

Conversational Clinical Intelligence: Putting the Power of Data in the Hands of Researchers

DEMOCRATIZE HEALTHCARE DATA WITH DATA LAKE AI-POWERED SEARCH






IMT worked with a specialty clinic serving a large and complex patient population to address their growing challenge in accessing and using patient data to support research and clinical decision making.

Patient data from multiple sources was abundant but difficult to search, some of it structured, some of it unstructured in clinical notes and documents, and fragmented across systems. Additionally, many clinical documents are scanned and stored as PDFs that are not machine readable. Clinicians and researchers spent significant time manually reviewing charts, limiting the clinic's ability to generate insights, identify eligible research cohorts, and answer time sensitive clinical questions.

To address these challenges, IMT provided advisory and professional services to build a [cloud data lake solution](#) in the AWS cloud. IMT applied AWS-native Machine Learning capabilities to extract text from clinical documents and developed an evidence-based AI-driven natural language search. The solution empowers clinicians and researchers to securely explore patient data using simple questions, without requiring skills in SQL query language, schema knowledge, or BI tool expertise.

THE RESULT:

Faster research cycles, improved clinical insight, better use of existing data, and more time spent on patient care rather than data retrieval delivering these key benefits.

<p>ACCESSIBILITY</p>  <p>Clinicians and researchers can ask questions in plain language</p>	<p>COLLABORATION</p>  <p>Team members can access analytics projects created by others</p>	<p>SPEED</p>  <p>Answers to complex questions with evidence-based results are delivered in minutes instead of days</p>	<p>TRUST</p>  <p>Ensures data integrity and regulatory compliance across all user queries</p>	<p>SCALABILITY</p>  <p>The platform supports both clinical use and large-scale research needs</p>
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THE BUSINESS CHALLENGE: LIMITED ACCESS TO ACTIONABLE DATA

Although the clinic had years of structured and unstructured data, meaningful access was cumbersome. Common challenges included:

- Manual chart reviews that could take days or weeks
- Reliance on a few data analysts for custom queries
- Difficulty identifying patient cohorts that met complex criteria
- Delays in answering research and quality improvement questions
- Critical unstructured clinical data and external medication histories inaccessible to analytic systems

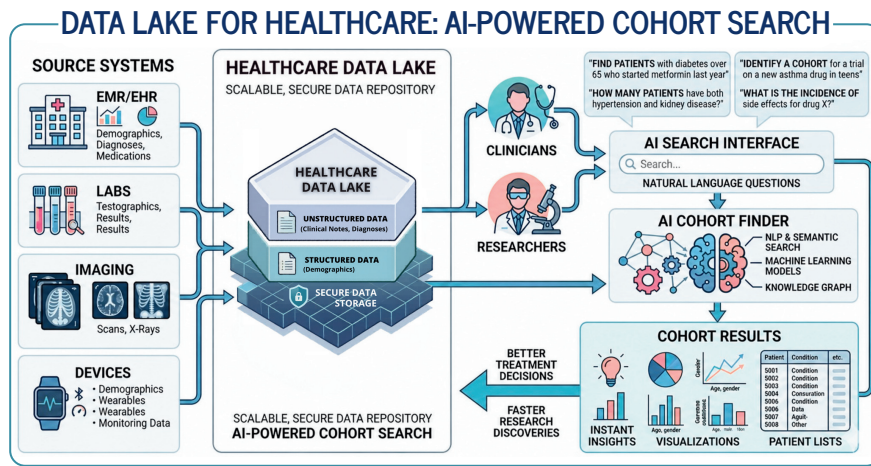
THE IMPACT ON CLINICAL AND RESEARCH GOALS

These limitations created tangible clinical and business impacts:

- Slower initiation of research studies and quality improvement initiatives
- Missed opportunities for clinical insight at the point of care
- Inefficient use of clinician and researcher time
- Reduced ability to leverage healthcare data as a strategic asset
- The clinic needed a way to unlock the value of its existing data and join it with other data while maintaining patient privacy and regulatory compliance.

THE SOLUTION

With IMT's guidance, the clinic deployed a secure AWS data lake with an AI-powered natural language interface, enabling clinicians to easily access structured and unstructured data from multiple sources.



For each AI-generated result, the system provides supporting evidence and reasoning, including keywords and text snippets used in the decision. This allows clinicians to understand and validate the AI's conclusions. Now, instead of relying on rigid reports or technical queries, users can interact with patient data through a conversational search experience.

THE BUSINESS IMPACT OF FASTER, DEEPER INSIGHTS TO THEIR DATA

Clinicians, researchers, and data scientists are using these insights to:

- Assess how lower-cost treatment alternatives affect outcomes for specific conditions by enriching data lake records with insights extracted from previously inaccessible clinical notes and scanned documents
- Analyze health trends, outcomes, and costs across patient cohorts to determine the most effective interventions and select better care management strategies.
- Access a more complete view of a patient's medical procedures, medications, and dosages with external pharmacy data augmentation.
- Enable users to work in their preferred BI tools to access trusted complete data, while data governance controls ensure access is limited to information appropriate to each role.
- Leverage analytics to deliver actionable intelligence by patient cohort and other groupings.
- Reclaim valuable clinician and analyst time with less reliance on manual chart reviews and specialized data requests.
- Reduce ad-hoc requests to analytics teams and lower administrative burden on clinical staff.

AWS Cloud-Hosted Data Lakes augmented with powerful Machine Learning and AI models are being adopted in healthcare for other innovative use cases such as [building population health dashboards](#), and developing [predictive disease models](#). IMT works closely with AWS architects and specialists to help our clients solve pressing challenges and identify opportunities within their data.

We are IMT – Trusted Data & AI Partners

IMT is an [AWS Solution Partner](#) in Public Sector and Healthcare and can help you build your own data lake environment or can fully host and manage one for you. Our [Cloud and Managed Services](#) organization includes a Cloud Center of Excellence (CCOE). The CCOE is comprised of AWS-certified architects, engineers, administration, and security specialists with deep experience in health data integration, management, and analytics. IMT's unique combination of skills and expertise make us the best partner to help you navigate your data lake journey.

Ready to dip a toe into a data lake? [Get in touch](#) to learn how a data lake powered by Machine Learning and AI can help you democratize your data from your EMR.