IHE Work Item Proposal (Short)

Proposed Work Item: Management of Sensitive Images (MOSI)

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- Domain: Radiology; HIMSS SIIM Enterprise Imaging Community

2. The Problem

With the success of enterprise imaging, every specialty is now image-producing and image consuming. Because of the nature of healthcare, many images are sensitive. Sensitive images can be defined as any image from any modality (not limited to visible light), that could cause embarrassment, shock, grief, or other emotional distress to the viewer. Key classes of sensitive images include those containing nudity, gruesome images, and forensic images. Currently, there is no standard supporting interoperability for enterprise-defined sensitivity labels. Ultimately, applying standard sensitivity labels to imaging objects will be necessary to manage permissions, restrictions, and protections within and between imaging viewers, electronic health records, and patient portals.

There is little published data describing the scope of this sensitive image problem. At least one hospital has found that 60% of their patient's visible light imaging objects have a sensitive label. Inappropriate viewing or sharing of any sensitive image could cause emotional distress to a patient, harm an organization's reputation, and lead to litigation.

3. Key Use Cases

1. An orthopedic surgeon is caring for a patient with scoliosis and body dysmorphic disorder. The surgeon is reviewing scoliosis x-rays with the patient and opening sequential imaging studies. One of the studies is a gynecologic photograph. The photo opens without restriction. The orthopedic surgeon is incredibly embarrassed, the patient suffers emotional distress.
2. A child dies after a brief illness. One week later, the parents get a notification from the patient portal stating that a new result has been posted. They read the autopsy results and click a link that, without warning, opens photographs from the autopsy.
3. A patient with melanoma is seeking a second opinion. The patient asks that the images relating to their illness are sent to another facility. All of the imaging studies within the

patient's record are sent including perianal photographs related to Crohn disease (unrelated to the melanoma diagnosis).

The ideal workflow for the use cases can be described as follows:

1. Provider discusses the need for imaging with a patient and obtains consent (if needed).
2. Imaging is performed.
3. The image objects are automatically tagged based on the imaging procedure, the body part imaged, and/or the specialty of the provider. The provider also has the option to mark an image object as sensitive on the modality on an ad hoc basis.
4. The image object is sent to the archive.
5. Permissions to view the object are based on the provider's specialty, image object specialty, and sensitive image flags. Based on permissions the provider viewing is allowed, denied, or a warning is issued.
6. Patients can configure the patient portal for themselves and for proxies. Based on preferences image object viewing is allowed, denied, or a warning is issued.

4. Standards & Systems

Systems Impacted
Electronic Medical Records
Image Viewers
Patient Portals
Imaging Modalities
Medical Image Management Systems
Vendor Neutral Archive

Standard Impacted	**Description**
HL7/FHIR	● FHIR Security Labels ● HL7 Confidentiality Code ORC-28 ● Healthcare Privacy and Security Classification System (HCS)
DICOM	● DICOM 'confidentiality code (0040,1008)'
IHE	● IHE Metadata Handbook ● BPPC and APPC profiles

5. Discussion

The United States Department of Health and Human Services outlines what is defined as current Minimum Necessary Requirement patient healthcare data access; specifically, laws and policies are in place at national, state, and even healthcare delivery institutional levels,

dictating what patient information can be shared, at all levels of privacy and sensitivity, depending on the needs of those providing care to patients.

That said, it is well recognized that the care delivery processes must be paired with technical infrastructure/architecture which protects patient information (both from external security threats, and also internal inappropriate/illegal access). Interoperability between healthcare information systems, especially as it applies to patient privacy and sensitivity from a medical imaging perspective, can be of value with integrating the healthcare enterprise when patient data, and access to data, are managed properly.

If successful, the proposed IHE MOSI profile will coordinate the use of established standards along with new sensitive image labels to manage access to image objects in support of patient privacy.

Question to editor

Is there enough insight in the rules outside the United States to make sure the profile is covering general concepts? Do we have support from other areas to cover these?

How do you intend to use the DICOM attribute as that is currently not part of any object definition only used in workflow objects?

Looking at the ideal workflow I see two phases:

- One is about the creation of the data to make sure the data is marked in a correct way when created. Think this requires quite some discussion as at least one of the use cases is not having the discussion step with the patient as in this case the patient is dead and the real “users” are the parents of the patient. So would you put part of the responsibility on the physician?
- Second is the accessing and viewing flow which in that sense is an independent flow from the creation. As most of the data is currently not marked as sensitive we might need to think about a different way to “check” if a series is containing sensitive images.
  Should your first use case not already have denied access to the sensitive data as the area of expertise of the physician is completely unrelated to the study (orthopedic versus Gynecology)?

With this in mind shouldn’t we split the profile in these two parts:
- Creation of Sensitive data
- Managing/Usage of Sensitive data

For effort estimates would be good to see these two elements back on the breakdown which would allow the split if needed.