

Transforming Healthcare: The Four Cornerstones of Clinical Analytics

Care Guidelines Using the Power of AI, Data Interoperability,
Cloud, Data Privacy and Security



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Executive Summary

Clinical Analytics Transforms the Quality and Effectiveness of Care

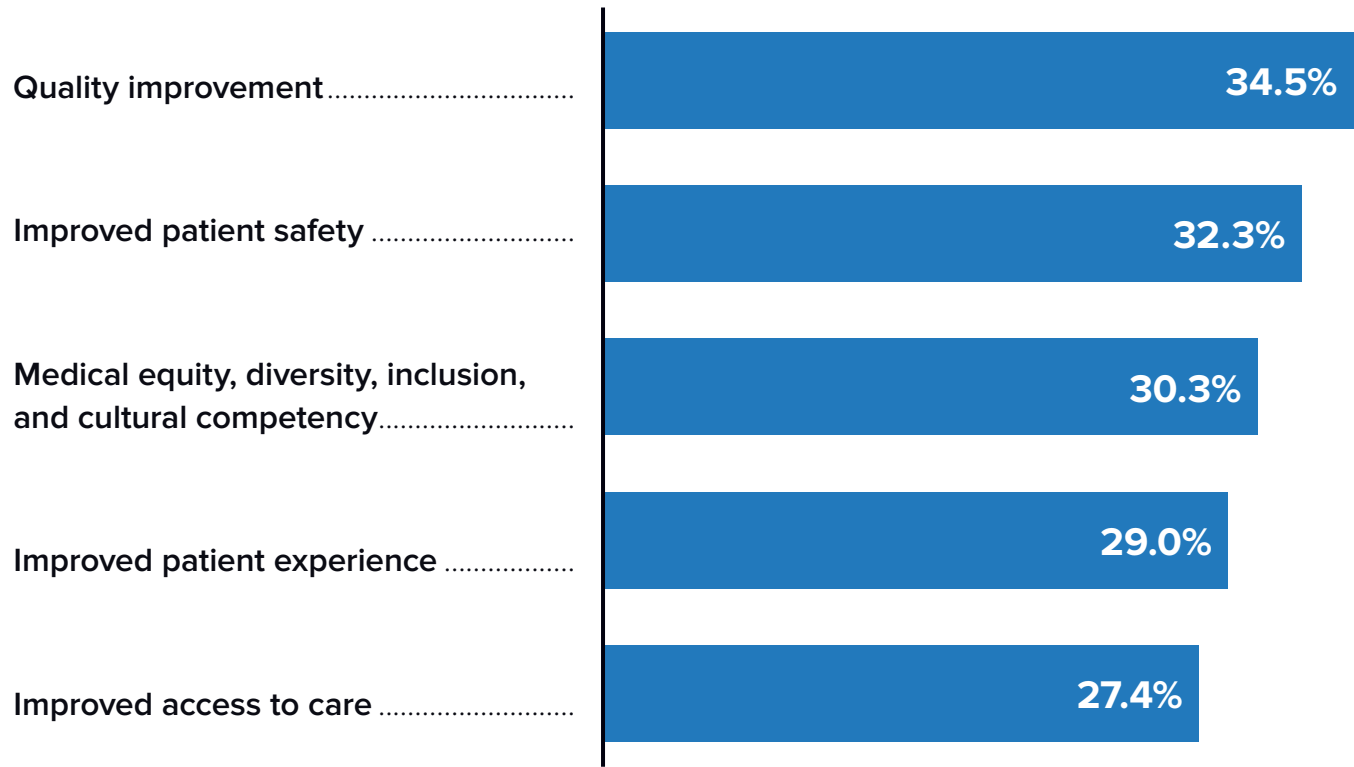
In a post-pandemic world, healthcare organizations are focusing their attention on navigating the storms of disruption brought about by inflationary pressures, supply chain constraints, labor and skills shortages, and geopolitical threats. Leading healthcare organizations are investing in advanced clinical analytics, a wide range of AI technologies, cloud, and data interoperability tools to address increasing operational challenges and economic stressors. The resulting data proliferation from these technology initiatives will require additional investment in security technologies to ensure data privacy and security.

Key Findings

- ▶ **The healthcare workforce has reached a crisis inflection point**, fueling the demand for more automation and recommendations of the next best action using clinical analytics, predictive care guidelines, and AI technologies to handle increased patient interactions with fewer resources in order to mitigate the risk of staff burnout.
- ▶ **Patients want convenient access to personalized care anywhere** — whether they are in a healthcare facility or the comfort of their own homes, which is driving the need for a 360-degree patient view using secure data interoperability.
- ▶ **Clinical analytics with embedded AI** enables clinicians to collaborate, create unified personalized experiences, and improve patient engagement.
- ▶ **Recognizing the value of cloud economics**, healthcare providers are moving data-intensive workloads to the cloud.
- ▶ **Outcome-focused value-based healthcare** requires secure intelligent data management and robust clinical analytics to make the shift from data rich to data driven improved decision making.
- ▶ **The four cornerstones of clinical analytics** include predictive care guidelines, data interoperability, cloud, and security.

Providers' Top Five Initiatives Are Patient-centric, in Keeping With the Quintuple Aim

What are the top 5 most important strategic business goals for your organization over the period of 2022 to 2023?



n = 310, Source: IDC's US Healthcare Provider Technology and Connected Health Survey, January 2022



To achieve these laudable goals, healthcare organizations will need to invest in clinical analytics and predictive care guidelines using AI to glean insights from vast repositories of clinical data stored in disparate healthcare IT systems across the enterprise.

Cloud platforms, data interoperability, and security are essential foundation technologies for enabling robust clinical analytic strategies.

Key Technology Trends Drive the Deployment of Clinical Analytics

25.2% of healthcare providers that indicated their software spending would increase over the period of 2022 to 2023, reported that additional spending would be allocated to clinical analytics.

Proliferation of Healthcare Data



Healthcare provider data is expected to grow to **8,809 exabytes in 2026** (representing a 30.8% CAGR from 2021 to 2026).

Source: IDC's *Global DataSphere*, 2022

Shift from Data Rich to Data Driven



81% of healthcare organizations that reported being **more data driven** experienced moderate or **significant positive transformation** in their organizations.

Source: *Healthcare Business Intelligence Payer and Provider Survey*, August 2021

Embracing the Cloud



38% of healthcare organizations report that data growing beyond the capacity of existing systems is an important trigger leading them to use cloud services.

Source: IDC's *Worldwide Industry CloudPath Survey*, April 2022

Clinical Analytics Addresses Critical Labor Challenges

Growing clinician shortages have reached crisis levels, putting patient safety at risk while increasing the prevalence of burnout.

Healthcare Provider Shortages

The U.S. faces a projected shortfall of between **37,800 and 124,000** physicians within 12 years.

Source: *The Complexities of Physician Supply and Demand: Projections from 2019 to 2034*, a report released by the Association of American Medical Colleges (AAMC)

The shortage of nurses is even more dire. **275,000 additional nurses** are needed from 2020 to 2023.

Source: U.S. Bureau of Labor Statistics



Clinician Burnout

63% of U.S. physicians experienced symptoms of burnout in 2021, up from 38% in 2020.

Source: AMA Recovery Plan for America's Physicians

43% of U.S. nurses reported they felt burned out in the past 14 days.

Source: American Nurses Foundation, Pulse on the Nation's Nurses Survey Series: Annual Assessment Survey, November 2022

The Benefits of Clinical Analytics

- ✓ Enables transition from reactive to proactive care that promotes wellness and prevention
- ✓ Provides early identification of patient health status changes leading to timely interventions
- ✓ Recommends next best action and personalizes care by leveraging predictive care guidelines and AI
- ✓ Accelerates data-driven decision making
- ✓ Improves care team efficiency allowing more time for direct patient care

The Four Cornerstones of Clinical Analytics



**Care Guidelines Using
the Power of AI**



Cloud



**Data
Interoperability**



**Data Privacy
and Security**



AI Usage in Healthcare



Predictive

Predict length of stay; identify which patients are at risk for sepsis, among other diagnoses; forecast staffing levels; and create personalized care plans using AI and predictive care guidelines.

Pattern Recognition

Analyze unstructured data, such as biomedical data and medical images, using AI and ML to detect anomalies and prioritize critical cases that require more thorough analysis.

Generative

Create content using AI and ML for administrative tasks such as prior authorization requests or clinical tasks such as identifying personalized treatment options for individual patients.

Conversational

Emulate human conversation with chatbots and digital assistants that use natural language processing (NLP), machine learning (ML), and AI in consumer mobile health apps, websites and contact centers.

Process Automation

Automate manual, highly repetitive, and mundane processes giving staff more time to handle high-value, patient-centric tasks, including patient care.

Ambient

Create clinical documentation from a natural dialogue between clinicians and patients using NLP, ML, AI and voice recognition technologies.



How AI Enhances Clinical Analytics



- ✓ Assists care teams with evidence-based care paths that promote high quality care
- ✓ Creates personalized care guidelines
- ✓ Automates routine tasks enabling clinicians to be more efficient and spend more time on direct patient care
- ✓ Improves clinician and patient experiences leading to better patient engagement and health outcomes

BY THE END OF 2025, 65% OF HEALTHCARE ORGANIZATIONS

will have data governance frameworks in place, prioritizing the ethical and explainable use of AI for predictive, preventive, and personalized care.

Data Interoperability Addresses Health Information Exchange Challenges that Impede Clinical Analytics



58% of providers use cloud for health information exchange workloads.

Coordinated Care Anywhere



Consumers want convenient access to care **anywhere and anytime** they need it.

Clinical Applications and Connected Health Technologies



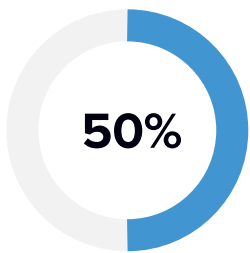
Health data is frequently **fragmented** across disparate clinical systems and consumer devices.

How Data Interoperability Addresses These Challenges

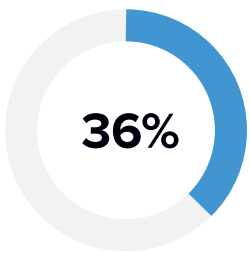
- ✓ Aggregates and normalizes patient health information to break down data silos
- ✓ Utilizes FHIR standards to facilitate secure data exchange
- ✓ Improves access to 360-degree view of the patient for clinical analytics
- ✓ Provides the foundation for clinical analytics at scale

Source: IDC's Worldwide-Industry CloudPath Survey, April 2022

Healthcare Organizations Embrace the Cloud to Provide Secure Access to Clinical Systems and Patient Health Information



50% of healthcare providers run analytics applications in the cloud



36% run analytics on-prem and expect to move to the cloud within 12 months



Healthcare organizations are embracing the cloud because they **need functionality only found in the cloud.**

Healthcare organizations **continue to invest in cloud technology** to achieve improved IT security, enable a distributed workforce, and reduce costs.

Clinical and data-intensive workloads are moving to the cloud to leverage the inherent advantages of cloud elasticity for compute and storage, and secure access across the enterprise.

The Benefits of Using Cloud for Clinical Analytics

- ✓ Captures data from across the enterprise and beyond from medical trading partners
- ✓ Allows healthcare organizations to “pay as they grow” with as-a-service pricing
- ✓ Provides real-time access to a 360-degree view of the patient for clinical analytics
- ✓ Empowers healthcare organizations to get the full value of an efficient and secure centralized data estate to unlock insights

Key Market Trends Impacting Security



The widespread adoption of technology by healthcare organizations and the stakeholders they serve results in a proliferation of data generated across the healthcare ecosystem from a variety of healthcare IT systems, applications, and devices. This data must be secured in compliance with data privacy and security regulations as patient health information is shared across the enterprise.

Pervasive Mobility and Wireless Usage	Care Team Collaboration	Internet of Medical Things	Care Anywhere
The proliferation of mobile devices accessing the network is pushing more traffic to wireless networks that should be monitored for potential malware and viruses.	The highly collaborative and physically mobile nature of clinical teams creates more reliance on secure connectivity, mobile technology, wireless communication, and video conferencing.	Medical devices represent a wide range of technologies that require connectivity: medical imaging, bedside telemetry, remote patient monitoring, wearables, and embedded devices. Vulnerabilities in any device can be exploited by a bad actor.	Improved broadband and network performance, plus changes in reimbursement and regulations will drive care anywhere initiatives that provide care across a range of healthcare settings with varying security postures and vulnerabilities.

34.7% of healthcare providers that plan to increase overall IT security
spending over the period 2022 to 2023 will allocate that additional spending to **data security**.

Source: US Healthcare Provider Technology and Connected Health Survey, January 2022

Clinical Analytics Benefits Care Teams and Patients

Care Teams

- ✓ Improve staffing efficiencies
- ✓ Reduce admin burden
- ✓ Provide valuable data insights to drive decision making

Care Teams/Patients

- ✓ Improve patient outcomes
- ✓ Enable timely collaboration between care teams and patients
- ✓ Enhance personalized engagement

Patients

- ✓ Provide convenient access to care
- ✓ Reduce barriers to good health
- ✓ Create health equity
- ✓ Personalize care across the continuum

Essential Guidance

Data-driven decisions using clinical analytics optimizes care workflows and improves the quality of care

1

Build trust with the stakeholders and develop an understanding of their clinical analytics requirements and the problems they are trying to solve.

5

Develop frameworks with curated, annotated, and federated data in ways that support robust AI governance and address concerns about AI explainability and ethical use.

2

Identify and agree upon what success will look like to ensure all stakeholders are heard and engaged. Identify how success and opportunities will be monitored and shared.

6

Provide secure access to 360-degree views of patient data to deliver insights at scale to ensure successful care anywhere initiatives.

3

Embrace the cloud, prioritize data interoperability, and apply AI technologies to clinical analytics to move from being a data-rich to a data-driven healthcare organization.

7

Keep the end user at the center of the process to ensure solutions are the right fit and actually ease their burden.

4

Collaborate with the broader healthcare ecosystem to enable data sharing including quality metrics documentation and more diverse data sets to improve machine learning and AI algorithms.

8

Look to form a strategic relationship with your technology supplier.

About the IDC Analyst



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Lynne A. Dunbrack is group vice president for Public Sector, which includes IDC Government Insights and IDC Health Insights. She manages a group of analysts who provide research-based advisory and consulting services for payers, providers, accountable care organizations, IT service providers, and the IT suppliers that serve those markets. Lynne also leads the IDC Health Insights’ Connected Health IT Strategies program. Specific areas of Lynne’s in-depth coverage include mobile, constituency engagement, data interoperability, digital transformation, privacy, and security. Technology coverage areas include clinical mobility (physician facing) and mobile health (consumer facing), end-to-end remote patient health monitoring for health, wellness and chronic conditions, Internet of Things (IoT), telemedicine and virtual care, and digital therapeutics.

[More about Lynne Dunbrack](#)



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