(1) Obstacles and Options for Big-Data Applications in Biomedicine: The role of standards and normalizations

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Abstract

Advances in computing capabilities are palpably evident throughout many industries manifest by unprecedented, large-scale data integration and inferencing. Branded as "big-data" in many cases, the question of whether such techniques can leverage advances in biomedicine and clinical practice are obvious. High-throughput clinical analytics, synthesizing genomic and clinical attributes of a particular patient, portends predictive models that can directly influence clinical care decisions. However, to make this widely shared vision practical and scalable, barriers attributable to data heterogeneity dominate. Methods and strategies to increase the comparability and consistency of healthcare related data will be discussed.

Biography

Dr. Chute received his undergraduate and medical training at Brown University, internal medicine residency at Dartmouth, and doctoral training in Epidemiology at Harvard. He is Board Certified in Internal Medicine, and a Fellow of the American College of Physicians, the American College of Epidemiology, and the American College of Medical Informatics. He became founding Chair of Biomedical Informatics at Mayo in 1988, stepping down after 20 years in that role. He is now Professor of Medical Informatics and Section Head. He is PI on a large portfolio of research including the HHS/Office of the National Coordinator (ONC) SHARP (Strategic Health IT Advanced Research Projects) on Secondary EHR Data Use, the ONC Beacon Community (Co-PI), the LexGrid projects, Mayo's CTSA Informatics, and several NIH grants including one of the eMERGE centers from NGHRI, which focus upon genome wide association studies against shared phenotypes derived from electronic medical records. Dr. Chute serves as Vice Chair of the Mayo Clinic Data Governance for Health Information Technology Standards, and on Mayo's enterprise IT Oversight Committee. He is presently Chair, ISO Health Informatics Technical Committee (ISO TC215) and Chairs the World Health Organization (WHO) ICD-11 Revision. He also serves on the Health Information Technology Standards Committee for the Office of the National Coordinator in the US DHHS, and the HL7 Advisory Board. Recently held positions include Chair of the Biomedical Computing and Health Informatics study section at NIH, Chair of the Board of the HL7/FDA/NCI/CDISC BRIDG project, on the Board of the Clinical Data Interchange Standards Consortium (CDISC), ANSI Health Information Standards Technology Panel (HITSP) Board member, Chair of the US delegation to ISO TC215 for Health Informatics, Convener of Healthcare Concept Representation WG3 within the (TC215), Co-chair of the HL7 Vocabulary Committee, Chair of the International Medical Informatics Association (IMIA) WG6 on Medical Concept Representation, American Medical Informatics Association (AMIA) Board member, and multiple other NIH biomedical informatics study sections as chair or member.

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