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CS361 – Vision Statement Big Idea Week 1

Web App to provide a searchable database of national users of Electronic Medical Record Systems

Q1.
Electronic Medical Record systems (EMRs), or Electronic Health Record systems (EHRs) are the electronic record of an individual's health-related information that is created, managed, and consulted by authorized clinicians and staff within a healthcare organization.[1] As the healthcare informatics industry has developed and evolved over the past two decades, many different EMR systems have entered the market from many different vendors. Despite the best efforts of the federal government to apply interoperability standards to allow the free passage of information from one system to the next, the vast majority of EMR systems rely on proprietary database formats, making communication between systems impossible. When a healthcare provider needs to communicate with a provider from a different organization or a healthcare administrator is looking at purchasing a new EMR system, it would be convenient to have access to a database that showed which healthcare organizations or facilities were using which EMR systems. Right now there is no easy way to access this information.

Q2.
Evidence of this problem comes originally from my own past experience as a healthcare provider. Trying to navigate the lack of communication between EMR systems put up an unnecessary barrier to quality patient care. Since 2008, the adoption of Electronic Health Record systems has doubled, to almost 87% of all offices nationally.[2] Along with widespread EHR adoption of EHRs, there have been a proliferation of different vendors offering proprietary systems, both in the outpatient and inpatient setting.[3] [4] As almost none of these systems communicate with each other, one can imagine the difficulty of coordinating patient care across the systems.

Q3.
Consider a small healthcare provider's office in a small town. This private practice provider is considering purchasing an EMR system for their practice, but they want to be sure that they purchase a system that is used by at least some of the healthcare facilities and other private providers in neighboring towns. This will allow this provider easier access to patient records from these other facilities. Currently, this provider has no way to finding out what systems these other providers use without manually calling up these other locations and asking them. Wouldn't it be nice if, before beginning their in-depth investigation into EMR systems, this provider could get a quick snapshot of which EMR systems in their neighboring area?

Q4.
To solve this problem, a website or mobile app would be created to allow for the searching by name or location of healthcare providers or organizations. The results of this search would display which EMR systems are in use by the subject of the search. In our above example, before our provider began the long and arduous process of investigating all the costs and effort involved in adopting a new EMR system, they could first narrow their search down to the few systems that were already in use in their area. This would make their search and decision much narrower. As an additional solution, if a healthcare provider had a patient that had been to a variety of nearby healthcare facilities, the provider could quickly search using this software and find out which facilities have which systems, thus making the process of obtaining these external records that much easier.

Q5.
As mentioned earlier, there is currently no way to effectively find this information. My proposed system would need to access a few different systems to find the desired results. There is a public use file containing meaningful use attestation from the national Medicare EHR Incentive Program. This .CSV data file shows which certified EHR products where used in meaningful use attestations by providers across the country. Without going into too much detail, "meaningful use" is a term used by the Centers for Medicare and Medicaid Services HER Incentive Programs to measure whether providers are meeting the objectives of EHR adoption and therefore qualifying for incentive payments.[5]
The .CSV file does not use provider names. It instead uses NPI numbers, which are identification numbers provided to every healthcare provider nationally. So the proposed system would need to first query the NPPES NPI Registry API to obtain a healthcare provider's NPI number, then use that number to search the Medicare EHR Incentive Program .CSV file.[6]

Q6
The user to this system should be able to search for a healthcare provider by first name, filter by last name, filter by location (city name, state), or filter by healthcare organization name.

Q7.
If this system were implemented and worked, it would make the decision which EMR systems to adopt easier for both small and larger healthcare providers and organizations. Additionally, it would make patient care across different EMR systems a little easier as it would provide an easy snapshot of which systems were in use at which locations. Hopefully, being able to visualize how many different systems there are that do no communicate with each other would also galvanize support for federal and state regulations requiring cross-vendor communication. This would be the largest potential benefit and would revolutionize healthcare in this country.

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[1] https://healthit.ahrq.gov/key-topics/electronic-medical-record-systems
[2] https://dashboard.healthit.gov/quickstats/pages/physician-ehr-adoption-trends.php
[3]https://dashboard.healthit.gov/quickstats/pages/FIG-Vendors-of-EHRs-to-Participating-Professionals.php
[4] https://dashboard.healthit.gov/quickstats/pages/FIG-Vendors-of-EHRs-to-Participating-Hospitals.php
[5] https://dashboard.healthit.gov/datadashboard/documentation/ehr-products-mu-attestation-data-documentation.php
[6] https://npiregistry.cms.hhs.gov/registry/help-api