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Radio Frequency Identification Device Based Emergency Department Critical Care Billing: A Framework for Actionable Intelligence

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Abstract : Emergency departments (EDs) provide urgent care to patients throughout the day in a complex and chaotic environment. Real-time location systems (RTLS) are increasingly being utilized in healthcare settings, and have shown to improve safety, reduce cost, and increase patient satisfaction. Radio Frequency Identification Device (RFID) data in an ED has been shown to compute variables such as patient-provider contact time, which is associated with patient outcomes such as 30-day hospitalization. These variables can provide avenues for improving ED operational efficiency. A major challenge with ED financial operations is under-coding of critical care services due to physicians' difficulty reporting accurate times for critical care provided under Current Procedural Terminology (CPT) codes 99291 and 99292. In this work, the authors propose a framework to optimize ED critical care billing using RFID data. RFID estimated physician-patient contact times could accurately quantify direct critical care services which will help model a data-driven approach for ED critical care billing. This paper will describe the framework and provide insights into opportunities to prevent under coding as well as over coding to avoid insurance audits. Future work will focus on data analytics to demonstrate the feasibility of the framework described.

Keywords : critical care billing, CPT codes, emergency department, RFID
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