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Interoperability and Digital Health Platform: A Design Science Research

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TREO Talk Paper

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Abstract

Healthcare in the United States has gone through significant transformations. The hospital industry has consolidated substantially through mergers and acquisitions (M&A) over the past two decades. One of the significant impacts of these M&A activities is information sharing between the healthcare systems. There are several variations in how healthcare organizations use electronic medical record (EMR) systems, especially when they have more than one EMR system. Some organizations deliberately use different EMR systems for different episodes of care, such as an organization providing acute care and post-acute care services, using different EMR systems tailored to those specific care settings. Research shows that the inability to integrate data across all EMR and other data systems within a healthcare organization leads to inefficiencies and threatens patient safety. The goal of hospital systems providing care across multiple EMR systems should be to have all operations using aggregated medical record data. Thus, ensuring the quality of care is consistent across different providers, and the necessary information is accessible to all entities serving the patients within those systems. When transferring patients between facilities on different EMR systems, many hospital systems have built-in workflows that are currently manual and error prone. For example, a discharge summary, along with salient information such as demographics, allergies, medications, etc., in a paper form, is sent along with the patient transferring from one facility to the other. This manual transcription introduces the potential for errors putting patients and their safety at risk and causing a significant delay. This research proposes an interoperability solution that will facilitate bi-directional information exchange for patients transferring between facilities such as acute care and long-term and post-acute care (LTPAC) facilities, as shown in figure 1. This interoperability design leverages technology to electronically send critical patient data from an acute care EMR system automatically upon discharge to ensure timely and accurate transfer of patient information to the post-acute care EMR system. Future extensions to this design will provide an opportunity to expand data transfer to deliver efficiency gains while continuing to ensure safe and effective patient care.
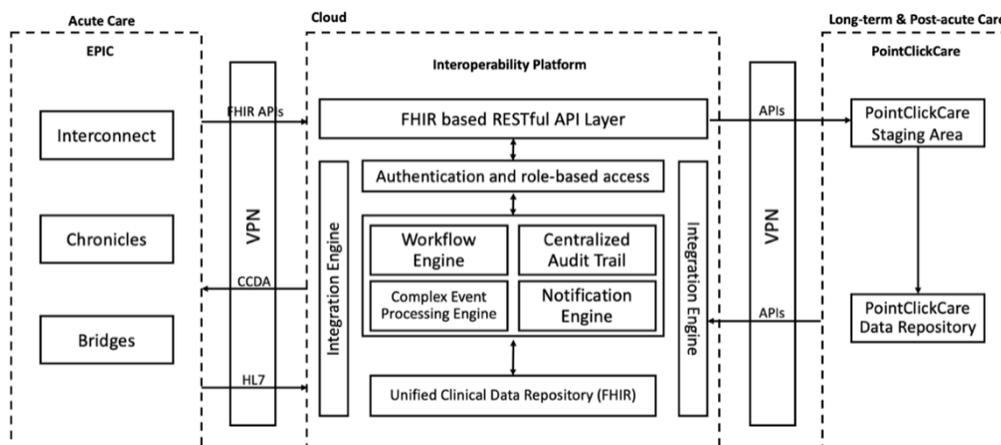
Figure 1: Interoperability Architecture for Information Exchange