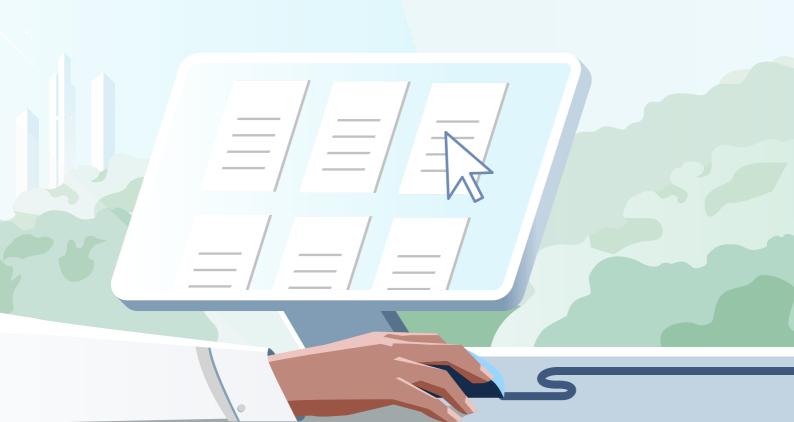# The CIO's Guide to **Healthcare Interoperability**

The CIO's Guide to Healthcare Interoperability

Interoperability in healthcare is vital to streamlining services, preventing medical mistakes, and improving communications.

The sudden onset of Covid-19 has put the need for greater interoperability at the forefront.

But several barriers still exist. Recognizing these barriers and finding real solutions reduces their impact and facilitates the process towards true healthcare interoperability.

Making Interoperability a Priority

Too many facilities don't prioritize technological upgrades necessary to provide the type of care they want to give. IT needs to push for making interoperability a priority. Until purchasing aligns with the goals of technology, interoperability will remain difficult.

However, with more standardization and adherence to IHE HL7 (including flexible software APIs), the process of building a data collection and sharing system that works throughout the facility and with others is more possible now than ever.

Through integrating interoperable systems, healthcare services become more cost-effective, more efficient, less wasteful, and more accurate. The choice to build such a system is no longer a "nice-to-have" option but an absolute requirement for any healthcare facility determined to provide the best possible care.

Who **Benefits** from Interoperability

Interoperability offers innumerable benefits for providers and staff working in healthcare facilities. When interoperability becomes the goal, decisions made about integrating new software or hardware become better focused and simpler. For patient care, IT staff, accounting, and providers interoperability improves both the quality of care and the ease of implementing high-caliber services.

Patients

Patients receive more comprehensive care from their entire healthcare team when communication channels are improved. Physicians can send messages about a patient's diagnosis or medication needs in real-time to the nursing staff. For office settings, specialists can transmit test results and information immediately without waiting for forms to print, for a fax machine to free up, or for time to make a phone call.

IT Staff

IT staff don't have to waste time keeping track of multiple software and hardware systems and fielding questions about compatibility.

When electronic health records (EHR) work with all the management software in a facility, fewer technical problems arise. For instance, instead of helping staff fix jammed fax machines, IT admins can outsource the fax function to the cloud and use a simple administrative interface that controls user management and fax functions from a single location.

Accounting•Finance•Procurement

Accounting, finance, and procurement teams will appreciate the cost savings from switching to interoperable systems that work within existing systems.

When switching from manual claims to electronic data interchange (EDI), providers across the country could save $7.9 billion. The key to electronic submission is using programs that work within a facility and integrate data with insurance providers and other entities. Additional savings could add up to 40 minutes a day in administrative tasks by automating claims submissions.

Providers

Providers gain a complete profile of their patient health information, including information from other medical professionals.

For patients who need frequent visits with multiple providers to manage a chronic condition, improved communications make their primary care provider's job more informed, thus allowing for more accurate diagnosis and treatment.

In 2018, 62% of physicians surveyed wanted their EHR system to be more interoperable. Additionally, 38% wanted better flow throughout the care continuum for their patients' EHRs.

By implementing interoperability, the growing volume of patients faced by many facilities becomes more manageable while letting providers continue to offer the best care possible.

Why Healthcare Isn't Yet Interoperable

> With the average healthcare facility using 18 different vendors for their EHR, communications between software become increasingly difficult.

With so many benefits to fully interoperable systems in healthcare, most people wonder why we haven't got there yet. In fact, several difficult hurdles still exist.

First, many facilities have taken a staggered approach to adopting new technology. The result is a variety of programs that don't communicate with each other. Many EHR vendors pose serious challenges for healthcare facilities aiming to integrate. With the average healthcare facility using 18 different vendors for their EHR, communications between software become increasingly difficult.

While EHRs provide the backbone of patient care, hospitals and other healthcare facilities can also use dozens or hundreds of additional applications in their operation. And integrating these with the myriad of EHR programs is no small feat.

For IT professionals looking at creating an interoperable system from these disparate programs, the situation feels unworkable.

Another issue stems from this, namely the amazing persistence of antiquated

Another issue stems from this, namely the amazing persistence of antiquated technology. Legacy hardware and software tend to not connect or be compatible with newer systems. A system still running Windows 95 simply doesn't have the capabilities to properly submit secure data to another device using Windows 10.

Old computers running obsolete operating systems aren't the only problem though. Retaining outdated and insecure devices and technology is another serious obstacle.

For instance, faxing still accounts for almost 75% of communications in healthcare. Facilities tend to use fax machines as a secure means of sending documents to other entities that don't have compatible software. Medical offices use fax machines to submit claims and forms to insurance companies or to transfer referrals to other clinicians.

This use of fax gets around the lack of interoperability, but also poses more problems – potentially exposing patient data to unauthorized persons and wasting time sending, verifying receipt, and dealing with old and error-prone technology.

Interoperability may also be hindered by a lack of organization and/or miscommunication in a healthcare facility, something especially relevant to larger institutions. For instance, interoperability between departments becomes more difficult when each sector of a hospital has its own software and methods of record keeping. The lack of staff and resources necessary to organize and head the integration of interoperable systems in a facility needs addressing before making any significant upgrades.

While these barriers prevent the immediate creation of a fully interoperable system, they aren't insurmountable. But failing to overcome these problems will leave the facility, staff, doctors, and patients vulnerable to all the inefficiencies and security risks posed by outdated technology and operations.

Types of Interoperability in Healthcare

Interoperability has multiple levels corresponding to the number of devices or programs integrated into the system. The Healthcare Information and Management Systems Society, Inc. (HIMSS) has outlined three levels of basic interoperability and added a fourth in March 2019 to accommodate the needs of larger institutions.

Level One – Foundational Interoperability

This level creates the most basic form of interoperability. While most facilities will start at this stage, few will remain here aside from the smallest practices. Foundational interoperability only requires safe, secure, and reliable connectivity between a pair of systems. While the systems can exchange information, a user must still interpret the data. According to one study from 2019, 26% of facilities reported only having a foundational level of connectivity.

Level Two – Structural Interoperability

The second level is structural interoperability. This level differs from the first in the ability for the sharing systems to interpret received data as information fields. The syntax for translating the data is a hallmark of this step. Structural interoperability was the most popular of the first three levels, with 38% of study respondents reporting this stage in their facilities.

Level Three – Semantic Interoperability

This is the ideal level for many small and medium-sized healthcare facilities. Information passes easily between systems and each system can completely interpret that information. Patient data passes easily through channels without the need for third parties. Additionally, all data shared electronically in this and in all other levels of interoperability only permits authorized users access to ensure HIPAA compliance. Before having a chance to integrate organizational interoperability, semantic was the second-most popular of the first three levels with 36% of healthcare facilities surveyed using it.

Level Four – Organizational Interoperability

The most recent addition to the list is organizational interoperability.

This level integrates technology and personnel infrastructures to facilitate the process of quickly, easily, and securely sharing information among authorized people, entities, organizations, and healthcare facilities. Large healthcare facilities with numerous staff will need to consider how to govern the changes, which policies to implement, how to train workers, and the legal implications of interoperability and data exchange.

In addition to these levels, interoperability has three main network architectures based on where and how patients' EHR are stored. Per HIMSS, these structures are as follows:

- **Federated:** When the health information remains in separate databases that all have connectivity between them. For instance, a patient's health record may stay at their PHP but be accessible by a specialist.

- **Centralized:** All patients' EHR go to a single, central database, from which patients, physicians, and other authorized personnel access them.

- **Hybrid:** This method combines elements of federated and centralized storage and access to take advantage of the benefits of both formats.

While the type of network architecture depends on the facility and IT capabilities, the hybrid model is quickly emerging as the most popular form.

How IT Managers Plan for Interoperability

The most common challenge in implementing interoperability stems from using older devices that don't have modern connectivity capabilities. For instance, dial-up fax machines. With a little effort though, it's possible to integrate even these into an interoperable system.

Look for upgrades that also have application programming interfaces (API) to make integration simple.

In the case of dial-up faxing, a facility can keep their fax phone number and switch to a cloud-based fax service that better meets the security and reliability needs of the facility. Look for services that include HIPAA compliance features with full data encryption and a well-documented API for easy integration.

> When staff members need to fax data to other facilities, they don't ever have to leave their chair.

Using APIs, IT professionals can easily merge cloud fax software with any EHR already in use. When staff members need to fax data to other facilities, they don't ever have to leave their chair. Instead they can securely and reliably transmit data using a cloud fax service directly integrated into their existing EHR program.

Replacing older technology with models that meet current industry standards for interoperability will ease the process. Additionally, upgrading to newer software will help close any security gaps that the older, less secure programs left open.

Creating an Interoperability-Focused Purchasing Plan

IT must work closely with administrators to ensure a personnel structure is in place for creating an interoperable system. The person (or team) in charge of organizing purchasing must treat connectivity and interoperability as "must haves" in all future purchasing decisions.

Those in positions of authority to authorize changes in technology used throughout the healthcare facility should plan to consult with IT before moving forward. When teams communicate with each other about technology, the process of building a fully interoperable healthcare facility becomes simple.

The IT Manager's 4-Step Plan to Achieving Interoperability

To create a facility with full organizational interoperability, the system must start with the foundational step and gradually move up. Without the basic structure in place, full interoperability is not possible.

Step 1 – Choose Technology Adhering to Industry Interoperability Standards

Perhaps the simplest way to begin to integrate technology into the system is to start before purchasing. Look into the tools that follow the standardization practices outlined by the Integrating Healthcare Enterprise (IHE) initiative's Health Level 7 (HL7) standards. Systems made with these industry standards in mind integrate better with other IHE-adhering components, allowing for easier implementation of interoperability.

Step 2 – Create an Interoperability Purchasing Plan

Create a detailed purchasing plan wherein only pre-approved systems may be purchased, or all technology purchases must first gain IT approval. Making interoperability happen overnight is difficult, but by changing your purchasing process to ensure all future technology purchases are aligned with your connectivity goals, you're able to gradually evolve the interoperability of your entire system. Additionally, by creating a purchasing plan, IT gains much more control over the security and reliability of future technology implementations.

Step 3 – Choose Applications with Well-Documented & Robust APIs

Favor applications with well-documented and robust APIs. This allows IT staff to more easily integrate new programs into existing software solutions. The results are fully compatible options that work with any EHR used in the facility. Staff members don't have to switch programs to obtain needed features, and information remains more secure.

For instance, cloud fax APIs prevent staff from wasting time printing out forms, waiting at the fax machine, and the inevitable frustrations of errors and troubleshooting. Instead, they can securely send faxes in an encrypted format through the cloud. Since most cloud fax systems can send and receive data to and from traditional fax machines, this option allows for the greatest level of communication between healthcare facilities that still use fax.

Step 4 – Standardize Data Collection Systems

Patient-centered healthcare with patients in control of their information is the future of the industry. To ensure that patients have access to their EHR, they need to have the authorization to connect to the systems that store that information.

To ensure they can access their information from all their providers, physicians and facilities must use data gathering methods that communicate with each other quickly. To speed the application of this process, IT must work with providers to determine which information the patients, insurance companies, and third party authorized agents need to access.

Then, IT staff can work on making this information readily available to these groups as needed. By putting the patient's data in a readily accessible, yet fully secured place, the patient can get faster, and more informed healthcare.

The future of patient care will also include integrating APIs to allow patients to access their records on their mobile devices. Providers could do the same on tablets in an examination room, viewing test results instantly, regardless of who authorized the medical tests.

mFax Cloud Fax

Ready to integrate the most reliable cloud fax network into your systems?

Fully HIPAA Compliant

We Sign Business Associate Agreements (BAAs)

Robust & Well-Documented API Makes Integration with Existing Systems Simple

mFax Priority Delivery Network Ensures Maximum Reliability & Deliverability

Complete Data Encryption Both At-Rest & In-Transit

When Fax Matters, Healthcare Organizations Choose mFax

Sign up for a Free Trial and experience the difference yourself

TRY FOR FREE

Ready to Get Started?

Contact us at sales@documo.com or call us at (858) 299-5295