

# How Innovative Health Data Platforms Accelerate Provider and Payer Success

## Introduction

The healthcare industry faces significant challenges due to the prevalence of dirty data and the need for seamless interoperability. Recent statistics indicate that dirty data costs the U.S. healthcare sector approximately \$300 billion annually. This staggering figure, attributed to data mismanagement, highlights the critical need for robust data management solutions.

Poor data management in healthcare has substantial cost implications. Organizations face inefficiencies, missed opportunities for improved patient care, and difficulties complying with regulatory requirements. Moreover, the inability to leverage data effectively hampers innovation and the adoption of cutting-edge technologies like artificial intelligence and machine learning.

Health Data Management Platforms (HDMPs) have emerged as a promising solution to these challenges. By offering a collection of data services and capabilities configured for the healthcare industry, HDMPs enable fluid, agile, real-time exchange and use of health information. These platforms leverage modern technologies such as cloud computing and data fabric concepts, providing industry contextualization and supporting broader use cases like federated learning, population health, AI, and clinical trials.





# What is a Health Data Management Platform?

According to Gartner, a Health Data Management Platform (HDMP) offers a collection of data services and capabilities configured for the healthcare industry to enable fluid, agile, real-time exchange and use of health information. HDMPs leverage modern technologies such as data fabric concepts, providing industry contextualization and supporting broader use cases like federated learning, population health, AI, and clinical trials.

## Challenges in Health Data Management

### Fragmented Data Sources

Healthcare data comes from various fragmented sources, including EMRs, EHRs, scanned handwritten notes, claims data, enrollment data, and more. This data is often duplicated and stored in different versions across providers, payers, pharmacies, and patients.

### Rapidly Increasing Data Volumes

Healthcare data is growing exponentially, with the industry generating 30% of the world's data. Patients undergo many tests and treatments over their lifetimes, and new data types like telehealth are constantly being added.

### Data Security and Compliance

Healthcare data is susceptible and must be securely stored to protect patient privacy and comply with regulations like HIPAA. Poor data quality makes it challenging to perform audits and meet compliance requirements.

### Lack of Integration and Interoperability

Healthcare data is often siloed across incompatible systems that can't exchange information. Integrating data from various sources to get a complete patient picture is a significant challenge.

### Maintaining Data Accuracy

Inaccuracies are common in provider directories, with 20% of listings containing errors. To ensure accuracy, payers must prioritize data audits, validation, and standardization.

### Extracting Insights from Big Data

While healthcare data can provide valuable insights, its complexity makes it difficult to analyze effectively. Organizations need the right tools and expertise to extract meaningful insights from their data.



# Understanding Health Data Management Platforms

A Health Data Management Platform (HDMP) is a comprehensive solution designed to address the unique data challenges in the healthcare industry.

**At its core, an HDMP offers:**

## FHIR-Enabled Foundation

Leveraging Fast Healthcare Interoperability Resources (FHIR) standards to acquire and integrate health data.

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## Cloud-Based Architecture

Utilizing cloud technologies for scalability and flexibility.

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## Data Fabric Concept

Implementing enriched data management capabilities based on data fabric principles.

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## Analytics Capabilities

Enabling FHIR data for downstream analytics, population health, and other use cases.

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## AI and ML Integration

Augmenting data pipelines with artificial intelligence and machine learning capabilities.

# Several Trends are Shaping the Evolution of Health Data Management:

## a) Data and Analytics Cloud Migration

Organizations are re-evaluating their existing D&A infrastructure, tools, and processes as they move to the cloud. The need for innovation agility, ease of scaling, and reduced infrastructure and operational costs drives this shift.

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## b) Adoption of Data Fabric Principles

Data fabrics are helping solve interoperability challenges by modernizing legacy integration techniques. They significantly reduce manual data integration tasks through automation, often leveraging AI.

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## c) Convergence Around Standards

The industry is globally converging on FHIR as the de facto standard for healthcare data exchange, simplifying the challenges associated with health data exchange.



# An effective HDMP should include



## 1. Robust Data Aggregation and Integration Capabilities

HDMPs should have robust capabilities for acquiring data from various sources, including EHRs, EMRs, claims systems, patient-generated data, and more. They should support multiple data formats and standards, emphasizing FHIR.



## 4. Support for Analytics on FHIR

A key differentiator of HDMPs is their ability to support analytics directly on FHIR data. This capability allows organizations to leverage standardized health data for a wide range of analytics use cases without requiring extensive data transformation. The platforms have pre-built analytics models and dashboards for common healthcare scenarios.



## 2. Advanced Data Management and Organization Features

Once data is acquired, HDMPs provide sophisticated tools for managing and organizing health data. This includes data cleansing, normalization, and mapping to standard terminologies. HDMPs also incorporate robust security measures and access controls to ensure data privacy and compliance with regulations like HIPAA.



## 5. AI, ML, and Large Language Model (LLM) Integration

Advanced HDMPs incorporate AI and ML technologies, including large language models. These capabilities can be used for tasks such as NLP to structure unstructured clinical notes, predictive population health modeling, and automated medical data coding and classification.



## 3. Data Enrichment and Delivery Mechanisms

HDMPs extend beyond basic data storage by offering the ability to enrich data with additional context and insights. They provide mechanisms to deliver this enriched data into clinical workflows, enabling closed-loop analytics and supporting direct patient care.

*HDMPs offer a comprehensive solution by combining these components and features, for healthcare organizations looking to modernize their data management practices. They provide the foundation for rich and good health data, enabling organizations to move beyond basic interoperability to achieve true data-driven healthcare delivery and innovation.*





# The Most Powerful Health Data Management Platform

With 15 years of extensive experience in the healthcare technology sector, Persivia has established itself as a trailblazer in health data management. This wealth of expertise has been meticulously channeled into the development of CareSpace®, a comprehensive and cutting-edge digital health platform. This deep industry knowledge, combined with a relentless focus on solving complex healthcare data challenges, has positioned CareSpace® as the go-to solution for healthcare organizations seeking to make the most of their data assets.

Persivia's CareSpace® platform sets the gold standard in health data management, offering unparalleled capabilities across the entire data lifecycle. Here's a detailed look at how Persivia excels in each critical area:

## 1. Data Curation and Aggregation Capabilities

CareSpace® aggregates data and seamlessly integrates data from a vast array of sources such as EMRs, HIEs, laboratory results, claims data, Social Determinants of Health (SDOH), HL7 data, patient-reported data, consumer data and diagnostic device data.

This comprehensive approach ensures that no valuable data point is left behind, providing a holistic view of patient health and healthcare operations.

## 2. Versatile File Format Support

CareSpace® stands out with its ability to handle an extensive range of file formats and types, including HL7 V3, Clinical Document Architecture (CDA), Consolidated CDA (CCDA) ADT, HL7 v2, SDOH, patient-reported, and device data.

This versatility eliminates data silos and ensures seamless integration across diverse healthcare IT ecosystems.

## 3. Longitudinal Patient Record

At the heart of CareSpace® platform is the ability to create a comprehensive, longitudinal patient record. By aggregating data from over 500 different sources, CareSpace® breaks down data silos and provides a unified view of each patient's health journey.

Persivia's advanced data integration capabilities, powered by Natural Language Processing (NLP) and its proprietary Enterprise Master Patient Index (eMPI), are key to building these robust longitudinal records. The eMPI employs a multi-layered approach to accurately consolidate patient data, seamlessly linking information from various sources.

## 4. Cutting-Edge Data Integration

Persivia's data integration capabilities are powered by state-of-the-art Natural Language Processing (NLP):

- High-precision extraction of coded, clinically relevant data from unstructured text and notes
- Intelligent parsing and categorization of medical terminology
- Automated mapping of extracted data to standardized medical codes

This advanced NLP technology significantly reduces manual data entry errors and enhances the completeness and accuracy of patient records



## 5. Rich Data Fabric

CareSpace® has a sophisticated data fabric that includes:

- High-quality data catalogs covering a wide range of healthcare domains
- Comprehensive semantic sets for quality measures, clinical indicators, and value-based care metrics
- Intelligent data relationships that enhance analytics and decision support

This rich data fabric forms the foundation for Persivia's advanced analytics and AI capabilities, enabling deeper insights and more accurate predictions.

## 6. Advanced Data Lakehouse

Persivia's data lakehouse goes beyond traditional data storage:

- Supports storage and querying of a comprehensive Unified Data Model
- Enables real-time data processing and analytics
- Facilitates seamless integration of structured and unstructured data
- Provides a flexible foundation for AI and machine learning applications

This modern architecture ensures that CareSpace® can handle the ever-increasing volume and complexity of healthcare data while maintaining high performance.

## 7. Rigorous Data Quality Assurance

Persivia sets the bar for data quality in healthcare:

- Continuous monitoring of hundreds of data feeds
- Real-time quality checks across millions of messages and files
- Automated data validation and cleansing processes
- Comprehensive data lineage tracking and audit trails

These robust quality assurance measures ensure that healthcare organizations can trust the integrity and reliability of their data for critical decision-making.

## 8. Compliance and Interoperability

CareSpace® is built with compliance and interoperability:

- Full FHIR (Fast Healthcare Interoperability Resources) compliance, enabling seamless data exchange
- HITRUST certification, demonstrating the highest standards of data security and privacy
- USCDI (United States Core Data for Interoperability) compliance, ensuring standardized data formats

## 9. AI-Driven Analytics & Insights

CareSpace® utilizes predictive, prescriptive, generative, and descriptive AI models to drive insights from the Longitudinal Patient Record (LPR). These insights are seamlessly integrated into various workflows, enabling data-driven decision-making.

## 10. Data Privacy and Governance

Persivia's commitment to data security and privacy is validated by its HITRUST Implemented, 1-year (i1) certification. This gold standard certification in the healthcare industry ensures that CareSpace® employs a comprehensive set of curated controls to protect against current and emerging threats. Our platform maintains the highest standards of data security, patient privacy, and regulatory compliance, including HIPAA and GDPR.

*Persivia empowers healthcare organizations to optimize resource allocation, improve patient outcomes, and streamline operations by leveraging its rich data fabric, advanced data integration module, and AI-driven analytics. As the healthcare industry continues to face challenges posed by dirty data and interoperability, Persivia's innovative solutions offer a promising path forward.*



## Conclusion

Health Data Management Platforms (HDMPs) like Persivia's CareSpace® are not just innovative tools – they are catalysts for a paradigm shift in patient care and operational excellence. These powerhouse platforms are dismantling the long-standing barriers of dirty data and fragmented systems, ushering in an era of unprecedented interoperability and insight.

CareSpace® stands at the vanguard of this revolution, transforming raw data into a potent force for positive change. The adoption of cutting-edge HDMPs is not merely a strategic advantage – it's an imperative for healthcare providers and payers who aim to thrive in an increasingly data-driven world. As the industry races towards a future of precision medicine and value-based care, platforms like CareSpace® serve as the bedrock upon which tomorrow's healthcare triumphs will be built.

## Persivia Recognized by Gartner® in the

Market Guide for Health Data Management Platforms

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