



CUSTOMER SUCCESS STORY



Industry: Healthcare

Compliance Requirements: HIPAA, HITRUST

Innovative Products Used: POD, Managed Cloud Services

EXECUTIVE SUMMARY

OutcomeMD, a Los Angeles-based health-tech company founded by orthopedic surgeon Dr. Justin Saliman, operates a Patient Experience Data Network that captures patient-reported outcome measures (PROMs) and transforms them into actionable clinical intelligence for clinicians, health systems, and biopharma researchers. With over 350GB of clinical and patient data fragmented across RDS PostgreSQL and MongoDB Atlas, the company could not generate meaningful reports, share de-identified datasets with payers, or demonstrate platform value to stakeholders — and leadership had not yet defined specific end-state requirements. Innovative Solutions designed and deployed a bronze/silver/gold medallion data lake architecture on AWS, consolidating data from both source systems through AWS Database Migration Service into Amazon S3, with AWS Glue handling transformations and Amazon QuickSight delivering production dashboards. The engagement also implemented three-tier PHI/PII access controls through AWS Lake Formation to meet HIPAA and HITRUST compliance requirements, while establishing documented patterns that enable OutcomeMD's team to maintain and extend the platform independently.

“Innovative Solutions didn't just build us a data lake — they gave us the foundation to turn years of patient-reported outcomes into actionable intelligence. The bronze/silver/gold architecture means we can finally see our data clearly, share it safely, and build toward a future where every patient's voice drives better care. What impressed me most was their willingness to pivot when the original plan didn't fit our reality, delivering something we could actually use instead of something that looked good on paper.”

Dr. Justin Saliman
Founder & President, OutcomeMD



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BUSINESS CHALLENGE

OutcomeMD operates a cloud-based platform that captures validated patient-reported outcome measurements — covering symptoms, function, and quality of life — and links them to clinical records from multiple EHR systems including DrChrono, Athena Health, HST Case Coordination, and Community Hospital HL7 feeds. The company had amassed over 350GB of clinical and patient data, but that data was locked in highly normalized, analytics-unfriendly structures across two separate databases: RDS PostgreSQL for survey responses, clinical assessments, and EHR integration data, and MongoDB Atlas for patient demographics and PII. This fragmentation made it nearly impossible to generate meaningful reports, share de-identified datasets with payers and biopharma partners, or demonstrate the value of their Patient Experience Data Network to stakeholders.

The company's leadership had not yet defined specific end-state requirements or use cases for a data platform, creating a paradox: they needed data infrastructure to answer stakeholder questions, but could not specify what those answers should look like. Their small engineering team was already stretched thin maintaining the core application, which had roughly 8,000 touch points making retroactive data capture changes complex and risky. Previous attempts to leverage the data required manual SQL extraction and ad-hoc analysis — a slow, error-prone process that could not scale. OutcomeMD needed a partner who could build incrementally, deliver visible value quickly, and create a foundation flexible enough to evolve as their business model expanded into biopharma data licensing.

SOLUTION APPROACH

Innovative Solutions engaged OutcomeMD through a Product-Oriented Delivery (POD) model, beginning with a thorough assessment of the existing infrastructure and data landscape to understand the company's operational constraints and strategic goals. The initial scope called for an AWS HealthLake FHIR data store with tokenization services and a SageMaker ML platform. However, after candid discussions about the lack of defined end-state requirements and the high cost of HealthLake without clear ROI, the team recommended a strategic pivot: a bronze/silver/gold medallion data lake architecture that would deliver value incrementally and surface data quality issues early. This approach allowed the team to stop at any point while retaining useful output, and kept the door open for HealthLake and industry standards like OMOP and FHIR as future add-ons when concrete use cases emerged.

The technical implementation used AWS Database Migration Service (DMS) with change data capture to extract data from both PostgreSQL and MongoDB into Amazon S3 bronze buckets, preserving all raw data as-is for analysis. AWS Glue jobs orchestrated the bronze-to-silver transformations, creating logical groupings such as a Patient 360 view that consolidated patient IDs, demographics, diagnoses, medications, procedures, and PROM scores. AWS Lake Formation enforced three-tier column-level access controls — PHI, PII, and neither — to meet HIPAA and HITRUST compliance requirements, with progressive de-identification across the silver and gold layers. Amazon QuickSight was deployed to production with AWS Identity Center integration for enterprise authentication, giving stakeholders their first real-time window into the data. The entire infrastructure was codified with AWS Cloud Development Kit (CDK) across a multi-account architecture, with comprehensive documentation and transformation guides ensuring OutcomeMD's team could maintain and extend the platform after the engagement ended.

AWS SERVICES IN SCOPE

- ⇒ Amazon S3
- ⇒ AWS Database Migration Service (DMS)
- ⇒ AWS Glue
- ⇒ AWS Lake Formation
- ⇒ Amazon QuickSight
- ⇒ Amazon Athena
- ⇒ AWS Key Management Service (KMS)
- ⇒ AWS Identity and Access Management (IAM)
- ⇒ AWS CloudTrail
- ⇒ Amazon VPC
- ⇒ AWS Cloud Development Kit (CDK)
- ⇒ AWS Identity Center

KEY BUSINESS OUTCOMES

- ⇒ 352GB of clinical and patient-reported outcomes data consolidated from MongoDB and PostgreSQL into a unified bronze/silver/gold data lake
- ⇒ Production QuickSight dashboards deployed with AWS Identity Center integration, enabling real-time data visualization for clinical stakeholders for the first time
- ⇒ Three-tier PHI/PII column-level access controls implemented across the data lake for HIPAA and HITRUST compliance
- ⇒ Recurring infrastructure costs projected at \$1,000-\$1,500/month, a fraction of the original HealthLake-based architecture

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Innovative Solutions is the fastest-growing AWS Premier Tier Services Partner in North America that delivers AI and data services to growing businesses. With more than three decades of experience and a 99.7% customer retention rate, Innovative Solutions has deep expertise in Generative AI, Machine Learning, Data and Analytics, Cloud Modernization, Cloud Migrations, and Managed Cloud Services. As a Premier Tier AWS Partner with Generative AI competency, Innovative Solutions is at the forefront of helping businesses leverage the power of the cloud and AI to drive growth and innovation.

The company is headquartered in Rochester, New York and has an office in Boca Raton, Florida. For more information about Innovative Solutions, visit www.innovativesol.com.