Homework Assignment 2: Critique 1

Alyssa Monda

2/8/2017

Samuels et al. (2015) was written to address the implementation of the Electronic Health Record (EHR) following the enaction of the Health Information Technology for Economic and Clinical Health Act in 2009. The widespread use of EHR, and the availability of enormous amounts of data, presented researchers with new opportunities as well as new challeneges. The purpose of this article is to explain these opportunities and challenges from the perspective of "a non-informatics nurse researcher" (Samuels et al., 2015, p.1285). Though the article presents a superficial view of several ideas it addresses many of the key issues a "non-informatics nurse researcher" needs to know when beginning to use the EHR as a new data collection method. As more hospitals comply with the Meaningful Use (MU) standards it will be vitally important for nurses to have the ability to navigate these systems in order to conduct their research in innovative ways. Therefore this article serves its purpose in setting the foundation for those unfamiliar with the new digitized presentation of health record data. It allows readers to both identify the value of the abundance of digital data, while also preparing for the challenges they will face.

The authors begin by explaining the challenges involved with using the EHR; focusing first on implementation. Although MU standards require hospitals use of the EHR as well as the inclusion of a variety of strucured fields, there is no standardized terminology or required structure of documentation fields. The lack of uniformity presents a challenge to researchers trying to abstract data from multiple EHR platforms with different coding structures, which ultimately may affect data integrity and reliability. The second challenge the paper focuses on is data presentation through the use of both structured forms (i.e. drop down lists, checkboxes) and unstructured forms (freetext, videos, pictures, emails). Each format is accompanied by its own advantages and disadvantages in terms of variable coding or restricted language. One of the key arguments against the use of structured fields addressed the issue of the reductionist perspective, asserting the patient experience and clinical thinking is lost when data is presented in unconnected, task oriented fields. Data security and confidentiality is the final challenge addressed by Samuels et al. The added complexity of HIPPA compliance, confidentiality agreements, de-identification, and ultimately the unknown security of digitized data is leading to new challenges regarding access to protected health information by nurse researches not associated with the specific insitituation they wish to gain access to. While there are several challenges associated with the use of the EHR record, the authors also address the opportunities that come with exploring large databases combined with data mining techniques. Samuels et al. argues the use of big data will alter traditional research paradigms by allowing for the testing of new theories though the use of predictions and confidence intervals from these naturally occuring "datasets" with information from "100% of the population" (p.1291).

The authors make several claims about the challenges and opportunities associated with the use of the EHR for research, however these claims did not seemed to be backed by an abundance of evidence. For example they present an argument that nurses and providers are hindered in their use of language by the use of structured fields in the EHR, and critical thinking about the patient experience is thus lost. However, this claim is not supported with evidence of this being true. As a nurse I found the structured fields helpful in forcing me to choose exactly what was occuring with the patient, and having to critically decide between two closely related conditions or "structured fields". This claim would have been better supported with the presentation of examples or studies showing the amount of times providers chose other and wrote in an option rather than using the standard choices. This lack of specific support was a common theme with each of the major claims presented in the article. While the arguments were logical, well written, and convincing, they could have been stronger if backed by research showing the extent to which these challenges really do exist in practice and not only in theory. That being said, the article did fulfill its purpose in presenting the opportunities and challenges of using the EHR from a "non-informatics nurse researcher" perspective. Samuels et al. gave a wide overview of the innovative adaptations nurse researchers will have to take to as technology continues to evolve and the amount of data available continues to grow. It also served to prepare those newly beginning their pursuits of of big data by providing insight into places time should be allowed for the extra bumps and obstacles associated with security and coding issues.

The implications identified by the authors were aligned with their previously discussed purposes. They remind researchers about the timelines for negotiation of data agreements, IRB approval, EHR training, etc. They also reiterate the need for understanding of how the data was entered into the EHR, either in real time or back dated, as well as the need for well defined variables of interest and coding methods. Samuel's et al. continues to discuss the need for colleagues trained in informatics and custom programs for data abstraction. While the vast abundance of data presents great opportunities for data mining and research it is necessary for well trainined individuals to ensure data integrity and reliability. In addition to the implications discussed by the authors I would add that the continuing education of nurse researchers on informatics and the evolution of the EHR is a necessity to those involved in research. It is through the innovation of knowledgable researchers that this abdundance of data can be used to its full capacity.

This assignments markdown file can be found at: <https://github.com/amonda/N741_Critiques>.

## References

Samuels, J. G., McGrath, R. J., Fetzer, S. J., Mittal, P., & Bourgoine, D. (2015). Using the Electronic Health Record in Nursing Research Challenges and Opportunities. Western journal of nursing research, 0193945915576778. (<http://journals.sagepub.com/doi/pdf/10.1177/0193945915576778>).