment both for the clinician and the IT staff.

Enterprise User Authentication: As described above, this integration profile supports a common user login across all compliant applications. It greatly facilitates centralized user authentication management and provides users with the convenience and speed of a single sign-on. This profile leverages Kerberos (RFC 1510) and operates in conjunction with the HL7 CCOW standard.
**Patient ID Cross-referencing for MPI:** This profile defines a core set of transactions needed to interface with an MPI system. It enables independent patient registration systems to feed multiple patient identities to an enterprise service. This service in turn publishes the mappings of local identifiers related to the same patient. With this profile, any system in the enterprise may cross organizational boundaries to access needed patient information. This profile helps lower the cost of using and synchronizing data in existing systems in the enterprise. It leverages the HL7 V2.4 patient management standard.

**Consistent Time:** This profile ensures that systems synchronize their times.

These integration profiles will substantially augment the 13 radiology-centered Integration Profiles already defined in the IHE Technical Framework. For more information on IHE Integration profiles go to www.himss.org/ihe.

**IHE’s Pragmatic Approach to the Longitudinal Health Record:**
Over the past year, the Electronic Health Record (EHR) has emerged as a key integration initiative for healthcare. The vision of integration of patient care information access among multiple healthcare providers is consistent with IHE’s purpose. In response, an IHE IT Infrastructure Roadmap has been developed to help realize the EHR standards developers’ vision in a series of pragmatic steps. This roadmap anticipates three interrelated efforts:

- **Access to a common longitudinal health record,** with which care providers contribute and retrieve relevant patient clinical information across care encounters and settings.
- **A security framework** to protect the privacy, confidentiality, and integrity of patient care data.
- **A directory framework** to enable searches of data and to help ensure consistent use of common data values by the users of the longitudinal health record.

IHE now includes Radiology and IT infrastructure and is expanding to cover Laboratory and Cardiology. Future Domains will be addressed as professional sponsors mobilize their IT vendors. IHE will harmonize its activities with EHR standards initiatives in the healthcare industry (HL7, CCR, EHR Collaborative, etc) to simplify and accelerate the adoption process.