TEXAS WOMAN'S UNIVERSITY™

College of Nursing, Health Informatics

Electronic Medical Record Implementation: Analytics for Optimum Best Practice

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ABSTRACT

Background
Attempting to keep up with current technological trends, healthcare systems are switching to an electronic medical/health record system, or EMR. A better patient experience, a better provider experience, and improved efficiency of patient services ensures seamless patient flow and access to relevant information. A major byproduct of the EMR is clinical and administration health care data that yields analytic, trending and predictive applications for patient services improvement.

Purpose
The purpose of this paper is to describe the most recent evidence in support of EMR implementation success and associated positive outcomes for health care analytics, including a patient engagement scale and a provider satisfaction scale. As background to understanding the current EMR marketplace, this paper will also provide a comparison of two commonly used EMRs, Cerner and Epic.

Project Description [EMR Implementation Best Practices and Outcomes Measurement]
The many benefits of electronic medical records is comprehensive and legible records, clinical decision support such as safety alerts, and remote access to records. These benefits should translate into improved safety/quality of care and improved patient engagement and provider satisfaction. To quantify these improvements, this report demonstrates the use of the Stanford Self-Efficacy Scale to quantitatively measure such patient engagement. Provider satisfaction, in this report, can be measured using the *provider culture of safety survey* available through CMS.

Methodology for Proposed Intervention
First, the approach for successful EMR/EHR implementation is appropriate data collection and analysis of key quantitative measurements such as patient engagement and provide satisfaction. Secondly, comparison of these measures among EMR vendors such as Epic and Cerner is important.

Results
Health care facilities utilizing this intervention can be expected to increase quality of care and improve patient safety, while at the same time decrease professional liability claims. Several specific outcomes relating back to the intervention will be emphasized

STUDY

Methodology

Your Hospital's Electronic Health Record (EHR) System

1. Do you use your hospital's Electronic Health Record (EHR) system(s) to enter or review patient information?

☐1 Yes
☐2 No → [GO TO BACKGROUND QUESTIONS OR END]

Section A: EHR Patient Safety and Quality Issues

If you use more than one EHR System in your hospital, please think about the one you use the most.

The following items describe things that can affect patient safety and quality when using EHR systems. ***In the past 3 months,*** **how many times did you discover the following issues with the EHR system in your hospital?**

	None	1-5 times	6-10 times	11-20 times	21-50 times	More than 50 times	Does Not Apply or Don't Know
1. Information was not complete.	☐1	☐2	☐3	☐4	☐5	☐6	☐9
2. Information was not accurate...	☐1	☐2	☐3	☐4	☐5	☐6	☐9
3. Important information was hard to find	☐1	☐2	☐3	☐4	☐5	☐6	☐9
4. Information was entered into the wrong patient health record	☐1	☐2	☐3	☐4	☐5	☐6	☐9
5. Incorrect information was copied and pasted	☐1	☐2	☐3	☐4	☐5	☐6	☐9

Section B: EHR System Training

How much do you agree or disagree with the following statements?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Does Not Apply or Don't Know
1. We are given enough training on how to use our EHR system	☐1	☐2	☐3	☐4	☐5	☐9
2. Training on our EHR system is customized for our work area	☐1	☐2	☐3	☐4	☐5	☐9
3. We are adequately trained on what to do when our EHR system is down	☐1	☐2	☐3	☐4	☐5	☐9

Section C: EHR and Workflow/Work Process

How much do you agree or disagree with the following statements?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Does Not Apply or Don't Know
1. There are enough EHR workstations available when we need them	☐1	☐2	☐3	☐4	☐5	☐9
2. Our EHR system requires that we enter the same information in too many places.	☐1	☐2	☐3	☐4	☐5	☐9
3. There are too many alerts or flags in our EHR system	☐1	☐2	☐3	☐4	☐5	☐9

Section D: EHR System Support and Communication

How much do you agree or disagree with the following statements?

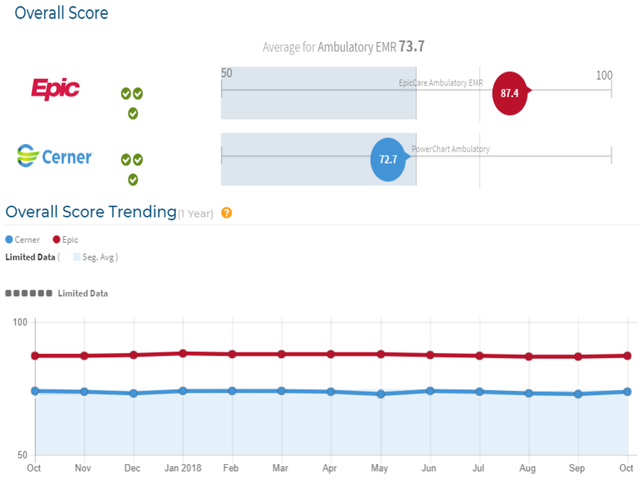
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Does Not Apply or Don't Know
1. Problems with our EHR system are resolved in a timely manner	☐1	☐2	☐3	☐4	☐5	☐9
2. We are asked for input on ways to improve our EHR system	☐1	☐2	☐3	☐4	☐5	☐9
3. We are made aware of issues with our EHR system that could lead to errors	☐1	☐2	☐3	☐4	☐5	☐9

Section E: Overall EHR System Rating

1. **How satisfied or dissatisfied are you with your hospital's EHR system?**

Very Dissatisfied	Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied
☐1	☐2	☐3	☐4	☐5

Data Collection and Analysis



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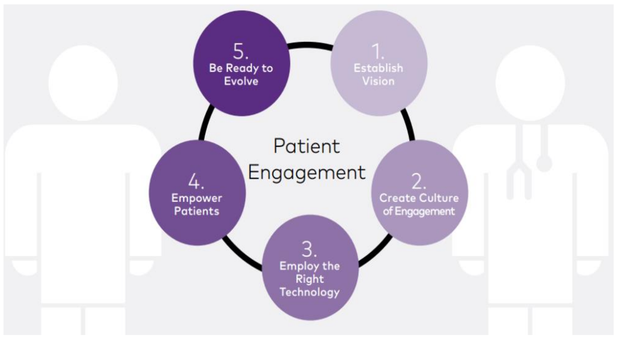
Key EMR/EHR Characteristics	Cerner	Epic
1. Health Record Sharing	No such capability	Can share with any provider
2. Market share for EHRs for physician practice use	3.5%	11.6%
3. Number of U.S. employees	14,200	6,300
4. Original business	Lab information systems	Database management system for clinical care
5. Company behavior/outreach	The company employs a large media communication team and regularly sends out notifications and media alerts.	Epic has rarely sought the spotlight. Its CEO has rarely granted interviews until recently. Its website conspicuously lacks a media contact page because the company rarely converses with the public.



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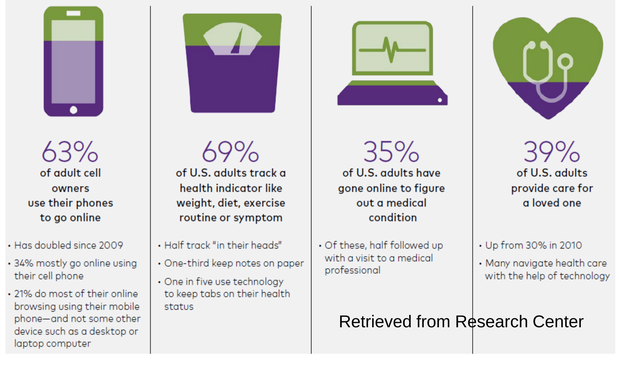

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OUTCOME

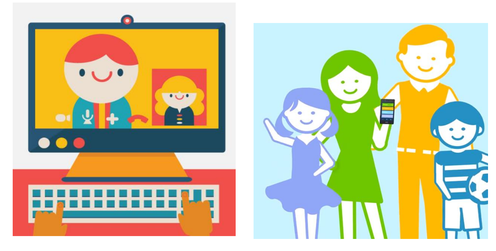
Results

Appendix A: Optimum Best Practices for Stakeholder Involvement in EMR/EHR Implementation

1. Two important stakeholders in the EHR implementation process: clinical providers inside the organization and vendors from outside the organization
2. Stakeholders' perceptions of the importance of critical EHR implementation issues will differ in each phase of EHR implementation.
3. During the implementation process, priorities shift and stakeholders need to adjust accordingly.
4. Involving multiple stakeholders in meaningful ways means gaining their active participation and effective endorsement in the pre-implementation and implementation phases.
5. Studies point out that implementations that fail do so because implementers make assumptions about user's requirements which are not shared by end-users and those implementations that enjoy broad-based stakeholder support are less risky and more likely to succeed.

Appendix B: Optimum Best Practices for User Experience/Satisfaction in EMR/EHR Implementation

1. Staff at all levels should be engaged early and throughout the process of refining how technology is used within the organization.
2. Quality improvement should drive system requirements.
3. Planning for changes in end user workflow is one of the first and most important tasks when implementing a new EMR. Companies should invest in workflow analysis so that they can be redesigned and the health IT customized for maximum benefit.
4. Ongoing workforce training and technical support at needed to maintain the system.
5. Leverage the skills of role models such as clinical leaders, super-users, and training coordinators.



Patient and Family Engagement with EHR