Re-Imagining Healthcare

Clifford Goldsmith, U.S. chief medical officer for Microsoft, discusses how the pandemic is driving innovation that enhances the patient experience, improves collaboration for clinicians and patients, and refines operations management.

What challenges do HHS organizations confront as they attempt to share data across an ever-expanding universe of endpoints?

The pandemic highlights how data silos and poor interoperability impact the ability to share, manage and analyze data. This ties into one of the biggest organizational challenges, which is to create a data-centric approach as opposed to the traditional policy-centric approach. Data needs to integrate the entire life of a person as they interact with HHS agencies. Another ongoing challenge is transparency. Organizations need a comprehensive view of data for each patient and each population so they can bring science to bear on how to better treat people.

How can organizations address these challenges?

An important piece, escalated by the pandemic, is the re-imagining of healthcare. A good example is virtual health, which includes the use of remote monitoring, Internet of Things (IoT), collaboration, workflow and artificial intelligence (AI). The best strategy is a hybrid cloud architecture that lets organizations bring together data from various systems in a comprehensive way. With the 21st Century Cures Act — a 2016 law that supports secure access and interoperability for health records — and the pandemic as a driver, we're at the point to make that happen on a larger scale.

What technologies can help organizations improve care and reduce costs during the pandemic and into the future?

Organizations can use AI and machine learning (ML) to look at data in its entirety and automate processes that improve the patient experience and patient care. In addition, AI and ML can help healthcare organizations understand and improve revenue cycle management and internal operations. Chatbots are another emerging technology. With the appropriate bot framework, organizations can quickly develop intelligent, automated questionnaires that patients can step through to find out whether they need a COVID test or a checkup, for example. The chatbot uses their responses to move them to the next appropriate step in the care plan. Collaboration technologies also have become more important for effective virtual visits with patients and for virtual consultations between clinicians.

How can AI and ML support more personalized services and care?

If you apply AI and ML to a patient profile that pulls together data from the patient's medical devices, electronic medical records, personal health records, insurace claims and other (often public) resources, you can understand a patient better and create a customized treatment strategy. You can do this not only with COVID-19, but also with chronic diseases such as diabetes and asthma. In addition, there are cognitive tools that can be used to ingest unstructured data. For example, if an organization receives COVID test reports via fax, it can use text analytics to bring that data into the structured digital system, where it can be shared, analyzed for decision-making and then acted upon.

How can organizations build resiliency into their digital transformation strategies?

Having a comprehensive cloud strategy is critical. The cloud lets organizations scale out the interoperability we've been talking about — the 360-degree view of the patient, the collaboration, the workflow, the analytics, the ability to act on data and so on. All this becomes even more powerful when these services are brought together under a single, unified cloud architecture specifically tailored to healthcare. Modularization is another important part of creating resilience. Combined with cloud, a modular approach helps HHS organizations break down system silos and quickly deploy and scale new services.

How is the pandemic driving HHS innovation?

We've already talked about virtual health and cognitive services such as chatbots and process bots. One of the more significant outcomes is that we've streamlined the way we do clinical trials for a COVID-19 vaccine, so we now have a process for rapid development of all drugs. When the COVID-19 vaccine comes to market, it will be important to gather every aspect of data on every patient and store the data in a way it can be analyzed. That's the only way to learn if there are longer-term effects or complications. The pandemic also highlighted how greatly social determinants impact health; I expect to see some big changes related to that.

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