TODAY’S INTEROPERABILITY LANDSCAPE

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Interoperability is a huge buzzword in healthcare right now. It seems nearly all stakeholders in the industry are pushing to optimize health IT to the point where everything is standardized. The ultimate goal is for Health IT to become a more seamless path to better health outcomes for individuals and communities. With such emphasis being placed on interoperability, it’s important to have a strong understanding of the concept and how it’s likely to affect your practice.

In this eBook, we’ll look at what interoperability is in detail, including what it means, the three levels of interoperability, and why it’s so important in healthcare. From there, we’ll examine why it’s still in its infancy, including the challenges that exist and the progress that’s been made. Finally, we will discuss the role the ONC is playing in interoperability. Let’s get started.

In general, the term interoperability is used in reference to computer systems’ ability to seamlessly connect and communicate with each other. This means that even systems developed by completely different vendors or even in separate industries can interact with each other. When used in a way that’s specific to healthcare, the term interoperability describes the capability of different healthcare IT systems to communicate, exchange patient data, and utilize the exchanged information to enhance patient care. Healthcare interoperability should allow for the exchange of data across clinicians, hospitals, labs, pharmacies, and patients regardless of each entities’ preferred applications or system vendor.

There are, essentially, three levels of health information technology interoperability.

**FOUNDATIONAL**

The first of these levels is foundational interoperability. This is the most basic level of interoperability and refers to the ability to exchange data from one software application or health IT system to another. This takes place without requiring the receiving software to have the ability to interpret the data, as the data received will be instantly available for use.

**STRUCTURAL**

The next level of interoperability is structural interoperability. At this intermediate level, we’re looking at the syntax of the data exchange. Structural interoperability describes the format of the data exchanged to the extent that there’s uniform movement of patient data from one system to another. This allows the purpose and meaning of the data to be unchanged in the transfer of information. With structural interoperability, the data exchanged between systems can be interpreted at the data field level. Basically, a structure is created that allows for the meanings of clinical and operational data to remain constant.

**SEMANTIC**

The final level of interoperability is semantic interoperability. This is the highest level of interoperability and involves structuring the data exchange and the way the data is coded, including the vocabulary used. This enables the data to be transferred seamlessly and the receiving system can interpret the data. With semantic interoperability, multiple software systems can exchange and use data with ease.
WHY IS INTEROPERABILITY IMPORTANT?

There are three main goals to implementing widespread interoperability:

1. The first is to have a healthcare system that enables individuals to be at the center of their care. This allows providers to access and use patient health data securely and seamlessly from a variety of sources.

2. The second is to provide individuals with access to all of their health information, from numerous individual systems, in one place, providing a complete health picture.

3. The third is for public health agencies and medical researchers to be able to access data in order to be able to quickly learn, create, and implement cutting edge treatments to improve health outcomes overall.

These long-term goals are the main driving force behind the collaborative efforts happening in the healthcare industry today.

In addition to these three main goals, there are a number of other benefits to interoperability that make it important to the healthcare industry. From a technical standpoint, interoperability makes having useful conversations between patients, providers, and care teams more efficient as the time to transfer relevant information is reduced. This increase in efficiency leads to an increase in patient engagement and better health outcomes. This is because patients and their providers can spend more time on the details of an injury or illness and strive to create the best possible treatment plan. This is achieved through easier access to patient health information in different providers’ electronic health records (EHRs). With that being said, it is important to remember that this is only possible if the numerous vendors manufacturing these software applications are willing to work towards interoperability. This requires the stakeholders present in medical practices be willing to share patient details over these created networks.
Another benefit to interoperability is a boost in efficiency. When practices are able to see patient data presented consistently regardless of the source they’ve received it from, it’s much simpler for providers to gain an understanding of their patients’ conditions so that they can begin to make treatment decisions much more quickly.

Interoperability also provides the perfect atmosphere for continuity of care between providers. Care transitions are completed more efficiently and safely, leading to better health outcomes. The successful exchange of health data, allowing for optimum care of chronic conditions as well as acute conditions requiring an expansive health team, is much more possible with interoperability in place.

Finally, interoperability saves time and money. When a patient’s data is easily accessible to a variety of providers, repeat testing is avoided, decisions can be made more quickly and efficiently, and the whole process of caring for a patient becomes that much smoother.

The bottom line is that interoperability is incredibly important to achieving the best possible patient health outcomes, yet the concept is still in its infancy.

WHY IS INTEROPERABILITY STILL IN ITS INFANCY?

While health IT has made great strides in facilitating cooperation between separate electronic health record systems, it’s clear that there’s still a long way to go before we can say we’ve successfully achieved complete and widespread interoperability. Simply put, this is due to the fact that any attempts at achieving interoperability have to begin by recognizing what’s so difficult about achieving interoperability. The fact of the matter is that electronic health records (EHRs) are very different systems, created by vastly different vendors who are oftentimes competitors. Now we’re asking these competitors to work together for the good of the patient and invest time and money in unplanned interoperability initiatives. The other major challenge is the lack of a single set of agreed upon development and data standards. A change like this takes a great deal of time, and is not without its challenges.
WHAT ARE THE CHALLENGES TO INTEROPERABILITY?

There are many challenges to achieving widespread interoperability, each of which is contributing to the delay of its success.

The first of these challenges is the need to develop a way of identifying patients that is standard across the board. In order to achieve full interoperability, a unique patient identifier would need to be assigned to every individual in the United States, assuring that medical organizations can efficiently and accurately exchange patient health information. Overcoming this challenge would eliminate the errors that can be caused by mismatched patient records in EHRs, errors that increase the likelihood of patient harm.

It’s worth noting that there have been numerous efforts to create a national patient identifier over the years, but up until recently these efforts have come to a standstill. However, with some new initiatives and recent policy developments there is promise that this goal could be achieved in the near future. For example, the Regenstrief Institute’s Center for Biomedical Informatics (CBMI) is working to develop and test solutions that will improve the accuracy of patient matching and reduce the patient harm that can take place as a result of mismatched health records. They are completing this work with the help of a $1.7 million grant from the Agency for Healthcare Research and Quality (AHRQ). The goal is that over five years, CBMI will create realistic guidelines that are able to improve patient matching by using resources they’ve been provided by the Indiana Network of Patient Care (INPC).

Another challenge to interoperability is the difficulty of having and enforcing standards for health IT interoperability across a variety of facilities and care settings. When standards don’t exist or are poorly enforced it creates a barrier to the seamless exchange of patient health information. Thankfully, a greater number of healthcare organization alliance have been designed to promote standardization and facilitate a more seamless exchange of patient data.

The next challenge to interoperability is the need to enforce interoperability measurement standards across the industry. As a variety of initiatives intending to improve interoperability are being enacted across the healthcare industry, it’s necessary for federal agencies to find a way to measure these initiatives’ progress consistently. Yet the idea of acceptable measurement standards seems to vary from stakeholder to stakeholder, making achieving uniformity difficult.

Another challenge facing widespread interoperability is the need to coordinate stakeholders from all areas of the healthcare industry. Complete transparency and coordination is not something that members of the healthcare industry are used to. For that reason, the ONC outlined the need to develop consistent policies in their Interoperability Roadmap. Until all stakeholders in the healthcare industry are coordinating in the best interest of all patients, total interoperability will still be a distant goal.

The final challenge to interoperability is impediments to data sharing and information blocking. Even though Congress has declared it illegal to block the exchange of patient health information, this is still a problem that’s obstructing the success of interoperability. So far policies put in place to stop information blocking have been ineffective, leading to further efforts to stop this practice, but only time will tell if this challenge can be overcome or not.
While widespread interoperability does still face a number of challenges, it’s not all doom and gloom. Much progress has been achieved toward this ultimate goal. The first bit of progress involved the institution of open APIs for all 2015 Edition CEHRT EMRs. Application Programming Interfaces (APIs) are interfaces that facilitate the communication of unrelated software programs. An API acts as a bridge between two separate applications, allowing for the exchange of data regardless of the manner in which the two applications were designed. In order to receive certification as a 2015 Edition CEHRT EMR, a software application must allow for the use of an API. This is one of the greatest focuses on achieving interoperability at this point, but there are other initiatives taking place.

Another bit of progress comes in the form of interfaces in general. Similar to APIs, interfaces work as bridges between two programs, allowing information to be exchanged from different sources that may even use different programming languages. This allows entities to send and receive patient health information, while remaining otherwise independent. A number of medical software vendors offer interfaces that allow the limited ability to share data, but further work is needed to allow for total interoperability.

Finally, there are some regulations that have been put in place regarding the exchange of data with patients and other care team members. First, the Federal Health IT Strategic Plan 2015-2020 (Strategic Plan) has recognized the need to implement the ONC’s Interoperability Roadmap as critical to augmenting the infrastructure of health information technology in the United States. The Roadmap and the Plan directly align in their mission of using technology and health IT in order to improve the health outcomes of individuals and communities. The key to achieving this is having patient health information accessible when and where it’s most critical. These two regulations working together is important to the success of both, as the Plan focuses on federal efforts to improve interoperability, while the Roadmap looks more at the private sector and the policies, technology changes, and behavior modifications necessary to achieve widespread interoperability.

In addition to the Strategic Plan and the Roadmap, the Interoperability Standards Advisory (ISA) is a process meant to coordinate the identification, evaluation, and verification of the best possible standards for interoperability. ISA also aids in implementing specifications that will fulfill specific needs with regard to interoperability. This process is designed to coordinate with the model created by the Office of the National Coordinator for Health Information Technology (ONC). This is not, however, the limit to the role the ONC is playing in the quest for interoperability.

WHAT PROGRESS HAS BEEN MADE SO FAR?

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WHAT ROLE IS THE ONC PLAYING IN THIS?

One of the main ways the ONC is working to achieve widespread interoperability is by participating in the push for a nationwide patient identifier. The ONC has initiated the Patient Matching Algorithm Challenge with the intention of promoting the invention of new patient matching algorithms along with openness regarding how each method for patient matching performs.

Another role the ONC is playing is in creating a solution with regard to the varying measurement standards of interoperability in their Interoperability Standards Measurement Framework. This framework has been designed to appraise progress toward implementing interoperability standards across the industry and evaluating how those standards are used to measure improvements in interoperability. Improved measurement standards are necessary for the ability to track progress nationally. This framework recommends that health IT companies should report how many of their end-users are using each standard, how many transactions apply to each standard, and how these standards are conformed and customized once they’ve been implemented. ONC’s ultimate goal in applying consistent standards across the industry is to stop organizations and developers from applying different standards that obstruct widespread interoperability.

Finally, the ONC is working to stop information blocking. They’ve introduced bills to Congress with the goal of strengthening enforcement of anti-information blocking regulations by allowing the Office of the Inspector General (OIG) to investigate the issue and determine ways to stop information blocking once and for all. Each of these initiatives by the ONC are determined to aid in the establishment of widespread interoperability. There is a lot of work still to be done, but clearly we are well on our way to achieving our goal.

Conclusion

Our society is increasingly connected, and the healthcare industry should be no exception. Interoperability is necessary to achieve the best possible health outcomes both for individual patients and communities alike. By allowing for the seamless and efficient exchange of patient health data, providers can spend less time gathering information and more time focusing on choosing the best treatment options for each patient. While great strides have been made toward the goal of widespread interoperability, there are still a number of challenges to overcome, as is to be expected with any widespread change. Thankfully, there is a large focus both in the government and the private sector to overcome these challenges and achieve this goal once and for all.

MicroMD is working hard to do our part in achieving interoperability. We offer an open API and we are currently utilizing HL7 interfaces for labs, allowing for the seamless input of lab results directly to your MicroMD EMR. Additionally, we are able to create interfaces with many different companies and software vendors to make your ability to send and receive patient health information as seamless as possible. As a 2015 Edition CEHRT EMR, we are completely up to date with government regulations and are consistently working to achieve the next level of compliance to stay on target with the latest developments in interoperability standards. Are you interested in learning more about how MicroMD can help you to achieve a greater level of interoperability for your practice? We’d love to help. Visit micromd.com or call 1-800-624-8832 for more information on how to get started.
About Henry Schein MicroMD

Henry Schein MicroMD, a subsidiary of Henry Schein, Inc., provides simple yet powerful EMR and Practice Management solutions that facilitate the delivery of superior patient care, automate incentive and quality reporting activities, and streamline operations for today's busy providers. Full-featured, time-tested, and budget-friendly, MicroMD EMR is 2015 Edition CEHRT certified software that helps small practices, large medical groups, community health centers, and billing services accelerate progress toward a paperless environment and health information exchange with minimal disruption and stress.

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