Microsoft

Health Data in the Cloud

Three Key Questions for your Organization

It doesn't matter whether you're developing new drug therapies, trying to learn new insights about your patients or your organization, or comparing the variance sets of treatments. Health data in the cloud is an exciting concept, and something we've been looking for in healthcare for a long time. Here are the three key questions you should be thinking about as you're looking to bring your organization's health data into the cloud.

1 How big is your data estate?

With healthcare data growing exponentially organizations need to ensure their data is being managed efficiently and cost effectively.

Different data types require different support

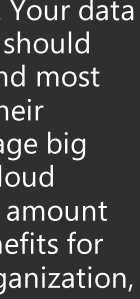
Known
Access, exchange, and operations across traditional and non-traditional "health" data sets

Inferred
BI and ML across asymmetrical data inputs

Predictive
Development of algorithms across 10's of exabytes of data to support precision medicine

Healthcare accounts for only 20–30% of a person's health and well-being

Additional data inputs outside of the healthcare system will need to be accounted for as organizations move forward.



Additional new data inputs to plan for:

→ Telehealth	Solution support, video/audio, data exchange
→ Remote monitoring	Biometric data (IOMT) inputs, device and patient management
→ Imaging	Growth of data from existing devices; device expansion and access
→ Genomics	Patient genome sequencing, testing, and computational workloads
→ SDOH data sets	Social determinants in health and relevant algorithmic output from other organizations

2 What are the new regulatory requirements?

FHIR as a foundation and the Goal of the ONC Final Rule

Fast Healthcare Interoperability Resources (FHIR) has become a regulatory requirement in the United States, with the U.S. Office of the National Coordinator for Health (ONC) requiring the use of FHIR for data exchange beginning in December 2020. The ONC Cures Act Final Rule supports seamless and secure access, exchange, and use of electronic health information. The rule includes a provision requiring that patients can electronically access all of their electronic health information (EHI), structured and/or unstructured, at no cost.

- Open source data framework for healthcare
- API specifications for exchanging those data models
- Tools and servers for building and interacting with those APIs

3 How do you want to leverage your data?

Data Agility In the Cloud

How you bring data into the cloud matters. Your data engineering team should have the fastest and most efficient tools at their fingertips to manage big data workloads. Cloud offers an amazing amount of technology benefits for any healthcare organization, so choosing a cloud that's already integrated with FHIR makes sense.

Care provider
- Connected Systems (e.g., EMR+ ShareSource)
- Remote patient monitoring
- Improved efficiency
- Minimize human error
- Early intervention
- Care coordination

Patient
- Patient engagement (e.g., app, ease of use, voice enabled)
- Improved communication with care team
- Virtual guide (training, nutrition etc.)
- Improved lifestyle, gamification

Operation & support
- Device connectivity
- Device monitoring and fault detection
- Two-way connectivity
- Device security

R&D
- Cloud capabilities
- Data agility
- Azure DevOps
- Faster release cycle
- Co-development with Microsoft and vendors resources

Microsoft Cloud for Health

A new powerful suite of technology to enable scalable and secure ingestion, management, and machine learning for PHI data in the cloud.

Microsoft Cloud for Healthcare brings together integrated cloud capabilities to help you deliver better experiences, insights, and care. See how healthcare organizations are using technology to improve patient engagement and team collaboration.

Starting with the Azure API for FHIR

Enabling a new suite of services to help manage your PHI data in the cloud.

- SQL or Cosmos DB persistence layer
- Bulk FHIR
- FHIR Convertor
- FHIR Tools for Anonymization
- IOMT FHIR Connector
- Power BI FHIR Connector

Benefits of cloud technology and FHIR

Privacy
Isolated databases for PHI

Security
Built-in controls and intelligence

Cost
Pay only for what you use

Speed
Low latency, high performance

Machine Learning
On demand, scalable

Scale
Expand when and where you need

Learn how Microsoft Cloud for Healthcare can help you:

→ Create individualized patient experiences that improve outcomes.
→ Quickly and easily communicate, collaborate, and coordinate care.
→ Get real-time data insights that improve operational efficiencies.
→ Bolster patient privacy and protect against data breaches.

To learn more about Azure for Health and health data in the cloud, check out Azure API for FIHR or go to aka.ms/cloudforhealthcare.