AI-Enhanced Health Services. Do Standards Still Matter?

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The gaps in healthcare interoperability

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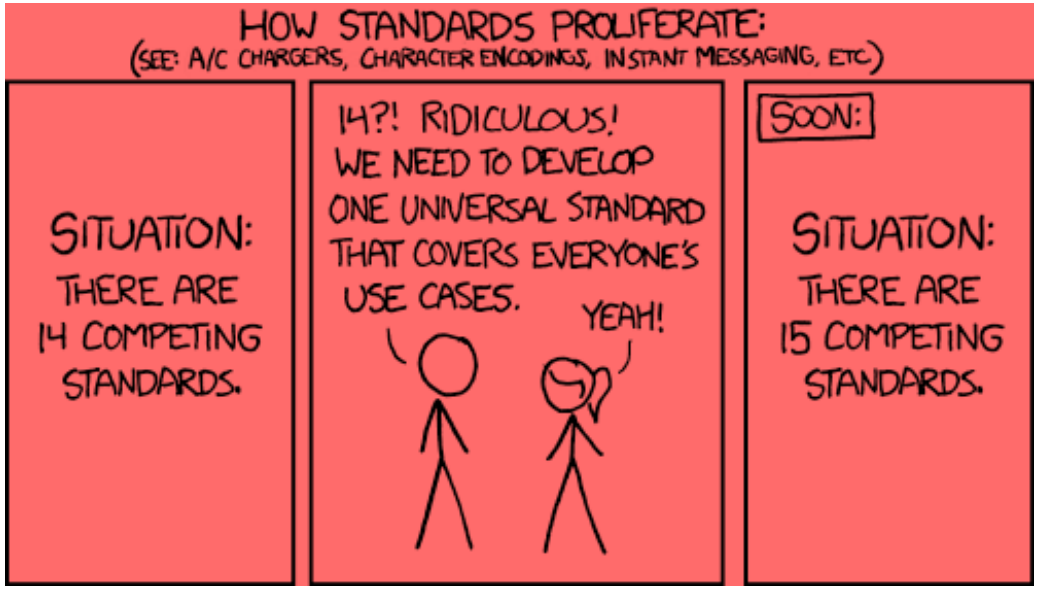
- Semantic interoperability remains a major challenge.
  - Healthcare systems today are (still) overwhelmed by fragmented data and inconsistent standards create inefficiencies.

- This creates inefficiencies, misinterpretations, and delays that directly affect patient outcomes.

- **How do we ensure that healthcare data is not only exchanged but consistently understood across systems, languages, and geographies?**



“Let’s AI the problem away !”

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- AI offers transformative potential to eliminate semantic barriers.

- With advanced Natural Language Processing (NLP), ontology alignment, and contextual understanding, AI can process unstructured data, resolve ambiguous terms, and dynamically adapt to new knowledge.

- E.g. AI could analyze a free-text clinical note, interpret Sarah’s condition as 'Type 2 Diabetes Mellitus,' and align it with her lab results—potentially without relying on predefined standards."

- **If AI can autonomously process and interpret healthcare data, do we still need standards?**

Have you encountered questions like these before?

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My counter question was: What happens if you take both?

AI-enabled standards

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- While AI is powerful, its effectiveness hinges on the foundation provided by standards.
- Here's why standards remain essential;
- Instead of replacing standards, AI complements them. Together, they create an ecosystem where data is accessible, meaningful, and actionable.
- Example: AI aligns Sarah's unstructured clinical notes with SNOMED CT codes and maps her lab results to LOINC, ensuring her care team has a unified, accurate view.

- **Consistency**: Standards ensure AI has high-quality, structured input, removing ambiguity and reducing errors.
- **Reliability**: Standards create a universal language across systems, ensuring data is understood the same way everywhere.
- **Transparency and Trust**: Standards provide traceability, making AI outputs auditable and explainable.
- **Scalability**: Standards allow AI to scale globally by ensuring interoperability across diverse environments.
- **Ethical Safeguards**: Standards provide guardrails to prevent biased or unsafe AI decisions.

Building a collaborative future

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- To fully unlock the potential of AI and standards, achieving meaningful progress requires;
  - Advancing standards to be AI-ready for seamless integration.
  - Ensuring ethical, transparent, and accountable AI adoption across healthcare systems.
  - Building scalable, interoperable solutions that work globally and inclusively.
- This requires collaboration between standards bodies, AI developers, healthcare providers, and regulators.

Bridging the gap

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- Centre for AI-Enabled Health (CAIEH)
  - Pronounce as “kai-ya”.

- A collaboration between HL7 Singapore and OHDSI Singapore.

- To serve as a hub for AI-driven innovation in healthcare, focusing on the development of health data standards, interoperability, innovation, and the ethical implementation of AI technologies.
- Creating a platform for knowledge sharing, capacity building, and dissemination of best practices in AI for healthcare.


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