

DALHOUSIE UNIVERSITY

Electronic Medical Records

INFX 3600

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Introduction

The development team was assigned a project to design and develop a website for the South End Daycare to display their content in an interactive and responsive way. This project began during the summer 2016 semester, in which the client requested that the website must include several specific features, such as an interactive video content and waiting list features, in order to ensure the information presented can be easily and efficiently accessed by all its users. Furthermore the client made it clear that as a daycare board member, they would like to learn more about online medical records to implement a storing medical records system on the website in a later project. Medical records are very important and implementing them should be taken very seriously, due to security reasons.

About Medical Records

Medical records are a very powerful tool that helps health care providers determine a patient's medical history such as allergies, current and/or past illnesses and so on. In a way medical records are like a living breathing document that tells the story of one's past, present and encounters that involve their health. Furthermore medical records is especially important when dealing with children. The health and safety of individual children in a daycare center is very important. In fact "children's records consist of various documentation such as a child's medical and immunization history, emergency medical care information, and parental permission to participate in specific activities" (New, & Cochran, 2007). The

main point of collecting all this information, is to ensure that documentation are available at the child care center in case of an emergency or to determine specific rules set for a child's care.

Electronic Medical Records

People have used computers in the field of healthcare for decades now. However initially the focus of using computers was to store information and assist with billing. It was only a few years ago that hospitals and care providers started using electronic medical records.

Paper Verses Electronic Medical Records

Paper-based and electronic medical records are usually used in parallel to support different tasks. People usually view electronic medical records as a replacement to paper records, however that is currently not the case. Electronic medical records are used as a faster more efficient alternative, meanwhile the same paper records are used as backup. "The electronic patient record has not fully replaced the paper-based one" (Stausberg, Koch, Ingenerf, & Betzler, 2003). In other cases paper records are used when patients or parents are incline of having medical records stored electronically for security reasons. However both record keeping systems have their pros and cons. One could argue that

electronic medical records can be hacked and accessed online, which is partially true, with any system online there is a risk of it being hacked. “There is always potential for security breaches” (Hasson, 2012). However Electronic medical record system providers know about these risks and “are laser-focused on making Electronic Medical Records (EMRs) more reliable and less vulnerable” (Hasson, 2012). However paper medical records are vulnerable as well, someone can simply take a folder containing personal medical records in a care provider office and simply walk out. There is always a risk of a breach, whether it’s a paper or electronic medical record. However when we look into the pros of using electronic medical record they surpass that of paper medical records. Some of the pros of using electronic medical records are “documents can easily be backed up online, documents can sometimes be emailed to clinicians, or uploaded to a patient portal” (Kernisan, 2013). Furthermore some Electronic Medical Records connect to the same database, for example if a doctor updates a patient’s medical record by adding a new medication, if your pharmacist uses a compatible system, the changes made by the doctor will be automatically updated for the pharmacist as well.

Security

Ever since health related systems have been implemented, security has been considered a very important topic. Potential users usually fear that their medical information will be leaked out to the world in a way or another. In fact, “a 2012 Canadian-wide survey found that 43% of respondents would withhold information from their care provider based on privacy concerns” (Canadian Medical Protective Association, 2013). If people withhold information due to privacy concerns from a care provider such as a doctor there is a high chance they won’t feel safe with medical records online. Therefore it’s very

important for information systems such as an electronic medical record to be protected and have the user's confidentiality and integrity intact.

Alternatives

There are multiple ways to go on about creating or working with an electronic medical records system. This section will thoroughly discuss such methods, and discuss their relevance to the project itself.

TELUS Health

Telus Canada the large Internet service provider, provides an electronic medical record system named Telus Health. According to the Telus health page they are currently the largest electronic medical record provider as of 2013 (Telus Health, 2013). Telus health provides different packages for “authorities, providers, physicians, patients and consumers” (Telus Health, 2013). However we are only concerned with the provider's package, which provides a system that can collect a large sum of health data that is secure. Furthermore Telus Health database is connected to a provincial health sector database, in other words when your doctor updates a patient's medical record, it will also be automatically updated on the system from Telus Health. Moreover Telus Health have an Application Programming Interface (API), which allows users to implement the Telus Health application on any website or application (Telus Health, 2013). Telus Health does not provide a specific price for using the electronic medical records system, they require

customers to contact the sales department to discuss the details of different option (Telus Health, 2013). However a service like this will not be very cheap, however it is an option.

NueMD

NueMD is another third party electronic medical records system provider. NueMD mainly uses cloud-based technology for integrating the database. Furthermore NueMD claims that the system is “compliant and secure data management, flexibility across platforms, and responsive client service” (NueMD, n.d.). What differentiates NueMD from other similar systems is that they offers different users access to the system, and it’s highly customizable. For example a daycare can use NueMD to store all applicable children medical records in the database, meanwhile the parents of the children can access the medical record by logging into the system. Overall NueMD is a great choice as a third part program. The pricing of the service varies according to the different features and size of the system, however it is very competitive compared to other similar systems.

Develop Electronic Medical Record System

A very different approach that can be taken into consideration is developing an electronic medical record system, rather than using a third party program. Different methods can be used to create the medical record system. However for WordPress developed websites the most logical thing to do is implement the medical record system using WordPress as well. In fact WordPress provides many plugins,

which is a software package that provides functionality to a website, they are usually added to create new features and what not. The first requirement would be a method for users to input the medical records information, which can be done by using a form. The most used and trusted form plugin on WordPress is a plugin named Form Maker by WebDorado. "Form Maker is a free and user-friendly plugin to create highly customizable and responsive forms in a few minutes with simple drag and drop interface" (WordPress, n.d.a). The admin can always edit the form and add new entities, for example if the daycare decided to add an allergy section to the system, they could easily add it, as Form Maker is highly customizable. With Form Maker the admin is already provided with a database set up with all the form information listed. Furthermore the most important thing about electronic medical record systems is security as previously mentioned, as medical records are not to be taken lightly. It is good practice to make the system secure as possible, a good method to ensure the safety of the system is to use WordPress plugins that increase the security of the system. "WordPress itself is a very secure platform. However, it helps to add some extra security and firewall to your site by using security plugin" (WordPress, n.d.b). A great plugin to use for security purposes is BulletProof Security plugin by ALTpro on WordPress. The developers of BulletProof Security claim that the plugin works by reducing security risks by checking and validating vulnerabilities on the website, and enforcing the latest WordPress security techniques (WordPress, n.d.b). To increase security the administrators could even go further by importing the medical records to a local machine and deleting that data on the server, therefore the medical records are saved on a computer with backup without the use of the Internet, to avoid system breaching.

Decision Analysis

Both alternative methods, third party medical record systems and developing a new system are good in their own way. It ultimately depends on what the user is looking to get out of the system. For example using third party electronic medical record system provides the user with many features and possibilities, however the con of using these third party programs is that they can be expensive and if money is an issue they are not a good option. However by developing a system the admin can customize the system and are in total control. However with developing a new system you may not have the best possible features, keep in mind that third party systems are usually made by large corporations such as Microsoft and Google where the budget is in the millions of dollars. Also keep in mind that third party programs can shut down at any time, take Google Health for example, an electronic medical record system created by Google had shut down in 2011. "Google has officially announced plans to shutter Google Health, it's personal health record platform" (Dolan, 2011). Leaving all customers scrambling for a new system and renewal of data integration.

Conclusion

Overall electronic medical records are a very powerful tool that can extremely help an organization such as a daycare, with keeping all the records safely and efficiently stored. They can be easily updated and customized. As previously mentioned both third party programs and developing a new system are good in different ways, both having pros and cons. However with developing a new system you have full power of the use and safety of the system. Meanwhile third party programs your using a

service that you don't own the rights to. Moreover as previously discussed an electronic medical record system can truly make things easier for organizations if the important qualities are kept in mind – functionality, security, reliability, efficiency.

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