aws

AWS for Healthcare: Population Health

AWS helps unleash the power of data to improve population health outcomes

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Advancing population health with cloud technology

From bustling cities to far-flung villages, population health opens doors to incredible opportunities, reducing health disparities and empowering communities to thrive. At the forefront of this transformative movement is Amazon Web Services (AWS), spearheading breakthroughs in population health by uncovering crucial health determinants.

For example, in India, a significant part of the population was not visiting the doctor or being treated for health issues because they had to travel long distances to reach medical facilities. This put them at risk of missing important information prior to their appointment and vital follow-up care.

In response, in 2019, the Indian government piloted a telemedicine platform on AWS. Within 19 days, free telemedicine was made available 12 hours a day, seven days a week in four states. The service allowed patients to connect with doctors through video or audio calls, enabling access to healthcare services from anywhere, including remote areas with limited healthcare facilities.

This pilot was so successful that in 2020 it was scaled to cover all of India, enabling virtual healthcare access to more than one billion people—80 percent of the Indian population. National Telemedicine Service of India now provides more than 6,000 consultations a day, involving 4,000 doctors in 150 outpatient clinics.

This example is just one of the many ways in which AWS is supporting the public sector and healthcare organizations in improving patient care and health equity.

✺ RUSH

Read on to learn how AWS is helping institutions like RUSH and MetroPlusHeallth solve their population health challenges.

Putting people first: A patient-centered approach to population health

Population health focuses on the health outcomes of individuals and the distribution of these outcomes within the group. Factors affecting population health could include behavior, genetics, environment, medical care, and social factors, such as where people are born, work, and live.

The goal is to identify the unique factors that impact a population's health to improve the health of communities through disease prevention, early detection and management, and improved health equity. Population health promotes collaboration among healthcare providers, public health officials, policymakers, and other stakeholders to address a community's needs.

AWS enables healthcare organizations to more easily explore and deploy new and innovative technologies for population health—to benefit patients, providers, and communities.
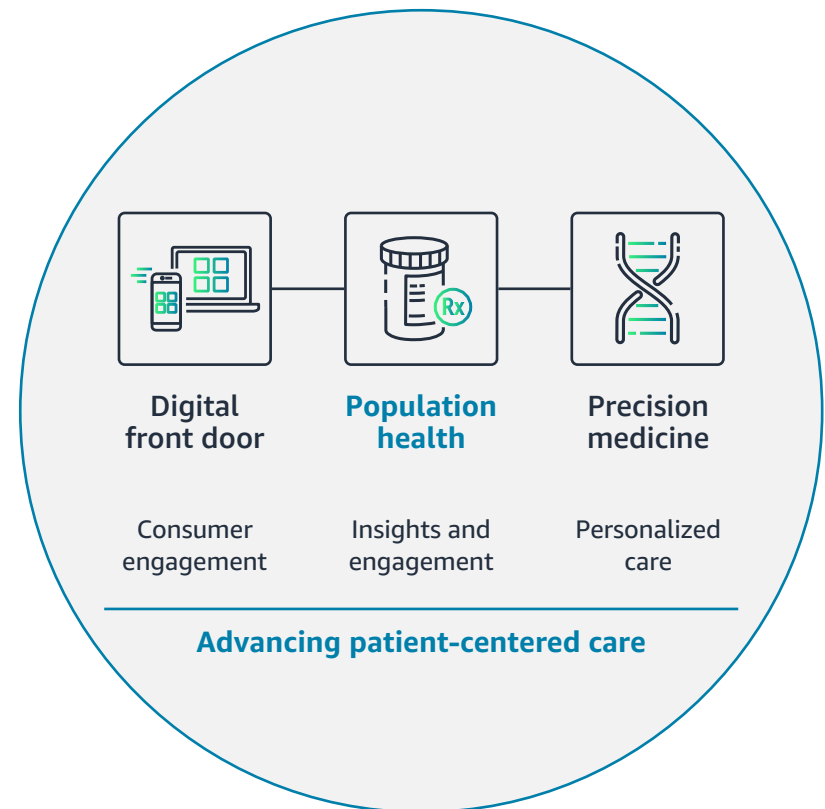
AWS population health solutions can help providers, clinicians, and researchers harness structured and unstructured data in the pursuit of better health. With information from EHRs, claims, operations, public health statistics, and more on AWS, these providers, clinicians, and researchers gain a more comprehensive view of determinants of health. When health professionals understand how social, environmental, and physical influences interconnect, they can uncover solutions that improve health outcomes. They can also help improve care quality, reduce costs, advance health equity, and promote clinician well-being.

Delivering actionable population health insights

Navigating the intricate landscape of health data can be daunting due to its sensitive, inconsistent, unstructured, and complex nature. Also, there is a lot of it. In fact, most AWS healthcare customers are rich in data but poor in insights, and insights drive outcomes. **However, analyzing population health data doesn't have to be overwhelming.**

For the last 15 years, AWS has worked alongside healthcare organizations to solve their biggest challenges. When it comes to population health, AWS has the resources, best practices, and partners to help speed time to insight from complex and siloed data.

Digital front door

Population health

Precision medicine

Consumer engagement

Insights and engagement

Personalized care

Advancing patient-centered care

Accelerating population health analytics and intervention with AWS

By automating data extraction and analytics capabilities, AWS makes it possible for healthcare organizations to provide meaningful clinical and community intervention.

With AWS, you can store, transform, query, and analyze population health data in minutes. This enables you to build a unified patient view that is primed for insights and unlock the full potential of your population health data.

- AWS HealthScribe: Automatically generate clinical notes by analyzing patient-clinician conversations in your applications

- AWS HealthImaging: Store, transform, and analyze medical images in the cloud at petabyte scale

- AWS HealthLake: Provide a complete view of individual or patient population health data

- Amazon SageMaker: Build, train, and deploy machine learning models fast

- Amazon Textract: Extract text and data from virtually any medical document

Transforming data into action in 3 steps

Improving population health while also keeping costs low is achievable and economically feasible. With AWS, organizations can use data, analytics, care coordination, and patient engagement to promote patient-centered care and advance health equity while managing compute usage to keep costs down. There are three primary steps in the journey:

1 Implement **data interoperability**. This involves multiple healthcare systems and applications exchanging and interpreting data seamlessly for efficient and effective healthcare delivery. It allows various healthcare entities to share patient data, medical records, test results, and other relevant information securely and accurately.

2 Drive quality, cost reduction, and predictions with **analytics**. Data analytics can be the cornerstone of understanding the communities you're serving and developing new insights. **Quality** can be measured through structural, process, and outcome indicators, giving healthcare organizations insights into provider capacity and intervention impact on health. **Cost reduction** efforts aim to lower expenses while increasing quality, identifying at-risk populations, and addressing community health concerns. **Prediction** is enhanced through AI/ML and modeling, allowing risk profiling, and offering advanced care options.

3 Design **interventions**. This involves implementing strategies that align with patient priorities and address their needs. These interventions may include classes or workshops, one-on-one coaching, case management, or digital front doors to provide communication with participants.

With the AWS Modern Health Data Strategy, organizations can use the cloud's storage capabilities to securely handle the health data generated by such things as X-rays and health records.

Population health is an ongoing endeavor that requires continuous effort and sharing of best practices. The customer case studies that follow show how healthcare organizations implemented these steps with the help of AWS to better their communities.

Rush Medical Center
Data interoperability and analytics

Challenge

Rush University System for Health (RUSH), aims to address healthcare disparities faced by residents on Chicago's West Side. It needed an efficient way to capture comprehensive patient data, including housing, transportation, and food access. However, obtaining this data proved challenging due to fragmented sources and unstructured information.

Solution

RUSH clinicians developed the Health Equity Care & Analytics Platform (HECAP), built on AWS, to enhance data accuracy and actionability. HECAP aggregates and harmonizes data from various sources, providing a unified platform for improved coordination and actionable insights.

Benefits

- Transformed patient data to uncover clinical and social factors
- Enhanced patient outcomes with advanced analytics
- Helped clinicians uncover and reduce health inequities

RUSH

"

We have a great opportunity to start bringing in more data from different sources and use the power of AWS to scale massively across our system, significantly benefiting the care of our patients in Chicago."

Anil Saldanha

Chief innovation officer of RUSH

Learn more ›

MetroPlusHealth
Intervention

Challenge

Identifying and connecting with 85,000 high-risk individuals who may need help accessing healthcare and social services during the COVID-19 pandemic.

Solution

In a collaborative effort with AWS and other organizations, a chatbot was refined and deployed in three weeks. In both English and Spanish, it could determine the needs of participants and directly connect them to the proper care channel. For example, it could determine whether the concern was related to COVID-19, anxiety, medication refills, a telemedicine visit, obtaining food or unemployment assistance, or something else.

Benefits

- Built and deployed the solution in 3 weeks
- Scaled to reach more than 80,000 members in less than 2 months
- More than 65%* of the engaged responders were connected to at least one service
- SMS scripts could be tweaked seamlessly for better engagement strategies based on trackable analytics

*Certain channel services were not always directly traced to the SMS service

✓MetroPlus**Health**

When MetroPlusHealth launched the chatbot program, it reached 54,000 members over the next 3 weeks, contacting as many as 10,000 people per day at its peak.

Learn more ›

Uncovering the possibilities of population health with AWS

AWS is the ideal cloud provider for delivering data interoperability, analytics, and AI/ML to support and foster population health. With its scalable infrastructure and purpose-built suite of tools for healthcare, AWS provides a reliable and efficient platform for addressing the unique challenges of population health.

Learn how AWS can create a customized solution for your population health needs. **Click here to request a meeting** ›