Trends in Health Care Information Technology and Informatics

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INTRODUCTION

It was not until 1994 that the United States (U.S.) health care industry established information systems capable of handling a universal delivery system. These Information Technology Systems (ITS) operated along enterprise and system boundaries in the Health Care Delivery System (HDS). ITS have become fragmented by the proprietary business benefits of large vendors that want to control patient information (Accenture, 2001). Practical tools, especially computers, continue to be created and rapidly placed in industry with the ability of organizations to accept, accommodate, and even embrace technology moving at a varied pace (McHaney, n.d.). The health care industry has been one of the unhurried organizations to embrace the computer revolution in regards to patient care. Health organizations have been using computers for years in business departments. Health care comprises the use and management of a profusion of information that must be collected, managed, reviewed, processed, and mined (McHaney, n.d.). Technology changes rapidly and maintaining the status quo in health care actually means falling behind; and health organizations cannot afford to do that in **a** technology-driven world (Rutsky, 1999).

The implications facing health organizations are driven by the substantial pressure to implement Health Information Technology (HIT) systems that have "certified" Electronic Health Records (EHRs) applications and that fulfill the federal government's definition of "meaningful use" or risk significant financial penalties in the near future (Ford, Menachemi, Huerta, & Yu, 2010). To offset this pressure and cost, every hospital in the U.S. is eligible for a minimum of $2 million incentive with larger hospitals eligible for more funds to purchase and incorporate EHRs (Bau, 2011). With this in mind, health organizations such as larger hospitals located in urban areas, and teaching hospitals are implementing EHRs at a quicker rate (Jha et al, 2009). In 2014, research found approximately 38 percent possibly eligible hospitals achieved meaningful EHR implementation by the end of 2012 (Diana et al, 2014). The Health Information Technology for Economic and Clinical Health Act (HITECH) of 2009 is driving fundamental market and industry changes that health organizations need to be strategically poised to deal with and implement. This chapter investigated the trends in health care information technology and informatics related to patient care. The chapter will consist of the following sections: background; issues controversies, and problems; solutions and recommendation; and future research directions in health care.

BACKGROUND

Health care expenditures have amplified melodramatically during the past 50 years, mutually in total terms and as a share of Gross Domestic Product (GDP) (Center for Medicare and Medicaid

Services [CMS], n.d.). Expenditures in the U.S. health care segment computed over $2.7 trillion in 2011, increasing from up the $698.3 billion expended in 1980, increasing by a factor of 3.9. Health care expenditures in 2011 attributed for 17.9 percent of GDP, resulting in doubling of the shares from 1980 (CMS, n.d.). These expenditures have led to Quality Management for Health Care System to make available a structure to aid health organizations in communicating, monitoring, and incessantly advancing the whole HDS (James, n.d.). The vision for the Center for Medicare & Medicaid Services (CMS) Quality Strategy is to optimize health outcomes by leading clinical quality improvement and health system transformation. This has resulted in and gives indication back to the very suggestion that a systematized system to achieve high quality care can be a front-runner to lowering health care costs (James, n.d.).

The Patient Protection and Affordable Care Act (PPACA) entails 10 separate legislative Titles, with more than a few major goals. As it relates to quality, the goal is to increase health-care value, quality, and efficiency, while dropping lavish expenditures and creating the health-care system more accountable to a varied patient population (Rosenbaum, 2011). Also, the Act invests in the development of a multi-payer National Quality Strategy to create multi-payer quality and efficiency procedures to stimulate worth procuring, better safety, and all-embracing health information across public and private insurers (Public Law 111-148, 2010). In the long run, this will build on the HITECH Act, which was ratified into law in 2009 as measure of the American Recovery and Reinvestment Act (ARRA) (Public Law 111-5, 2009).

Trends in Health Care Information Technology and Informatics Issues, Controversies, Problems

Today's digital technology plays a significant role, permitting the storage and rapid retrieval of patient records and other important information. At the same time, patients expect their sensitive per-

sonal information to be handled appropriately, to ensure accuracy and confidentiality (Hall, 2014). Privacy and security is a humongous concern for a hospital's network infrastructure. Implementing security systems to prevent data breaches and leaks, keep Patient Health Information (PHI) secure, and managing the secure transmission of electronic medical record data are all major issues in the industry. Management must continue addressing ethical and legal issues with regard to control of information. In multifaceted health care organizations, management is realizing efficiency goals assist with meeting more intricate goals (Prior, 2006).

Due to the economic crisis of 2008, the American Recovery and Reinvestment Act (ARRA) of 2009 directed nearly $150 billion in new funds to the health care industry. According to Health care IT News (2015), it included $87 million for Medicaid, $24.7 billion to subsidize private health insurance for people who lose or have lost their jobs, $19.2 billion for health information technology, and $10 billion for the National Institutes of Health (NIH). Also, the Act provided $650 million to support prevention and wellness activities targeting obesity, smoking, and other risk factors for chronic diseases. Subsequently, it obligated $500 million for health professions training programs to include $300 million for revitalizing the National Health Service Corps (NHSC) (Health care IT News, 2015). This will allow promoting the foundation for performance reporting on a system-wide source so that patients can more readily get information about their own health care and how their health-care providers perform.

ARRA funding was designated to modernize the health care system by promoting and expanding the adoption of HIT. The federal government stated achieving this goal would reduce its health costs by more than $12 billion over the next 10 years (Sandlot Solutions, 2014). ARRA targeted funds at implementing a national infrastructure for health information technology. ARRA allocates $19.2 billion to increase the federal coordination of

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