Switching your EMR?
The challenges involved in moving to a new EMR/EHR

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Challenges in Migrating Between Electronic Medical Records

Electronic medical records (EMR) have revolutionized the health care industry over the past two decades. Like all information technology, however, the pace of innovation has meant that EMR systems must be upgraded from time to time, or switched out entirely in order to take advantage of important new features or programs. In most cases, upgrading to a new version of an EMR system from the same vendor can be accomplished relatively easily. However, moving data from an existing EMR to a new EMR vendor has proven to be an immense challenge. Despite an industry-wide attempt to standardize EMR data formats, the reality is that each vendor uses proprietary technologies and markups that make it difficult to move from one EMR format to another with complete fidelity.

The difficulty inherent in EMR migration stifles competition and precludes physicians from choosing the best EMR system for their practice. A practice or hospital may reluctantly remain with an EMR system that does not meet its goals simply because migrating to a competing vendor would prove too difficult and costly. Recently, this issue has become more apparent as the federal government offers billions of dollars in incentive funding under the ‘Meaningful Use’ clause of the American Recovery and Reinvestment Act (ARRA). Practices meeting compliant EMR/EHR requirements will receive incentives up to $44,000 over a 5-year period; hospitals can achieve significantly higher incentives between $2 million–$5 million. Non-compliant providers, those who do not demonstrate ‘Meaningful Use,’ will be penalized in the form of declining Medicare payments.

The government’s “carrot and stick” approach has created urgency in the EMR/EHR marketplace. Provider organizations that do not have an EMR are actively interested in making a purchase, while organizations that have an existing EMR are looking to upgrade to a ‘Meaningful Use’-compliant system. Hospitals and physician practices must now carefully consider how to move their critical patient data from their old system to the new EMR. Increasingly, EMR vendors are tasked with demonstrating a complete migration path for patient medical data in order to convince physician practices to purchase their EMR systems.

Current Solutions and Limitations

There are two phases of migrating data from an existing EMR system to a new one. The first is extraction—ensuring that all critical patient data can be copied out of the current EMR. This process includes such various data elements as: Patient Demographics, Insurance, Appointments, Past Medical History, Family History, Social History, Surgical History, Medications, Allergies, Vitals, Immunizations, Images, Scanned Documents, Lab Results and Encounter Notes. These data elements or modules will vary depending on the EMR system. There may be several data formats (database files, text documents, photos, etc.) that comprise each patient medical record.

The second phase is conversion. Once the data is extracted, it must then be converted into a format readable by the new EMR. The EMR vendor often has the onerous task of converting mountains of data to meet the technical specifications of its own format. Conversion also requires careful testing to ensure that all patient data displays accurately and completely in the new system. Depending on the amount of data, this process can take several hours to several weeks. The use of third-party experts skilled in extraction and conversion can greatly speed the entire process, but it requires the consent and support of both the EMR vendor and the physician practice.
**Discrete vs. Non-discrete**

While most EMR vendors offer some form of conversion, it is important for provider organizations to request detailed answers about which data will and will not be converted. Another question to consider is the type of conversion and the integrity of the data elements in the new EMR. Specifically, provider organizations must know whether they will receive **discrete** or **non-discrete conversions**.

The simplest conversion option provided by an EMR vendor is a non-discrete scan, or PDF version, of a patient file. This means that the patient information is available, but a physician may have to read through the entire scanned document just to understand if the patient is allergic to penicillin. As you might imagine, the problem is quickly amplified when it applies to every converted data element or module for an entire hospital of patient records.

A discrete conversion, by contrast, ensures that patient data is mapped with complete fidelity from the original electronic medical record to the corresponding module in the new EMR. In this case, the physician can simply refer to the allergy section of the patient chart to check if the patient is allergic to penicillin. Discrete conversions offer another clear advantage: the data will be available for use with the entire functionality of the new EMR, including features like text searches, analytics, reporting and decision-making.

This is not the case when opting for a non-discrete, PDF conversion. Moreover, it is important to understand that non-discrete conversions may stand in the way of compliance for ‘Meaningful Use.’

**Challenges in Extraction**

Extracting data from an existing EMR system is often limited to the support provided by the existing EMR vendor. Because the vendor has no incentive to simplify the process of moving data to a competitor’s system, physician practices often encounter delays and problems. The existing EMR vendor may not offer proper assistance to understand the format, or may provide inadequate tools to extract all patient data. This can be frustrating and prohibitive for a physician practice when considering the switch to a new EMR system.

Without vendor assistance, it is often necessary to examine the EMR format and develop an extraction plan. This crucial step requires connecting to the existing database, analyzing data, and identifying test cases. The initial extraction analysis is limited by a number of factors:

- **Client availability**: Hospitals and practices are busy environments and the proper technical support from staff may not be readily available. There may be multiple contacts or roles to manage.
- **Hardware/software limitations**: Old hardware can make it difficult for an extraction specialist to access the database remotely. The technical staff at a hospital/practice may also prove unwilling to provide the necessary passwords.
- **EMR vendor response**: With no incentive to help, the existing EMR vendor does not always provide timely answers to technical questions about the format.

Having overcome these challenges, access to the data typically reveals further complications.
• **Incomplete fields**: Many data points are left blank or incomplete, and therefore impossible to convert to the new format.

• **Extraction failures**: Accessing the database may fail, or result in incomplete data obtained. In these cases, help from the EMR vendor proves critical.

Other unanticipated issues typically arise during the extraction period. In some cases, the scope of work may change once the database is more thoroughly examined. For this reason, it is important to identify the hospital’s EMR workflow and the modules used on a daily basis. Often only certain modules need to be extracted, saving both time and money. In other cases, specific and critical workflows must be preserved, requiring additional time and engineering.

Ultimately, the success of the extraction process requires cooperation and open communication between physicians, technical staff, EMR vendors, and the extraction technical team.

### Challenges in Conversion

With most of the preparatory work accomplished during the extraction phase, it might be assumed that the conversion process is more straightforward. After all, if all the data is extracted successfully, it must only be organized into the proper format for the new EMR vendor and imported into the system. Nevertheless, there are a number of challenges and complications that can occur in the conversion process as well.

Typically, the extraction team will run the conversion on a selected group of patients and generate sample files for confirmation. Here, the team verifies that all patient data is converted correctly and that it is displaying accurately and as expected in the new EMR system. Testing may uncover a number of issues or questions that must be resolved before the full conversion can take place. For instance, suppose the existing EMR identifies the marital status of a patient as Single, Married, Divorced, or Widowed. The new EMR format instead displays options for Unmarried, Married, or Unknown. While Single can logically be mapped to Unmarried, a decision must be made for how to migrate the data points Divorced/Widowed. The conversion team, in discussion with the medical staff, must examine the best solutions. These conversations should occur early in the testing phase to preclude delays and problems when the new EMR goes live.

During the testing period, medical staff should also go over their daily routine using the converted sample files in order to discover commonplace workflow issues. For instance, the listing of available medications in the existing EMR might be different than in the new one. In order to convert these correctly to the new system, the team must implement cross-reference mapping. The most common modules requiring cross-reference mapping include medications, immunizations, lab results, problem lists and allergies.

Another frequent complication involves source data that is formatted differently. Though it adds time to the job, the conversion process may also be seen as an opportunity to “clean up” the data. For instance, codes written inconsistently as BCBS, BC/BS, BC-BS and BC\BS may be normalized to BCBS. Producing consistent data is both a challenge and possible added benefit of the migration process.

Even with adequate testing and iterating specification details until all patient data transfers over properly, there can be unexpected delays. In some cases, conversion fails or takes too long. This can occur even after copious testing, and may be the result of unorthodox or inconsistent patient records that produce errors due to various
reasons. Conversion errors can delay implementation and must be resolved before the go-live date. For this reason, it is important to have clear and realistic timelines for extraction, testing, and conversion.

One final issue to note is the possibility of unclear or unavailable technical specifications regarding the new EMR system. In this case, however, the EMR vendor has every incentive to facilitate the conversion process to expedite the use of its product with a new client.

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**Solving the Challenge of EMR Migration**

The challenges and potential solutions described here demonstrate the need for a competent extraction and conversion team to facilitate the migration from one EMR system to another. Beyond technical knowledge, subject-matter expertise, project management, communication and cooperation are seen as critical components for a successful and safe migration of patient data.

Each of the following steps can also help improve the migration process:

- Detailed documentation of all EMR formats involved
- Better communication between the conversion team, provider organizations and EMR vendors
- Employing project managers to facilitate and manage expectations for all parties
- Creating realistic timelines, anticipating delays and unexpected issues
- Creating workflows and checklists for the EMR team
- Regular meetings to discuss issues and test sample conversions

Without standardization of the EMR format, the process of migrating from one EMR vendor to another will always be perceived as a challenge. However, understanding the potential issues of extraction and conversion can mitigate the vast majority of these issues and clear the obstacles toward migrating to a new EMR vendor. Employing a knowledgeable team experienced in extraction/conversion of various EMR formats can make it easier for EMR vendors to sell their services and for physician practices and hospitals to upgrade to the EMR system that best meets their needs.

Overall, expediting the EMR migration process will help patients, physicians, and the industry as a whole. It is the key toward enabling provider organizations to move to new EMR systems qualifying under the ‘Meaningful Use’ requirement of the federal government’s HITECH program, and ultimately will assist in the national goal of cutting health care costs.