

# Integrating the Healthcare Enterprise White Paper

## Nuclear Medicine Integration Profile - Cardiology Option

This white paper provides information regarding the Nuclear Medicine Integration Profile with the Cardiology Option developed by the IHE Cardiology and Radiology Committees. Although this Profile is nearing completion of its technical specification, it is beyond the scope of the Year 2 (2006) IHE demonstrations.

### **Problem Statement:**

The exchange of nuclear cardiology images and reports is essential to completing the clinical information needed to allow seamless care of the patient across the inpatient/outpatient continuum. All nuclear cardiologists have experienced the difficulty in viewing a patient's nuclear cardiology images acquired using another vendor's system. This leads to repeated studies or making important clinical decisions with only a text report as a base for these decisions. This profile will enable cardiologists to freely exchange nuclear cardiology images across multiple computer platforms, allowing integration of nuclear cardiology into other workstations designed for image review. Improved care will result as the information becomes available to the clinician at the point of care.

## **Use Cases:**

The Nuclear Medicine Integration Profile - Cardiology Option will allow nuclear cardiology images to be integrated into the electronic health care record and the daily clinical activities in multiple settings. The profile will allow the sharing of raw, processed and quantitative images across many different settings and platforms. A cardiologist in an office with system A could send images to the hospital for display on the PACS system or for reprocessing on a different nuclear cardiology system. Conversely, the same cardiologist could review a patient's results from the hospital facilitating prompt inpatient care or guiding the next decision for an outpatient. Prior to IHE, this interaction would have required the physician traveling to the information source to review the real images or to review a report only. With IHE, it becomes a comprehensive electronic interaction.

The Nuclear Medicine Profile will allow a change in the way we consider equipment purchases. In the past, a major part of the decision has focused on the ability to integrate the "new" equipment into the existing nuclear cardiology/medicine network. This integration has usually been accomplished by picking the same vendor, locking in the technical developments that vendor has implemented since the prior purchase. With the IHE Nuclear Medicine Profile, it will be possible to integrate multiple vendors on the network. This will allow the purchaser to pick new equipment based on best of class, not on the last purchase decision.

The IHE Nuclear Medicine Profile - Cardiology Option will also promote better quality control for nuclear cardiology interpretation. Given the ability to easily exchange image data among various platforms, both vendors and PACS, the review of images by a "consultant" or outside reviewer will be greatly simplified. This will encourage review of image data as part of laboratory quality assessment both internally and externally.

## **Profile Benefits:**

The IHE Nuclear Medicine Profile has benefits for cardiologists, administrators, and IT staff which will:

- Allow cardiologists to review nuclear cardiology images at all points of care. This includes raw data, reconstructed images and quantitative displays.
- Allow the simple exchange of raw data, reconstructed images and quantitative displays among different camera systems, enabling the cardiologist to review images acquired and processed elsewhere, or to reprocess them as necessary to meet the specific clinical need.

- Allow the cardiologists to review nuclear cardiology images on “generic” workstations, supporting comparison of the data with other imaging modalities available on these workstations.
- Eliminate the need for multiple workstations for the patient care areas, reducing “monitor megaly” when physicians need to review several image types.
- Benefit the cardiology administrators by simplification of the purchasing process.
- Benefit cardiology IT staff by easing the integration of various manufacturers’ equipment into the nuclear cardiology department. This will allow equipment decisions to be based on the best available technology rather than limiting the purchase choice to the current imaging equipment supplier.

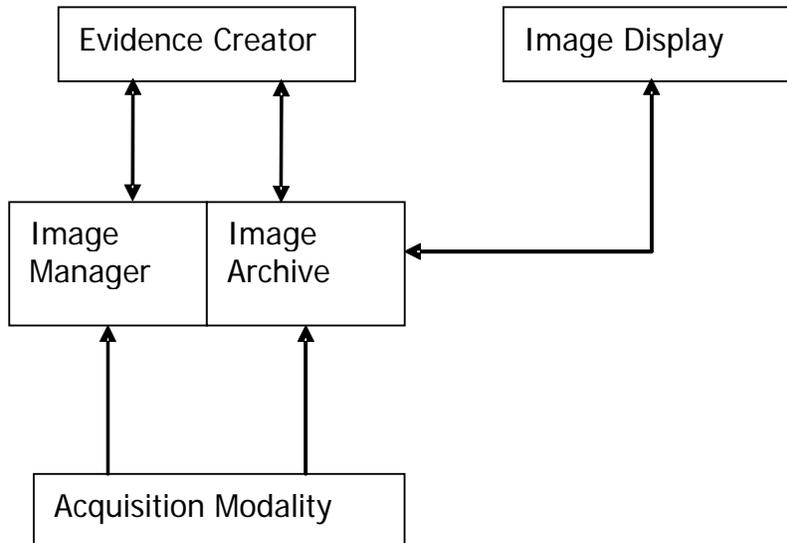
### **How the Profile actually works:**

IHE defines “actors” which are responsible for performing certain roles. Vendor products in the marketplace often implement more than one IHE actor per system.

The key actors in the Nuclear Medicine Integration Profile, and examples of products which might implement them, are:

- Acquisition Modality – acquires images
- Evidence Creator – creates derived images (quantitative displays)
- Image Manager – PACS system for managing access to images
- Image Archive – Long term storage of image data
- Image Display – browsing patient studies, retrieval and display of images and documents

The interaction of these Actors is shown in the diagram below:



### Purchasing Using IHE:

One of the key concepts of IHE is the ability to definitively describe interfaces with a single sentence. Using the statements below mitigates the need for hundreds of pages of technical documentation, interface engines, and on-site testing. For example, the following statements should be included in any request for proposal (RFP):

“The **Nuclear Medicine modality** system shall support the IHE Nuclear Medicine Profile Cardiology Option as the Acquisition Modality and Image Display Actors, and the Scheduled Workflow Profile as the Acquisition Modality Actor.”

“The **Cardiology PACS Workstation** shall support the Nuclear Medicine Profile Cardiology Option as the Image Display and Evidence Creator Actors.”

“The **Cardiology PACS** shall support the Nuclear Medicine Profile Cardiology Option as the Image Manager, Image Archive, Evidence Creator and Image Display Actors; the Scheduled Workflow Profile as the Image Manager, Image Archive, and MPPS Manager Actors; and the Evidence Documents Profile as the Image Manager, Image Display, and Evidence Creator Actors.”

Other related Profiles to consider include Scheduled Workflow (SWF), Patient Information Reconciliation (PIR), Stress Testing (Stress), Displayable Reports

(DRPT), Evidence Documents (ED), Retrieve ECG for Display (ECG), Retrieve Information for Display (RID), Portable Data for Imaging (PDI), and Cross-Enterprise Document Sharing (XDS).

**Summary:**

IHE Integration Profiles standardize the exchange of healthcare information; accelerate the adoption of the EHR; and enhance patient care, safety, savings and satisfaction.

The Nuclear Medicine Profile will simplify the exchange of image data across multiple vendor platforms and systems, including PACS. This is an important step in integrating Nuclear Cardiology into the electronic healthcare record and allowing access to images for review across the patient care continuum. The next step will be integration of the reporting elements that is slated for demonstration in Year 4 (2008). It will be very important for the entire nuclear medicine community to insist on the application and clinical release of the software developed as part of the demonstration of the Nuclear Medicine Profile.

It is worth your time to learn more about IHE and it is time to demand IHE Profiles from your vendors. See [www.ihe.net](http://www.ihe.net) or [www.acc.org/ihe.htm](http://www.acc.org/ihe.htm) .

Consider joining the "IHE Cardiology Users' Group" which holds web seminars, teleconferences, and other educational opportunities on an informal basis. For more information, send an email to [ihe@acc.org](mailto:ihe@acc.org).