

**Assignment 2: Standards Briefing Note**

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### **A Background to Health Data Standards**

Health data standards serve many purposes in healthcare business. Interoperability, consistency of data formats, data integration, data aggregation and the facilitation of data governance and management are a few of the many reasons standards are used (Aspden et al., 2004). A prominent health data standard used is Health Level 7 (HL7). HL7 was created to improve the ease of exchange of electronic health information between healthcare information systems. Another commonly used standard is Systematized Nomenclature of Medicine - Clinical Terms (SNOMED-CT). SNOMED-CT emphasizes the use of semantic interoperability by standardizing clinical terminology, to facilitate the exact and specific representation of healthcare clinical concepts and terms within the collected healthcare data (Vuokko et al., 2023). The Digital Imaging and Communications in Medicine (DICOM) standard is specialized in the handling, storing, printing and transmitting of medical imaging information. DICOM supports many imaging modalities such as radiography, computer tomography, magnetic resonance imaging, ultrasound and nuclear medicine (Larobina, 2023). These standards are some of the more prominent in the Canadian Healthcare system but are among many other new and emerging standards that are used.

### **The Benefits of Implementing Standards in the Development of EHRs**

There are many benefits to implementing standards for healthcare data when developing EHRs.

- A standard like HL7 simplifies interoperability between different EHR systems and healthcare applications. The benefit of interoperability is the increased capacity to share patient data across healthcare systems.
  - An example of an interoperable system is ConnectingOntario. ConnectingOntario allows data from one healthcare system to flow into the ConnectingOntario application. Providers from across Ontario can have access to this system which help them understand a patient's health history (eHealth Ontario, 2024a). For example, if a pharmacist wanted to complete a medication reconciliation for a patient, they would be able to refer to ConnectingOntario as a first resource to understand which medications the patient is on, or has been previously prescribed.
- A second benefit of standardizing EHRs is the ability to share health information with patients and promote their engagement and knowledge of their health status.
  - A prime example of the facilitation of patient engagement through health data interoperability is the Ontario Lab Information System (OLIS). OLIS is a system in Ontario that collects data from various Laboratory Information Systems (LIS) and provides an interface between the LIS and patient portals which can be accessed by patients to allow for quick access to view and understand their laboratory results (eHealth Ontario, 2024b).

### **The Risks to Consider when Implementing Standards in the Development of EHRs**

Risk's need to be understood before implementing any standards in an organization particularly when it concerns the vulnerability of sensitive health data.

- One risk that is always a top priority regarding personal health information (PHI) is data security. If not employed securely and correctly implementing standards can expose PHI. The complexity of standards is a risk when trying to implement standards. Lacking a full understanding of the standards can lead to the misinterpretation and the incorrect application of their use. An example of a complex standard that prevented its use was HL7 version 3.0 (Worden & Scott, 2011).
- Vendor lock-in can be a risk when utilizing one specific standard over another. Specifying with one standard can limit an organizations flexibility to employ different vendors. The cons of vendor lock-in is that the cost of a vendor may vary over time and an organization may find themselves spending more on the vendor they locked-in with then the other options in the market (TechTarget, 2024).
- Lastly, implementing and maintaining standards comes with a financial cost of hiring technical experts, maintaining the system, the adoption to new workflows and processes for staff and the user training that is required for the implementation of the standard (Fennelly et al., 2020).

### **The Business Opportunities of Utilizing an EHR Vendor that Implements Standards**

- Despite the initial cost of implementing new standards, there is also a business opportunity for cost savings over time when Healthcare EHRs utilize standards. If all Healthcare organizations adhere to a common standard within a region, savings can be realized through the reduction of redundant developments, decrease in efforts made to achieve interoperability and the lessened cost of data integration accompanying exclusive systems (Fennelly et al., 2020).
- After incorporating standards into EHR development, healthcare businesses can benefit from optimized productivity and efficiency in the workplace because of the streamlined workflows, the reduced need for data entry tasks and the minimization of errors within a process (Aspden et al., 2004).
- Lastly innovation can be realized more readily when data is easily integrated and aggregated to identify and analyze trends in healthcare needs within an organization (Aspden et al., 2004).

### **Conclusion**

When considering standards that have been implemented, it is important to understand the benefit and risks that exist with their use, as well as the business opportunity that can be created. Standards have provided better access to healthcare data for patients, providers and researchers. They have decreased the cost over time for organizations, improved data integration and aggregation leading to better data analysis, and have reduced unnecessary steps for PHI custodians and technical teams. Lastly, the interoperability that has been realized from the use of standards has improved the patient experience and has empowered patients to be advocates and shared decision makers of their own health information management. Overall the impact of standards in healthcare has been immense and pivotal in the advancement of health information management.

### References

- Aspden, P., Corrigan, J.M., Wolcott, J., Wolcott, J., & Erickson, S., (2004). Health Care Data Standards. In R. Briere & A. Decatur (Eds.), *Patient Safety: Achieving a New Standard for Care*. (Ch. 4 pp. 127). Washington (DC): National Academies Press (US). <http://www.nap.edu/catalog/10863.html>
- eHealth Ontario. (2024a). *ConnectingOntario ClinicalViewer*. <https://ehealthontario.on.ca/en/health-care-professionals/connectingontario>
- eHealth Ontario. (2024b). *Ontario Laboratories Information System (OLIS) Standard*. <https://ehealthontario.on.ca/en/standards/ontario-laboratories-information-system-standard>
- Fennelly, O., Cunningham, C., Grogan, L., Cronin, H., O'Shea, C., Roche, M., Lawlor, F., & O'Hare, N. (2020). Successfully implementing a national electronic health record: a rapid umbrella review. *International journal of medical informatics*, *144*, 104281. <https://doi.org/10.1016/j.ijmedinf.2020.104281>
- Larobina M. (2023). Thirty Years of the DICOM Standard. *Tomography (Ann Arbor, Mich.)*, *9*(5), 1829–1838. <https://doi.org/10.3390/tomography9050145>
- TechTarget. (2024). *Vendor lock-in*. <https://www.techtarget.com/searchdatacenter/definition/vendor-lock-in>
- The Office of the National Coordination for Health Information Technology. (2023, March 26). *What is FHIR?*. <https://www.healthit.gov/sites/default/files/2019-08/ONCFHIRFSWhatIsFHIR.pdf>
- Vuokko, R., Vakkuri, A., & Palojoki, S. (2023). Systematized Nomenclature of Medicine–Clinical Terminology (SNOMED CT) Clinical Use Cases in the Context of Electronic Health Record Systems: Systematic Literature Review. *JMIR medical informatics*, *11*, e43750. <https://doi.org/10.2196/43750>
- Worden, R., & Scott, P. (2011). Simplifying HL7 Version 3 messages. *Studies in health technology and informatics*, *169*, 709–713. <https://pubmed.ncbi.nlm.nih.gov/21893839/>