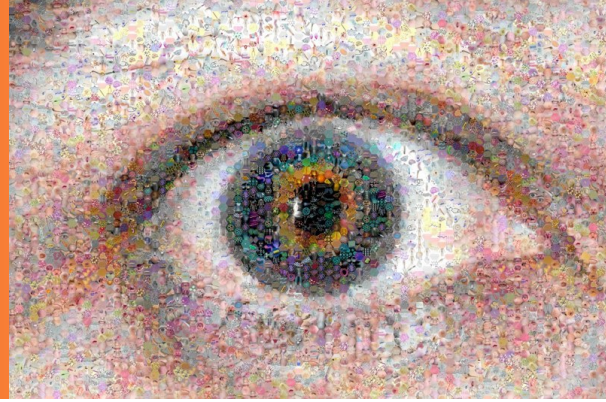


Position Statement

Medical Vocabulary Standardization – Anatomical Location



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Problem Statement

Despite the existence of mature data standards for clinical data, there still exists an unaddressed need for medical vocabulary standardization. Adoption of standard medical terminology for clinical systems is critical to improve interoperability, patient safety, and clinical outcomes and will allow medical practitioners to leverage the promises of precision medicine. Today, entities attempt to solve this problem by creating data “crosswalks.” This approach requires significant human intervention allowing for an adulteration and misinterpretation of data, which at best is an unnecessary expenditure of scarce health IT resources and at worst can compromise patient safety. A standard approach to addressing this problem is necessary.

Background

There is a recognized need to improve patient care data sharing as evidenced by the publication of the ONC’s proposed rules for the 21st Century Cures Act addressing interoperability and information blocking, and the proposed rules to modify the HIPAA security and privacy rules. Despite the existence of mature data language and communication standards, such as LOINC, SNOMED CT, IHE, DICOM, HL7, and others, there is limited utilization of these standards applied across our country’s healthcare provider organizations. This issue is especially acute in the nascent emergence of clinical enterprise imaging.

The ability to share information meaningfully between entities, or even internally within an entity is dependent on a common language. Today, we rely on “translators”, such as developing data value “crosswalks”, to ensure a common understanding of the information. This approach treats a symptom – the need to translate data from one entity to another – but it does not solve the root cause which is the lack of a universal medical vocabulary. Furthermore, such crosswalks require data transformation, which can cause data adulteration and misinterpretation.

As we look at clinically related data generated within the healthcare enterprise, it can be grouped broadly into three categories: claims, electronic medical records (EMRs), and imaging. Of these data classes, there is an accelerating surge in the creation of enterprise clinical images. These images are acquired and shared for diagnostic, procedural, and evidence use cases. Examples include digital photography for wound care, forensics

and dermatology, surgical/medical scope imaging, digital pathology, point of care ultrasound, telehealth videos and still photos, advanced radiology imaging, and others. Because images are easy to acquire at the point of care and have become a valued asset in the medical record, imaging data has become one of the fastest growing segments of acquired medical information. In fact, it is estimated that over 70% of healthcare data is comprised of clinical images and related metadata (GE Healthcare The Pulse, 2018). Unfortunately, like personal images captured on every day camera phones, often medical imaging has only sparse relevant context or content metadata.

The traditional landscape of clinical imaging, which historically consisted of radiology and cardiology studies, is undergoing a dramatic shift. In response, the [Healthcare Information and Management Systems Society](#) (HIMSS) and the [Society of Imaging Informatics in Medicine](#) (SIIM) joined forces in 2013 to establish the [HIMSS-SIIM Enterprise Imaging Community](#). This multi-disciplinary community is comprised of clinicians, informaticists, application developers, and other health information technology (HIT) professionals. These individuals share a passion for improving patient care by informing the clinical and HIT community-at-large on the growing utilization of imaging across the enterprise and the importance of standardization to enable the interoperability of imaging information. This group tackles relevant topics such as standards which facilitate the interoperability of image sharing between entities, with a goal of eliminating the use of compact discs (CDs) as the transport vehicle of clinical images. The use of portable media to share clinical information – commonly imaging data – presents security issues and, perhaps more importantly, creates delays in patient care decision making. Often it places a burden on the patient to manually retrieve and transmit/deliver their own imaging data.

As practitioners in the field of enterprise imaging, a practice that literally impacts every clinical service line, we recognize a need for the standardized use of medical vocabulary terms such as procedure names, anatomy, acquisition method, and others. It is critical to adopt a uniform set of vocabulary across the nation's healthcare provider organizations for the sake of interoperability, care coordination, security, patient safety, advanced analytics, and AI. Additionally, eliminating the patient as the transporter of clinical information reduces the burden on an already taxed individual and accelerates the care pathway. The promotion of a universal standard will significantly reduce the time and effort that each organization devotes many hours to develop their own medical vocabulary definitions, despite the existence of current standards. When summed across the country, thousands of hours of work effort are expended identifying values for database dictionaries, which in some form already exist in current standards.

Realizing that this is a broad topic to address, the HIMSS-SIIM Enterprise Imaging Community respectfully recommends that a concerted effort be placed on selecting a combination of existing standards for anatomical location, commonly known as “body part.” Existing standards have been researched, and while some standards certainly address anatomical location, most primarily focus on internal anatomy. Those that do consider external structures, such as the Model for Foundational Anatomy (MFA), tend to be far too comprehensive, prohibit an intuitive understanding of the value, and appear challenging to implement broadly. Additionally, the existing defined values fall short as there is a need for a comprehensive, consumable anatomical ontology that not only considers the labeling of internal structures and external structures (surface anatomy), but also considers labeling when multiple internal/external structures are involved in a single image or image set.

Proposed Solution

To solve this problem, a set of defined anatomy values must be identified and derived from the existing standards.

Approach

We intend to convene a multi-disciplinary group of clinical enterprise imaging producers and consumers, along with representatives from standards organizations. A preliminary group of interested organizations have been identified, agree to the necessity, and voice support for this effort.

We are in the process of engaging additional organizations and groups.

This group will review existing standards, identify the anatomical values needed, and propose the best standard(s) to use as the basis for data element values. With the agreed upon ontology, we will take a multi-pronged approach to inspire widespread adoption.

1. We will petition the major electronic medical record (EMR) systems vendors to incorporate the data element values as their default anatomy (body part) dictionary entries. The vision is that a comprehensive set of values will be made available and entities may select the discrete data element values that are relevant within their organization. It is important to note that a precedent has been set for this type of approach. Epic Systems Corporation uses the radiology procedure code list, identified within the LOINC/RSNA Radiology Playbook, as the default procedure code dictionary values in their Radiant module. (add footnote that the list currently used is from an earlier version of the Playbook).
2. We will petition the standards organizations to adopt the agreed upon ontology to populate their “body part” equivalent fields.
3. We will petition the image producing and image viewing vendors to incorporate this agreed upon ontology into their products, and where possible to create workflows that enable use of the body part data element.
4. Healthcare provider organizations will adopt the ontology and build/modify their body part dictionaries manually, based on the agreed upon data element values. Further, these organizations will publicly share their experiences, lessons learned, and derived value from using a standards-based approach.

Resource: [The Importance of Body Part Labeling to Enable Enterprise Imaging: A HIMSS-SIIM Enterprise Imaging Community Collaborative White Paper](#)

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