EHR Adoption: The Impact on Medical Errors and Future Expenditures in WV

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Introduction

An electronic health record (EHR) is defined as a digital version of a patient's paper char. These electronic records are real-time, patient centered records that make information available instantly and securely to authorized users (HealthIT.gov, 2018). EHRs can contain a patient's medical history, diagnoses, medications, treatment plans, etc.; allow access to evidence-based tools; and automate and streamline provider workflow. EHRs are medical catalogs that exploit the Clinical Data Repository in order to store data regarding every patient in a healthcare facility, and the Clinical Decision Support System offers supplemental reference material for healthcare professionals utilizing the system (Hydari, Telang, & Marella, 2015).

The purpose of this research was to understand how EHR adoption has decreased medical errors and future expenditures in WV.

- **HITECH Act**
  - In 2009, the Health Information Technology for Economic and Clinical Health (HITECH) launched a near $30 billion health incentive (Moja et al., 2014). The law was signed to provide incentive for providers to adopt and EHR into their practice and to utilize the HER in a meaningful way. The HITECH Act authorized incentives and grants that totaled $14 billion to $27 billion to promote Meaningful Use with EHRs (Mangalmurti, Murtagh, and Mellow, 2017).

- **Overuse / Misuse of Services**
  - The overuse and misuse of healthcare services have been reported to be two of the biggest problems that have affected the quality and cost of healthcare. Overuse of healthcare services have affected 30% of healthcare services (Burns, et al., 2014). It has been reported that the misuse of drugs and treatments have cost up to $52.2 billion and overuse of antibiotics for respiratory infections have cost up to $1.1 billion (Burns, Dyer, & Bailit, 2014). Specific state efforts reported to reduce overuse and misuse through the medical documentation and use of evidence based guidelines.

- **Quality of Care**
  - EHRs have been held accountable for preventing harmful medical errors and associated malpractice claims. Scholars determined 75% of providers believed their EHRs have enabled them to offer enhanced patient care and contributed to improved outcomes (Exscribe, 2016). A study determined hospitals with a fully implemented HER had 34% lower odds of hospital acquired infections and 31% lower offs of post procedural events with hospitalized cardiovascular surgeries (Helwig & Lomotan, 2016).

- **Cost Containment**
  - Cost savings with EHRs have been "attributed to automating several time-consuming paper driven and labor-intensive tasks" based on the size of the hospital, a large hospital has benefited from $37 million to $59 million over a five year period in addition to incentive payments for the hospital (HealthIT, 2014). Other cost savings have reported to be reduced through transcription costs, refiling, and chart pulling and medical errors through better access to data and prevention alerts (HealthIT, 2014).

- **EHRs in WV**
  - The use of electronic health records in West Virginia have grown overtime. In September 2009, a subsequent West Virginia Health Information Technology Strategic Plan was updated. The plan contained information about West Virginia. "Penetration and use of electronic clinical information by physicians' practices is less than 10% statewide. There are providers who do not have any technology in their clinical practice. Approximately 60% of practices have an electronic practice management system. Approximately 80% of hospital-based physicians have access to an electronic health record information system. West Virginia has been an early adopter of the open source clinical information systems" (Atkins & Dolly, 2011).The use of electronic health records in West Virginia since 2009 has increased. Below is a chart with information from HealthIT.gov pertaining to the percentages of EHR use in West Virginia.

Results

- **How EHRs Improve WV Economy**
  - The Shenandoah Community Health Center (SCHC) in Martinsburg, WV has been considered a "super cash" with NextGen EHR system and it has provided higher quality of care for the patients (HealthIT, 2012). SCHC discussed prior to the EHR, a single patient could have up to 5 separate medical records, which portrayed bad quality. In WV, healthcare has accounted for the second largest segment of the economy. Furthermore, the state has ranked second in percentage of working population employed by healthcare, which totaled 35,000 people (Shaffer, 2000). This study also suggested that EHRs have been predicted to increase efficiency by 30%, which could save WV $4 billion.

- **Improved Medical Errors**
  - EHRs have reported lower number of medication errors with an overall risk ratio of 46% and adverse drug effects with a risk ratio of 66% (Campanella et al., 2016). EHRs have been reported to detect easily overlooked and underreported errors of omission (Sitting & Singh, 2012). A study reported medical patients treated at hospitals with a fully implemented HER had a lower mortality rate at 3.7% compared to patients treated at hospitals with no EHRs were at 4.4% mortality rate (Yanamadala, et al., 2016).

- **Improved Adoption**
  - Hospital adoption rates for a basic EHR has increased across all states from 2008 adoption rates were below 22% and in 2015 rates reported to be above 65% in all states (Henry, Pylypchuck, Searcy, Patel, 2016). Basic EHR adoption has required that each function to be implemented in at least one unit throughout the hospital, whereas a certified EHR has reported to "meet technological capability, functionality, and security requirements adopted by the Department of Health and Human Services."(Henry, Pylypchuck, Searcy, Patel, 2016)

EHR Adoption with Office-Based Physicians
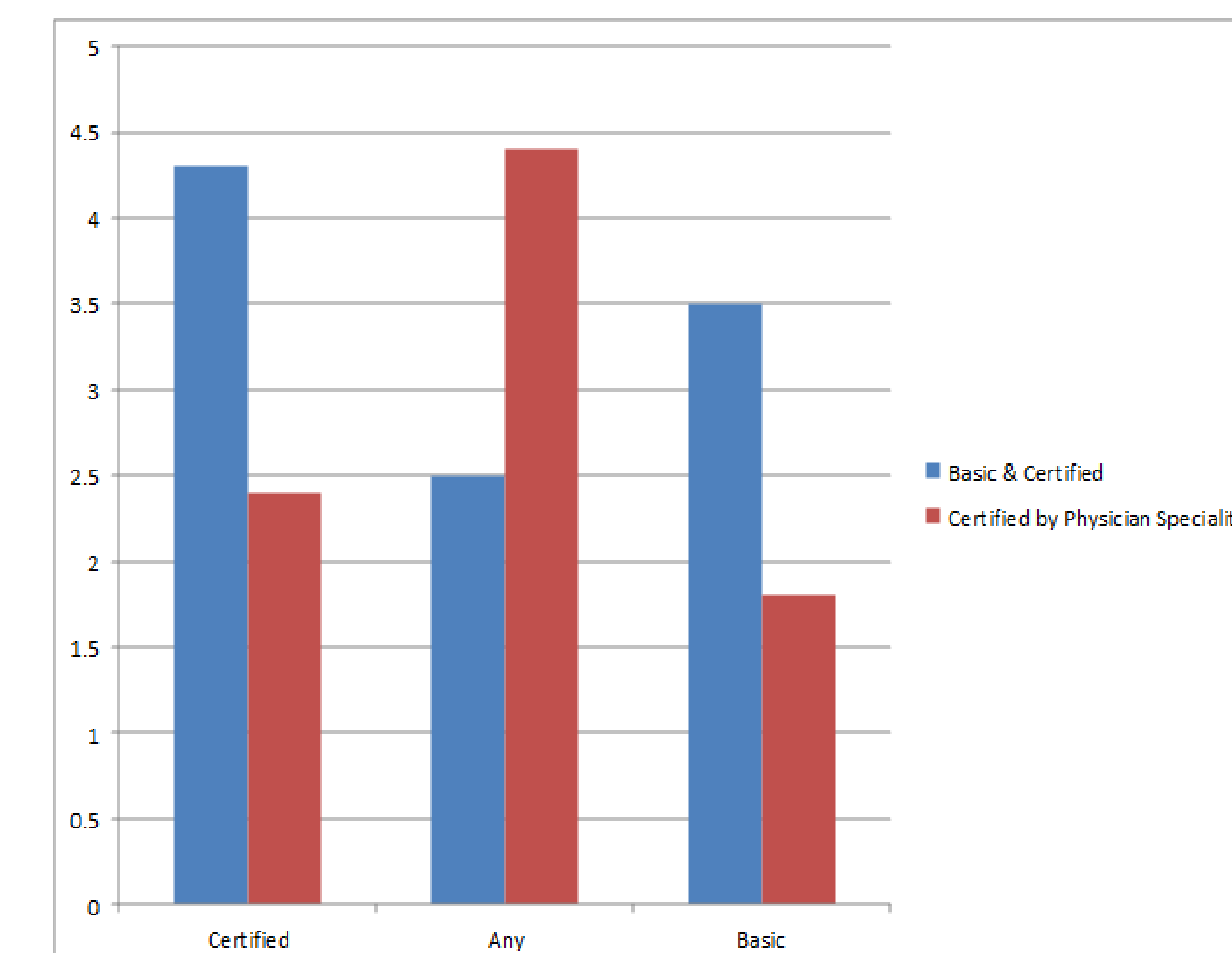
Conclusion

EHRs have proven to have a positive impact on the quality of care and costs of healthcare as a whole. This literature review has suggested EHR adoption has increased the quality of care in WV and has helped avoid duplicate testing and and the overuse and misuse of services. Thus, the primary hypothesis introduced was supported by this research.

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