Chapter 2
Current State of EHR Interoperability

ABSTRACT

Chapter 2 discusses the current state of electronic health records systems and their limitations. Electronic health records are effective tools in patient care but are limited to regions within a nation and do not share information across international borders. Clinical errors, misdiagnoses, and increased healthcare costs can be attributed to a gap in communication and the lack of information-sharing interoperability. Chapter 2 takes a deep dive into the information gaps in EHR systems, causations, and the consequences of the lack of interoperability. Chapter 2 also discusses the first US travel-associated case of Ebola in Dallas.

Health records and medical care documentation are found in ancient Egyptian hieroglyphics from 3000 BC to 1600 BC (Evans, 2016). However, cuneiform tablets, the first form of writing discussed later in this book, largely from the 1st-millennium BCE, are from ancient Mesopotamia (Wee, 2021). The history of record documentation is relevant as it reflects the progress made to closing the information gaps.

ELECTRONIC HEALTH RECORDS/ ELECTRONIC MEDICAL RECORDS

Health records date back to ancient Egyptian hieroglyphics from 3000 BC to 1600 BC; hand paper medical records began between 1900 - 1920 (Evans, 2016). However, cuneiform tablets, the first form of writing discussed later in this book, largely from the 1st-millennium BCE, are from ancient Mesopotamia (Wee, 2021). Documenting patient health was a priority thousands of years ago, and so it is today. The ancient Egyptians documented health records in their hieroglyphic writings. It was not until recently that health records were digitized. From 1600 BC to 2009 AD, health records were written or transcribed by hand. The Institute of Medicine (IOM) aimed to eliminate handwritten clinical data by the end of 2015 because digitized health records reduce errors by feeding data into systems that allow providers to make sound decisions (Gunter & Terry, 2005). Both the ancient Egyptians and Mesopotamians understood the importance of patient care documentation and set a precedence for modern medicine to follow. Today, health records are largely digitized, but their full potential is unrealized.

One of the confusions of digitized healthcare recording is the distinction between Electronic Medical Records (EMR) and Electronic Health Records (EHR) (Carter, 2019).

EMR systems are electronic repositories that allow healthcare providers to store medical record information, such as tracking data over time as identifying which patients are due for preventive screenings or checkups (Garets & Davis 2006). In addition, EMRs monitor patient health parameters such as blood pressure readings and vaccinations and monitor and improve the overall quality of care within a medical practice (Alijohani et al., 2015; Swanson, 2006).

Electronic Health Records (EHR) have similar features as EMRs, and more because EHR systems allow all members of a medical team to have access to a patient's medical information with real-time updates, allowing for collaboration for improved patient care, such as tracking disease diagnosis and treatment. (Swanson, 2006). EHRs reveal the patient's life-threatening conditions and lab results, eliminate the need to conduct duplicate tests, and the patient's progress during their hospital stay. EHR systems also provide discharge instructions and any follow-up care needed. EMRs are considered

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