

**how can health information
management close the paper-to-digital
health records gap?**

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Medical technology offers some of the most impressively cutting-edge solutions to health issues:

implanted defibrillators for heart patients, continuous glucose monitors for diabetics, and deep brain stimulators for those suffering from Parkinson's are some examples of borderline miraculous ways science has made life livable for those with serious ailments. Despite these advances, when a patient's information needs to be shared among providers it's often in the form of a printout or a fax.

why are we still using paper?

There was a time when the answer to that question was one of data privacy and security. Health records are private. Before the entire world went digital, connected by a single publicly accessible network, everything was on paper, organized into folders and further sorted into secure file cabinets. No one was worried about their records somehow showing up somewhere public, for all to see. Even as more hospitals, care facilities, and doctor's offices adopted Electronic Medical /Health Records (EMR/EHR) for their internal record keeping, paper and faxes remained the preferred method of record sharing. Primitive though they were, these methods were arguably more secure.

But we're decades into the age of EMR and EHR software, and security technologies like encryption and blockchain are more than adequate to ensure privacy. Yet the health industry still lags behind others with its reliance on hard copies and fax, and the reason for it is entirely frustrating for Health Information Managers (HIMs) everywhere.

It's just a simple matter of a lack of interoperability.

EHR: high-performing application, doesn't play well with others

There's no shortage of EHR software on the market, a great situation for customer choice. But also, there's no shortage of EHR software on the market, which means everyone's making their own decisions about what works the best for them.

Nearly a third of acute care hospitals use the Epic EHR platform, while almost a quarter have Oracle Health (formerly Cerner Millennium) installed. But what happens when they need to transfer a patient to a post-acute care facility, like a skilled nursing facility? Seventy percent of those use PointClickCare (PCC), a platform that's also the leader for hospice centers, long-term care facilities, and health agencies.

It's not in Epic's or Oracle's financial interest to support PointClickCare users. Likewise, PCC has no incentive to support Epic or Oracle users.

current patient health record exchange methods

This dynamic, at play with all major EHR providers, is why you can still buy a brand new fax machine in 2023. When a patient is discharged from the hospital to, say, a surgical rehab center, there are a few ways their records can be transferred from point A to point B:



If both facilities are using the same software, sharing information is easy



If they both participate in the same health information exchange, sharing information is easy



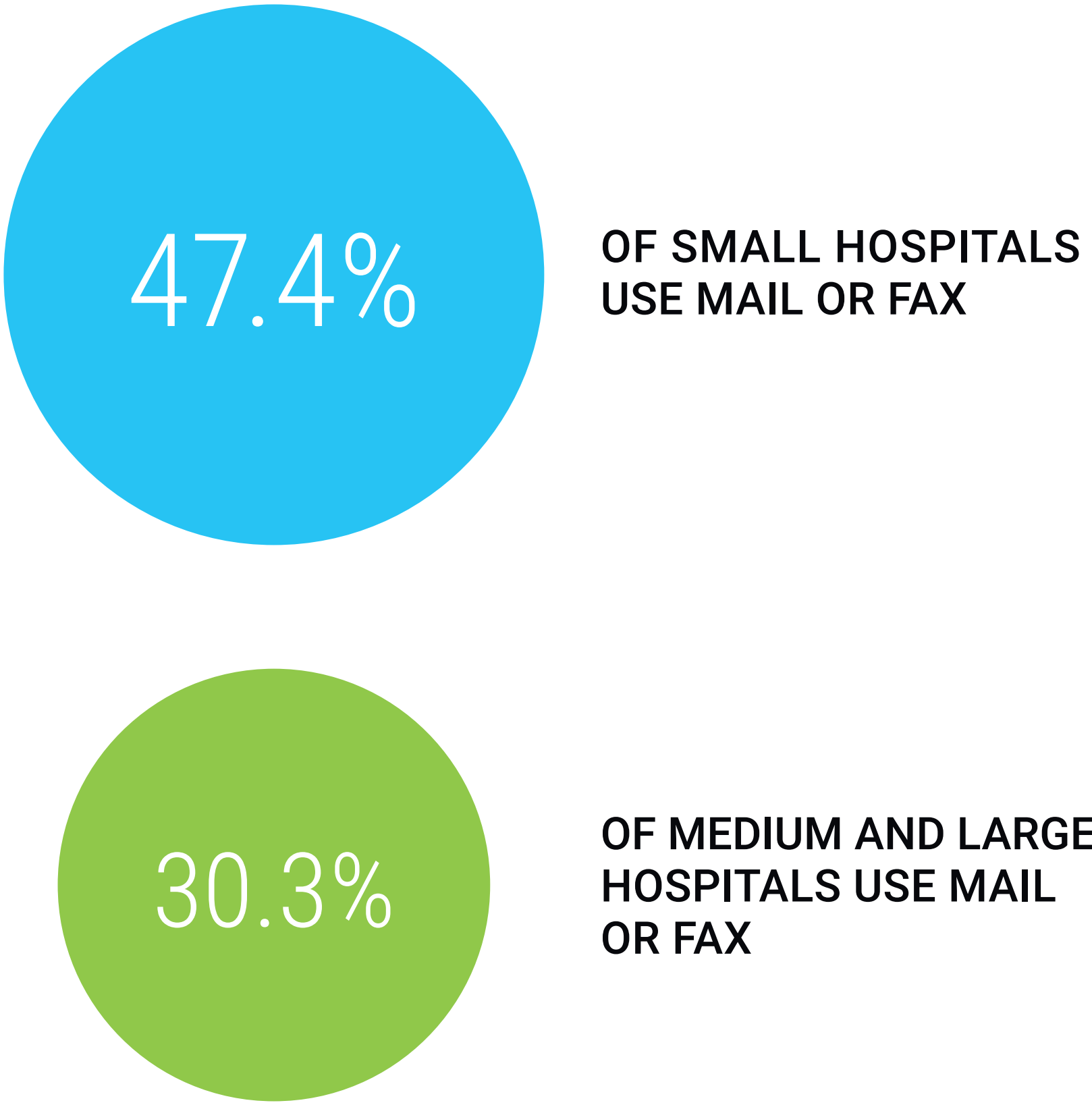
If neither of the above two options are available, records are sent via snail mail or fax

Unfortunately, while options one and two are becoming more prevalent, they aren't nearly ubiquitous enough.

interoperability challenges

The crux of the interoperability issue is that it's a lowest-common-denominator situation. The most well-funded, technologically advanced hospital can only share records in a way that its partners can receive it. So that hospital might have the latest software connected to local, state, and national health information exchanges—but that doesn't matter if the post-acute facility they're sending records to doesn't have any of that.

The result? Medium and large hospitals use mail or fax 30.3% of the time; that number goes up to 47.4% for small ones. The same kind of disparity can be seen between rural and nonrural hospitals.



47.4%

**OF SMALL HOSPITALS
USE MAIL OR FAX**

30.3%

**OF MEDIUM AND LARGE
HOSPITALS USE MAIL
OR FAX**

the facts about fax

When health records are faxed, one of two things occurs:



they're scanned in, and optical character recognition (OCR) software "reads" the data for input into the receiving facility's EHR platform, or



a human being enters the data manually, reading the information from paper and typing it into the receiving facility's EHR system

Both options tend to fill HIM professionals with dread. OCR is imperfect to begin with, and low-quality faxed documents just heighten the chance for error.

Humans are also imperfect, albeit in different ways, but their involvement still results in errors.

**Some statistics that keep HIM professionals up at night:
up to 70% of health records contain mistakes, costing the industry
more than \$37 billion.**

**Even worse: healthcare mistakes caused an estimated
440,000 deaths in 2020.**

obstacles, errors, and the impact of consolidation

To make matters worse, even though the healthcare industry continues its dreadfully slow march toward becoming fully digital, a number of obstacles are compounding the issue of interoperability.

Faxing is still the standard method for capturing and sharing data with non-hospital settings. From there, it's a matter of manual entry to get that data into the recipient's system of record.

More often than not, facilities like specialty clinics, hospice care, outpatient surgery centers, and post-surgery rehabs rely on these more error-prone methods of data entry. At the same time, as healthcare becomes more specialized, these kinds of non-urgent treatment centers are becoming more and more common. It goes without saying that the sharing of patient information between care providers is a routine and necessary part of care.

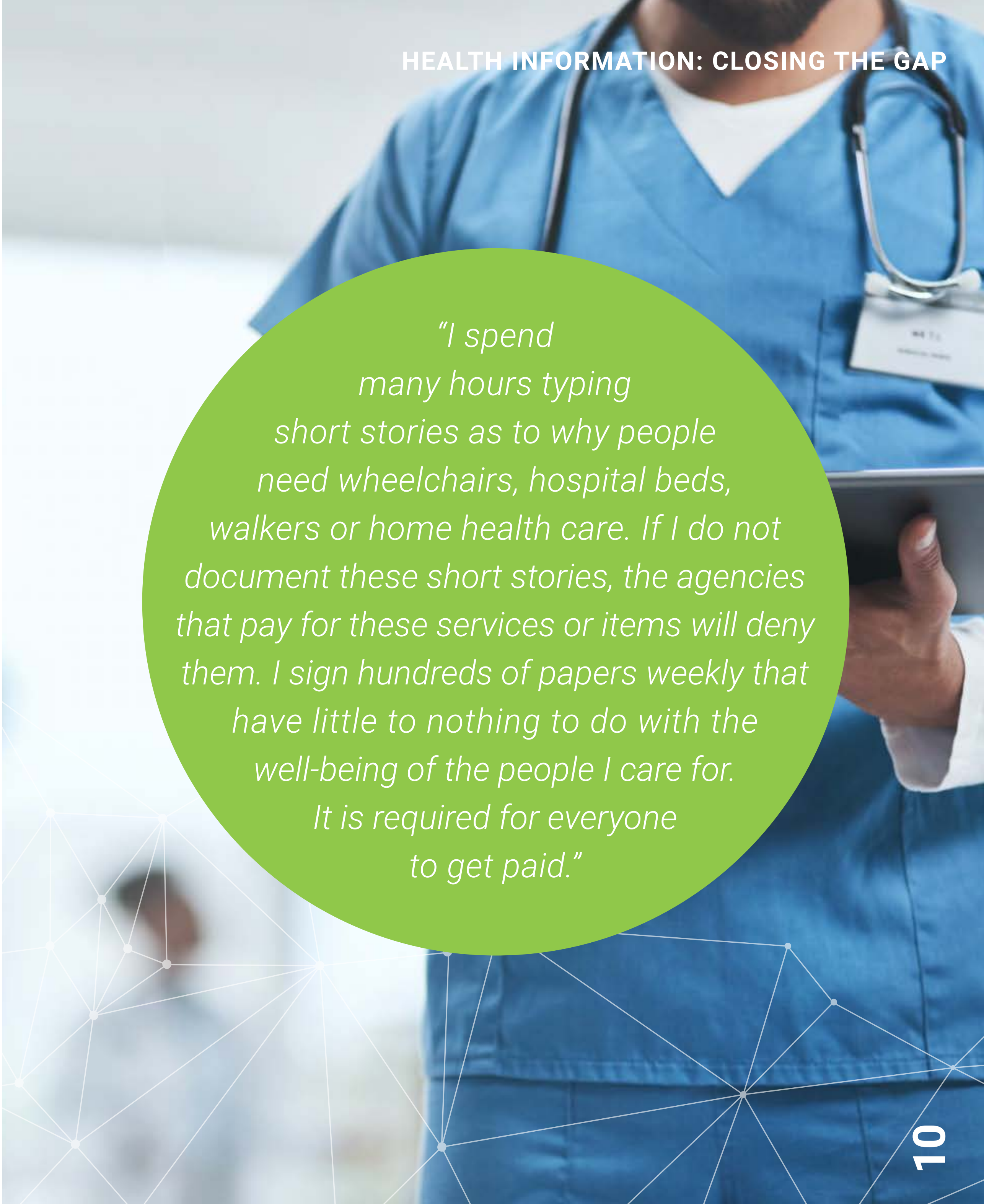
As healthcare systems consolidate, with larger institutions merging with or acquiring others, you might think that the problem of interoperability will take care of itself. Perhaps it will in the long term, but at present, it continues to cause its own set of problems. Indeed, things get worse before they can get better, as consolidation often means multiple systems competing with one another within the same organization.

healthcare documentation overload

There's always some level of burnout to be expected for doctors and nurses, but Covid brought that feeling to just about everyone working in healthcare. Pharmacists, nursing assistants, and social workers might not be a surprise, but even non-clinical workers in admin, housekeeping, and food service have all had enough.

This puts pressure on a system that already operates with a low tolerance for error, leading to what one doctor has referred to as "documentation overload".

And it's here that we can see another reason for the importance of accurate documentation: in an insurance-backed fee-for-service system, it's required for getting paid. This will become even more important in a value-based healthcare system, which is currently being tested in the U.S.



"I spend many hours typing short stories as to why people need wheelchairs, hospital beds, walkers or home health care. If I do not document these short stories, the agencies that pay for these services or items will deny them. I sign hundreds of papers weekly that have little to nothing to do with the well-being of the people I care for. It is required for everyone to get paid."

what is value-based healthcare?

Though it hasn't yet proven itself in the real world, studies suggest that value-based healthcare is very promising in its ability to reduce costs while improving outcomes.

Currently, the U.S. operates on a fee-for-service model: show up at your doctor's office overweight with high-blood pressure, and you rack up an itemized bill of various services: a 15-minute consultation with the doctor, lab work, an EKG, a stress test. If the stress test shows a blockage, then you'll get a stent, which is a whole other battery of charges: anesthesia, the costs of the procedure, the cost of the stent itself.

With value-based healthcare, providers are paid based on outcomes: show up at your doctor's office overweight with high blood pressure, and your doctor will test and treat you as protocol demands. But payment is dependent on a few factors, including the quality/effectiveness of care (measured in lab tests testifying to the health of the patient), as well as its efficiency (no unnecessary tests, for example).

Care providers are offered incentives, financial and otherwise, to deliver the most positive outcomes at the lowest cost possible. Though that explanation is a bit of a simplification, the core of it remains true. In a system like this, healthcare records need to be delivered quickly and be very precise in their recording of tests, treatments, and outcomes—ensuring that patients get healthy and providers get paid.

the big picture

The healthcare industry's continued reliance on paper and the antiquated technology needed to transmit the contents of that paper is everyone's problem.

Doctors who refer their patients to fax-and-paper-based facilities can't be sure that the health records they're sharing are accurate—and they certainly can't see (in anything close to real time) what's going on with their referrals. Patients still must deal with an inefficient system that slows down their care and prevents real-time access to test results and such through patient portals—even when records are transferred without errors.

And if there are errors? Patients could end up a lot worse than annoyed. We've also seen that errors cost money, and these rising costs tend to

motivate insurance companies in ways that frustrate doctors and patients alike, overriding necessary medical tests in the name of cost-cutting.

And then there are those whose job it is to transcribe incoming records into their own system. You could argue that, because any errors incurred by this group can have catastrophic results, there's too much responsibility placed on the shoulders of non-medical professionals.

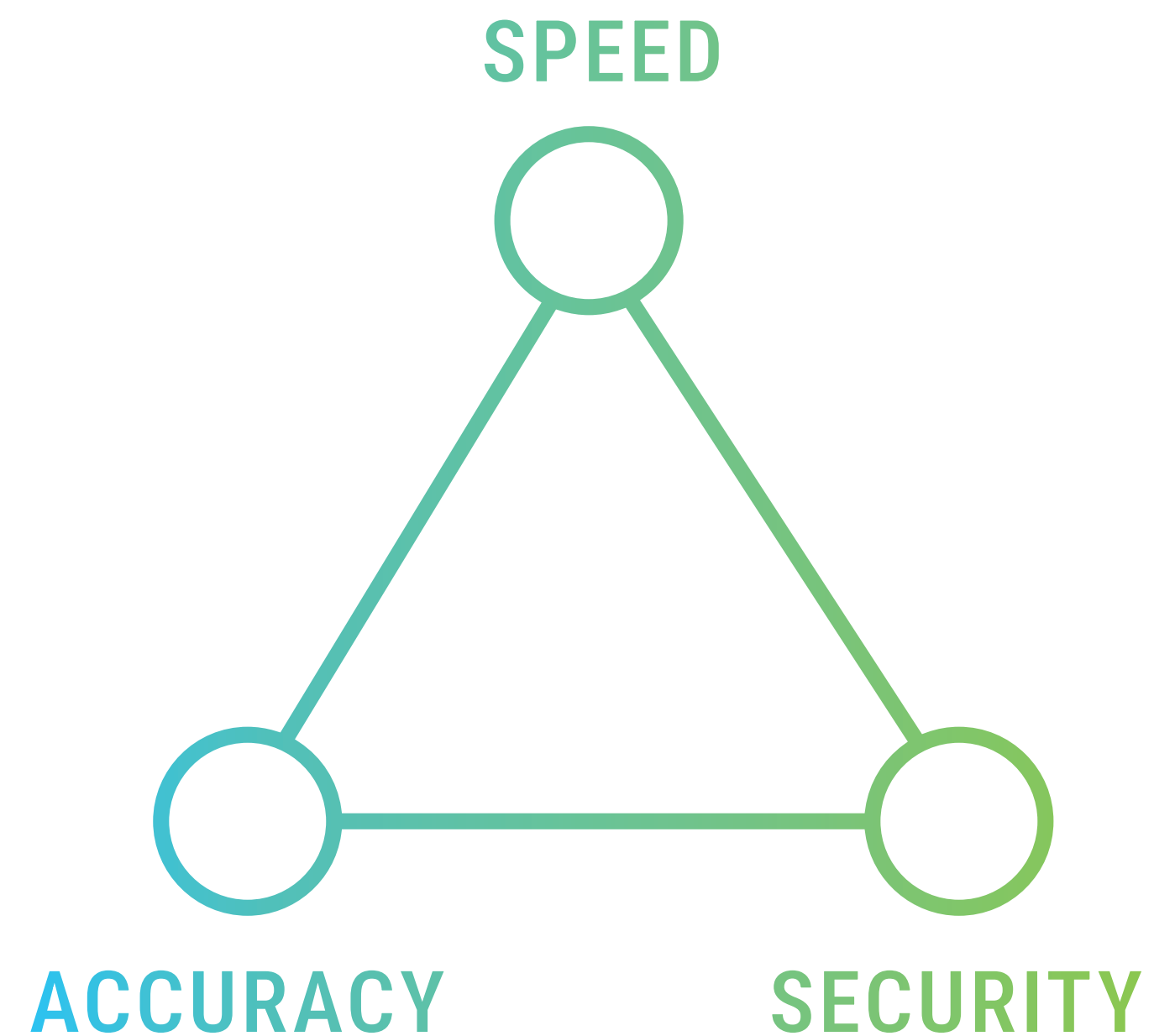
But again, even without errors, manual transcription is far from perfect. It's slow and laborious, and there's more to it than just transferring some lab work and a diagnosis from a fax to your EHR system. The data needs to be entered in the correct fields so that the software can accurately index the information. Indexing is what makes it possible to search for or browse your way to specific info quickly.

the big picture: how tech fits in

Over the past decade-plus, this transcription has generally been handled using optical character recognition (OCR) software with humans checking the OCR results.

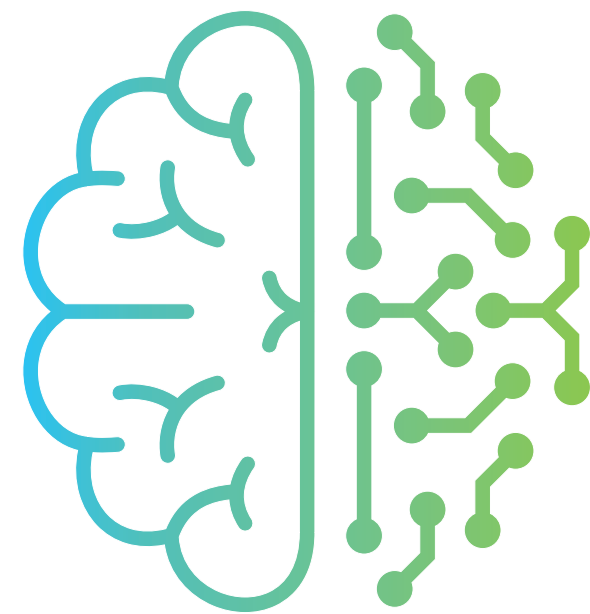
In the last few years, OCR vendors have added artificial intelligence (AI) to the mix—a perfect use for the tech. Scanning, reading, and error-checking sound like tasks tailor made for AI: it's the kind of repetitive data entry that makes humans glassy-eyed and error-prone. It's still not perfect, though. There's no overall metric that can state the accuracy rate of such a solution, because there's no single solution—different software gets you different results.

One vendor boasts of a 95% accuracy rate, another is at 96%. Still another claims >98%. These are all great numbers, and certainly better than OCR on its own, but none of these vendors is trying to position their software as a healthcare solution—and for good reason. Error rates of 2%-5% don't sound as impressive when dealing with people's health.



To healthcare executives, the situation can seem dire. Tasked with ensuring data integrity and patient privacy, and managing the team that has to execute on this promise, they are the ones who most clearly see this big picture. And they have to live in the tension inherent to what their job demands of them: How do you prioritize accuracy *and* speed *and* security? If you want to do things quickly, it leaves less time to ensure things are done correctly and with privacy in mind.

What's the answer, then? How can a healthcare provider manage this balancing act, especially given that there's really no way to plan ahead with a problem like this. You can't know every EHR system your care partners will be using. And even if you did, it's not like you can use all of them. Fortunately, there is one solution that will have you prepared, regardless of whatever interoperability headaches are plaguing you.



combining human and artificial intelligence for >99% accuracy

If you've been researching OCR or intelligent document processing (IDP) solutions, you might not have come across ScaleHub. That's because it's neither OCR or IDP; ScaleHub is an automated document and image processing service that uniquely utilizes human intelligence (via crowdsourcing) to augment AI.

It's the flexibility and reliance on this combination, or "collective intelligence", that make ScaleHub a game-changing choice for a variety of use cases. In the case of medical records indexing, it's a revolutionary solution: any volume of medical data, processed in as little as an hour, at a rate of accuracy higher than 99%.

You'd be forgiven if you thought the idea of crowdsourcing for health records seems questionable. The very notion of sharing sensitive health data with anonymous crowd contributors reads red flag when it comes to patient privacy. It isn't, but we're getting ahead of ourselves. Let's go through the process of bringing paper records into an EHR platform; in doing so, you'll see how it's possible to achieve disruptive results without compromising speed, accuracy or security.

01

step one: data capture

First things first, documents and images are uploaded to ScaleHub's cloud-based portal from a secure source designated by the client. Data is captured from scans, image imports, fax, file transfer—any format you receive, ScaleHub can process. There's no sorting, labeling, or classifying needed, as the solution automatically handles all of that in the next step.

02

step two: separation, classification & crowd validation

Next, ScaleHub applies AI trained on health records to “understand” any file type that might make up a record to determine what should happen next. All files in a batch are separated by patient, ensuring each document is stored in the correct patient's medical record. After figuring out where each document will be stored, the AI then analyzes each file based on its content and the layout of that content, and classifies it accordingly.

And if AI isn't able to classify a document? It's sent to specific users you define, either in-house or with a HIPAA-compliant BPO, for them to sort out.

As good as the AI is at classification, we still don't consider the data validated until humans lay eyes on it. This is where the crowd comes in, confirming that separation and classification occurred correctly.

step three: data extraction & crowd verification

This step is where the big-deal tasks are accomplished: relevant data is extracted from the original images and documents and validated against master patient data. Bits of information, like a patient's name and birthdate, visit encounter details, diagnoses, ICD codes, and images are all matched and tagged with data from the Master Patient Index.

As in Step Two, ScaleHub doesn't rely on AI results alone. The extracted data is verified by members of specialist, HIPAA-compliant crowds; however, the data is sent over in what ScaleHub calls "snippets"—incomplete pieces of the data. Key to both processing speed and data privacy, ScaleHub breaks the extracted data into discrete pieces of letters or numbers, that, when removed from context, carry no risk and can be safely and simultaneously verified by crowd contributors. A snippet could be a first name, a birth month, or a diagnosis, but these details would never be delivered together.

03

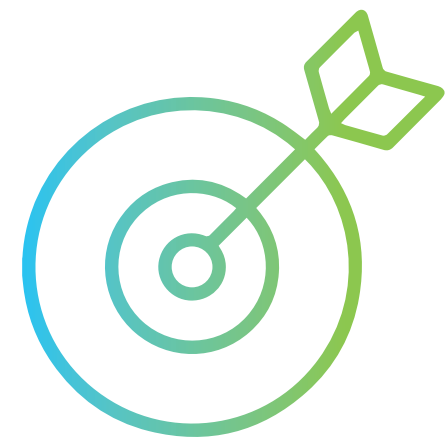
step four: do no harm

The faster patient data is accurately tagged and posted to your EHR platform, the faster it can be accessed by care providers, and the faster it can be submitted for coding and payment, accelerating revenue cycles. HIM professionals can finally rest assured that no harm will come from scattered patient data and open EHR loops, physicians get more time to focus on providing the best possible patient care, and management gets to concentrate on growing the business.

By scaling indispensable human judgment and combining it with the speed and power of AI, healthcare organizations see a significant improvement in data quality. While clean data isn't necessarily the goal in and of itself, it is the catalyst for what every provider strives for:

04

the benefits of collective intelligence



DATA ACCURACY

A deep-learning AI trained on anonymized health documents coupled with human intelligence yields >99% accurate data, guaranteed.



IMPROVED PATIENT CARE AND OUTCOMES

Accurate data means healthcare providers spend less time tracking down answers to their own questions, and more time working with patients to answer theirs.



ACCELERATED REVENUE CYCLES

Efficiency trickles down: a sped-up referral process sets the pace moving forward, decreasing the lag time between referral and payment, for example.



HIPAA-COMPLIANT DATA SECURITY

Sensitive patient data is anonymized as its “broken” into discrete, non-identifying bits of information before it reaches any crowd, ensuring contributors have no context for the information. In certain cases, HIPAA-compliant contributors are used when the AI cannot automatically process something or when documents need to be viewed in their entirety in order to be processed.



LIMITLESS PROCESSING VOLUME

With a crowd 2.3 million strong, plus a model that can instantly parse info to be validated or verified, the size of your processing workload becomes a non-entity. In simpler terms, when your solution keeps pace with your challenges, do you really even have challenges?

balancing automation and human collaboration

Automation has a lukewarm track record in many industries, but healthcare in particular has long suffered the unfulfilled promises of technology when it comes to health records. The reality is that people will always need to be a part of the equation in order to share and index health records with accuracy and speed—and that's a good thing.

The key is not to replace people with automation, but to incorporate people in a scalable way.



At ScaleHub, we've perfected the AI + human-in-the-loop balance to index any volume of health records at a rate of accuracy higher than 99%, in as little as one hour.

To learn more about our solution and how it works, watch this short video.

[WATCH VIDEO](#)

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