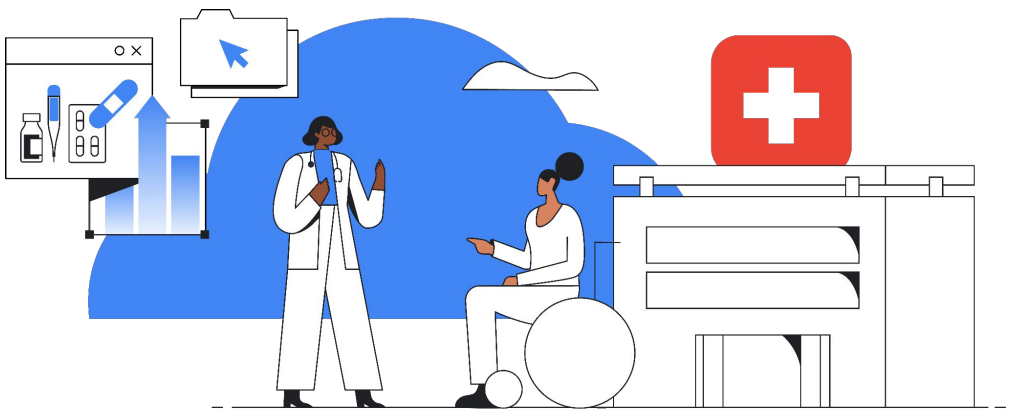
Google Cloud

From increasing operational efficiencies to saving human lives, data drives everything

How data interoperability is helping providers prepare for the next COVID-sized challenge.



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"It's really important for us to receive comprehensive information about a patient, so that we can understand it," says Cris Ross, CIO of Mayo Clinic, as he recalls stories of patients "at the end of their rope" hefting "big cardboard boxes full of paper files representing their medical odyssey" in the face of a dire diagnosis.

Although the healthcare industry has mostly graduated to electronic health records, digital information continues to languish in data silos, making a full picture of each patient as difficult to assemble as organizing and searching boxes of printed pages. "What do you do with mountains of data when they arrive?" asks Ross. "How do you make the key and salient points discoverable?"

As the Office of the National Coordinator for Health Information Technology (ONC) and the Centers for Medicare and Medicaid Services (CMS) rules mandating data interoperability take effect, healthcare providers have a choice: check off the compliance box or make strategic and innovative use of interoperable healthcare data to improve care.

Industry leaders recognize that data interoperability is foundational to preparing the industry for the next COVID-sized challenge.

If the pandemic has taught us anything, it's that getting the right information to the right person at the right time can not only change lives, it can save lives.

A fully-prepared healthcare system can:

Quickly **scale healthcare capacity** to the level needed

Identify root causes and rapidly **develop diagnostics**

Identify the **most vulnerable populations**

Develop effective **treatment plans** and **public health responses**

Develop, manufacture, and distribute treatments, therapeutics, and equipment **as needed**

Better care for individual patients

"Healthcare has a really big challenge to make data easily available whenever the person needs it," says Tim Tarnowski, CIO of Indiana University Health (IU Health).

Providers are starting to integrate data to create 360-degree views of patient history and health so they can make better clinical decisions—even in real time as patients undergo treatment. IU Health, for example, combines patient data with external data sets to give clinicians and social workers relevant information beyond vital signs, such as whether a patient has housing, food, or transportation issues that may affect their health.

"It's actually really important that the cloud is going to enable that type of interoperability," Tarnowski asserts. Not only will data be critical for enabling healthcare, he says, but it will also enable consumer-like experiences. Providers will be able to offer patients the consistency and convenience they've come to expect from daily interactions with consumer apps that deliver instant access to information or services, plus personalized recommendations based on past preferences.

With the right data feeding the right algorithms that bring the right apps to life, healthcare consumers will be more informed about their health issues, have better access to preventative or follow-up care, and find it easier to schedule visits.

The benefits of data interoperability will accrue to larger populations as well. Once care providers have identified factors that influence an individual patient's health and which treatments are most effective, they can apply that knowledge to large cohorts with similar profiles.

Opportunities for new partnerships

The drive toward data interoperability is creating opportunities for the healthcare ecosystem to form innovative partnerships that will not only improve the patient experience, but also generate efficiencies for the entire industry. Although the technology may be ready, what's really necessary, says Tarnowski, is the right business incentives.

For example, data interoperability lays the groundwork for expanding and improving clinical trials. "People are dying because they don't have access to the right therapies and the ability to do a clinical trial that's distributed," Ross laments. "Why is it that someone in Pierre, North Dakota has to come to Mayo Clinic in Rochester, Minnesota to receive a drug that could save their life? Those clinical trials ought to be distributed in a way that Mayo can be the sponsor, but the drug can be administered safely in the hospital in Pierre."

Cloud computing offers the secure and privacy-protecting components necessary to facilitate distributed trials: the ability to collect data streamed from wearable devices; advanced algorithms for analyzing collected data; and collaborative tools for viewing data insights, interviewing patients via video conferencing, and submitting required documentation. The ability to interoperate data securely across multiple physical sites and to treat patients locally will also make it easier for trial sponsors to recruit patients.

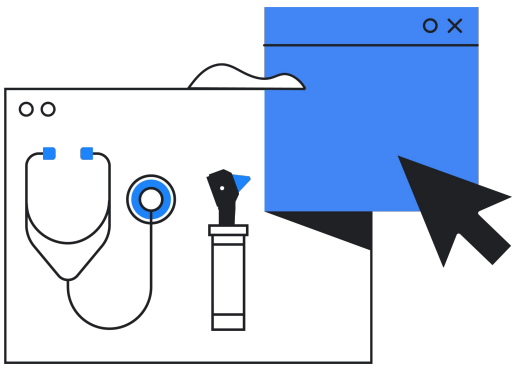
Beyond clinical trials, those who contribute to the healthcare ecosystem can collaborate on public health initiatives, as they did during the COVID-19 pandemic by sharing and analyzing data. "I'm a proponent of sharing data and really think it could have a huge advantage going forward for the consumer and for the healthcare industry," Tarnowski says.

Making value-based care a reality

In fact, data interoperability lays the groundwork for the more effective and efficient healthcare system that value-based care regulations were designed to foster. "We've not figured out how to do value-based care to raise health," admits Ross. "There's just a whole lot of people who need care and are not receiving care on a timely basis, because we don't know how to find them. We don't know how to engage them. We don't know how to help them."

Applying artificial intelligence (AI) and machine learning (ML) to integrated clinical, claims, and public data sets can illuminate patterns that help identify who's at risk, so providers can reach out to suggest interventions that strengthen health and prevent medical incidents. They can proactively serve patients with life-enriching care at a lower cost by analyzing rich datasets to avoid duplicative or unnecessary tests, diagnose illness more quickly and accurately, design pre-surgery measures to reduce recovery time, pinpoint which treatments will be most effective for patients, and even predict cancer recurrence.

"I envision a day where we're actually managing populations, not waiting for the patients to come into the office, but actually seeking them in advance of any ailment or condition that might apply, based on our AI experience," says Brian Barrett, vice president of information delivery at Highmark Health. "That's the vision that we have."



Data interoperability: Are we there yet?

Although healthcare providers are at different stages of their data interoperability journeys, many are fully embracing it. "I think it is going to be required in the future, especially as we pursue the larger topics like precision health, community health, and population health," says Tarnowski. "We just have to—the data is going to be critical to enable healthcare as it's being envisioned."

Physicians recognize the value of data interoperability [1]

86%

Think better data interoperability would **significantly cut time to diagnosis**

95%

Say increased data interoperability will **improve patient outcomes**

96%

Agree that easier access to critical data can **save lives**

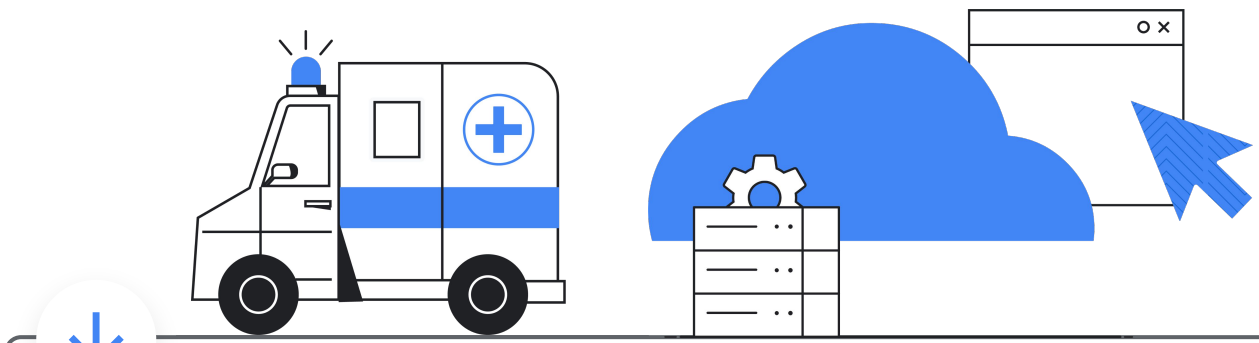
1. Source: Google Internal Data, Physicians say better data interoperability will save lives, July 2021

As providers adopt the Fast Healthcare Interoperability Resources (FHIR) standard that enables data sharing and integration for analysis, protecting patient privacy with appropriate security measures is tantamount; so is taking time to educate stakeholders—including staff, patients, and the public—about what it means to store data in the cloud.

Non-technical audiences may not understand that cloud providers don't own, and can't even access, data their clients store. "It's like putting data in a safe deposit box in a bank vault," says Ross. "You have the key."

Ultimately, demonstrating how data interoperability can be secure and a game changer for patient care will move opinion. "The issue around privacy and the security rules that enhance privacy is extremely complicated," Ross says. "And the issue from our perspective is that more data drives more cures, drives more hope. So, ethical and responsible use of data is absolutely key to what we do, and we have to be transparent around how we use data."

Trust is the key, agrees Barrett. "We'll know we succeeded when we get to a point where patients and members are actually looking forward to getting their data there. That's our goal, to have that trust. Once you have the trust, you kind of start sprinting from there."



To learn more about Healthcare Data Engine and how it can help you with your data interoperability journey, go to:

https://cloud.google.com/healthcare