

Scaling Biomedical Knowledge with AI + Human Curation

A case study in accelerating scientific data extraction, normalization, and clinical application across leading healthcare and biotech institutions.

[CASE STUDY](#) [HEALTHCARE AI](#) [GENOMICS](#)

Overview

This case study documents how we delivered AI-enabled curation services for— **three top leading health and medical institutes** — to scale biomedical knowledge extraction from scientific literature into structured, clinically actionable data. By combining semi-automated extraction pipelines with expert human validation, we transformed months-long curation cycles into days — without compromising accuracy.

Challenge

Leading healthcare and research institutions faced an accelerating bottleneck: the volume of published scientific literature was growing exponentially, yet the processes for extracting, structuring, and validating biomedical insights remained largely manual. Clinical teams and researchers needed timely, accurate, and standardized data — but traditional curation methods could not keep pace.

- Thousands of new publications monthly across oncology, genomics, and rare disease domains
- Inconsistent data formats across journals and databases
- High cost and slow turnaround of manual expert curation
- Clinical decision-making delayed by incomplete or outdated evidence

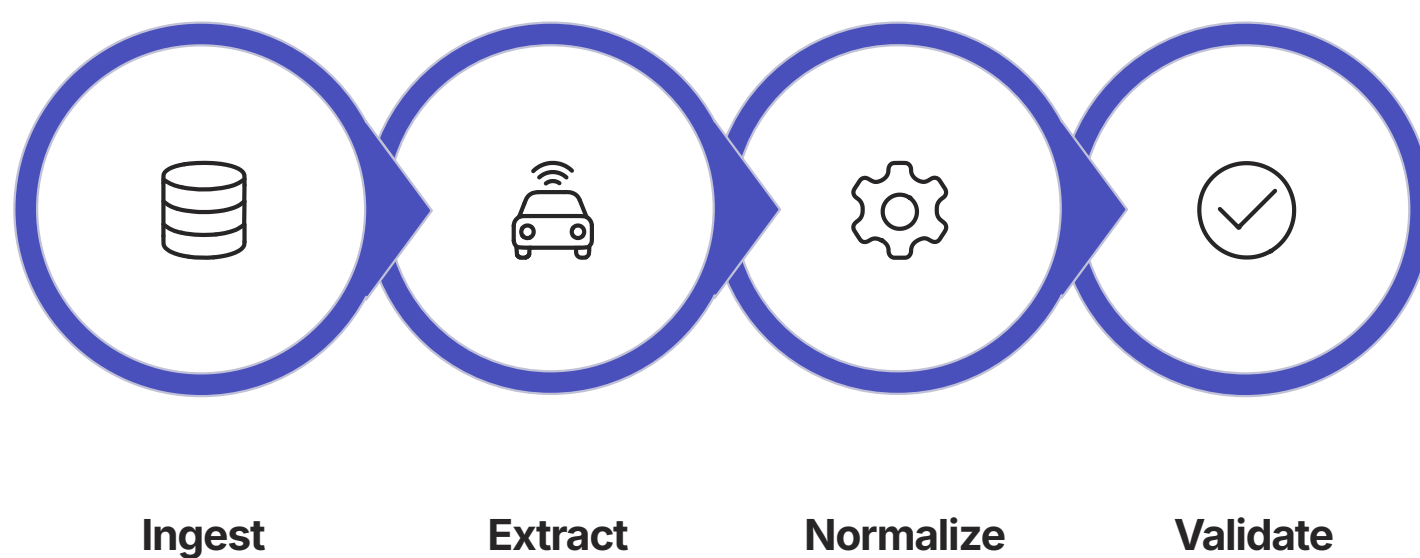


Solution

OptraHEALTH built and deployed AI-enabled curation workflows that combine natural language processing, structured schema normalization, and expert human review — operating end-to-end curation workflows to deliver high-confidence, clinically structured data at scale.

Semi-Automated Extraction We built AI-assisted workflows to parse peer-reviewed literature and extract gene-disease associations, variant classifications, and therapeutic evidence.	Schema Normalization We deployed normalization workflows to map extracted data to standardized ontologies — HGVS, ClinVar, HPO — ensuring interoperability across systems.	Expert Validation We operated a dedicated team of 25–30 trained bio-curators to review AI-generated outputs, resolve edge cases, and ensure clinical-grade accuracy.
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Approach



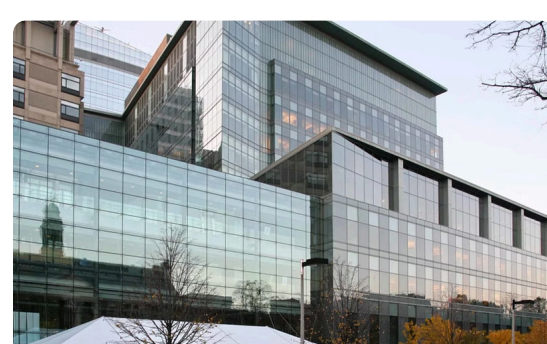
Our end-to-end curation service reduced curation cycle times by over 70% while maintaining >98% accuracy — enabling institutions to act on the latest evidence weeks ahead of traditional workflows.

Impact



A Leading Academic Medical Center in the U.S.

We built and deployed accelerated oncology evidence synthesis capabilities for tumor board decisions. Curated variant interpretations reduced molecular tumor board preparation time by 60%, enabling faster, evidence-backed treatment recommendations for complex cancer cases.



A Nationally Recognized Research Hospital

We operated large-scale systematic review support for rare disease genomics. Researchers leveraged normalized, structured datasets to power meta-analyses and accelerate publication timelines — reducing literature review phases from months to weeks.



A Leading Genomics & Precision Medicine Company

We delivered curated genomic data support for patient-facing genetic reports. The AI-curated knowledge base supported clinical interpretation pipelines, enabling our client to deliver personalized, evidence-backed genomic insights to patients and their care teams at scale.

Key Results

70%+

Faster Curation

Reduction in end-to-end data curation cycle time versus fully manual workflows

98%+

Accuracy Rate

Validated accuracy across gene-disease associations and variant classifications post human review

30+

Expert Curators

Trained bio-curators providing clinical-grade validation across oncology, genomics, and rare disease domains

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Client Engagements

Three leading institutions deployed curated data in clinical or research workflows

Strategic Implication: The combination of AI-driven extraction with structured human expertise demonstrates OptraHEALTH's capability to build, deploy, and operate scalable biomedical knowledge curation services — one that institutions can adopt to accelerate research, improve clinical decision-making, and deliver higher-quality patient outcomes.