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Clinical Data Standardization by Developing an Interoperability Framework

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Abstract

Bangladesh, a rapidly growing country, poses several challenges for clinical data integration, compatibility of data exchange, and interoperability because of the unavailability of the e-Health standard framework for the clinical data structures. The existing Electronic Health Records (EHR) are stored in unconnected, heterogeneous sources without interoperable data format. In this research, we have proposed to develop a standardized clinical data dictionary and coding system mapped with the international organization of clinical standard providers like HL7, SNOMED CT, LOINC, NHS, and ICD-11. This research is a subsidiary of "Developing a Model of Privacy-Preserved Anonymous National Clinical Data Warehouse (NCDW) of Bangladesh".

The standardization and interoperability framework has become an important part of the developed NCDW, which must include international data exchange and interoperability formats. Data standards are the principal informatics components necessary for information flow through the national health information infrastructure. Common data standards support the broad scope of data collection and reporting requirements, effective assimilation of new knowledge into decision support tools, and data exchange.

We have proposed to develop a standardized data dictionary with a coding system and an interoperability framework for clinical registries. The standardized data will cover a broad range of clinical data, including laboratory tests, specimens, measurement units, etc. The attribute of the data dictionary will be mapped with the internationally accepted format of data exchange & interoperability standards provided by the organizations like HL7, SNOMED CT, LOINC, NHS Pathology, WHO/ICD-11. Data interfacing methods will be implemented for transforming the existing clinical data by instigating an interoperability framework. A web service platform will be developed for managing the standardized data directory, registry resource sharing, and interfacing options with the stakeholders.

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