

# CASE STUDY



## PHSA



### PROJECT

AI-Powered Patient Records System

### OVERVIEW

Improving collaborated with the Provincial Health Services Authority (PHSA) of British Columbia to develop an AI-powered, next-generation patient records search system. Leveraging Google's Healthcare API and Vertex AI Search for Healthcare, this project aimed to enhance the efficiency and effectiveness of healthcare delivery. Our solution focused on semantic search and summarization of healthcare records, providing a more intuitive and time-saving interface for clinicians.

### BUSINESS PROBLEM

PHSA faced significant challenges with their existing Care Connect system, which was outdated and inefficient in managing large volumes of patient data. Clinicians often experienced delays in retrieving relevant patient records, thereby affecting the timeliness and quality of healthcare services. Additionally, the operational inefficiencies led to increased costs and suboptimal resource utilization.

### OUR APPROACH

Understanding the need for a streamlined, AI-driven solution, Improving partnered with Google Cloud to design and implement a new system. We maintained a user interface similar to the existing Care Connect for ease of adoption while integrating advanced functionalities like semantic search and record summarization. Our approach included rigorous testing and feedback loops with end users, ensuring that the solution met the practical needs of clinicians.

### BUSINESS BENEFITS

- **Enhanced Efficiency:** Clinicians could quickly access relevant patient records, reducing the time spent searching for information.

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- **Cost Savings:** Improved operational efficiency lowered the costs associated with data retrieval and resource utilization.
- **Innovative Healthcare Delivery:** The use of generative AI introduced innovative methods for managing patient records, setting a new standard in healthcare technology.
- **Improved User Experience:** A familiar UI with enhanced features made it easier for clinicians to adopt the new system.
- **Better Decision-Making:** Quick access to summarized information enabled clinicians to make more informed decisions.
- **Scalability:** The cloud-based solution ensured that the system could easily scale to meet future demands.

## TECHNOLOGIES AND METHODOLOGIES USED

- **Google Healthcare API:** Enabled secure storage and retrieval of patient records in FHIR format.
- **Google Vertex AI Search for Healthcare:** Provided advanced semantic search and summarization capabilities.
- **Scala:** Used for backend development due to its efficiency and compatibility with our requirements.
- **JavaScript:** Utilized for frontend development, ensuring a seamless user experience.
- **Cloud Build and GitHub:** Implemented for continuous integration and continuous delivery (CI/CD) automation.
- **Terraform:** Used for infrastructure as code, facilitating efficient deployment and management.

## PARTNERSHIPS

Our collaboration was a triad involving Improving, PHSA, and Google Cloud. Google Cloud played a pivotal role, not only in providing the underlying technologies but also in offering support through their customer engineering and product teams. This multilateral partnership was crucial in navigating the complexities of using pre-release technologies and ensuring the project's success.

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## LESSONS LEARNED

1. **Pre-release Technology:** Requires patience and close collaboration with the technology vendor to resolve issues.
2. **Effective Communication:** Establishing clear communication channels with all stakeholders is essential for timely feedback and adjustments.
3. **User-Centric Design:** Involving end users in the testing phase ensures the solution meets practical needs and is user-friendly.
4. **Scalability:** Cloud-based solutions provide necessary scalability, an important consideration for future-proofing healthcare systems.
5. **Synthetic Data Use:** Creating synthetic data for testing can circumvent privacy issues and expedite development.
6. **Agility:** Smaller, nimble teams can often deliver more innovative solutions faster than larger, more bureaucratic organizations.

## CONCLUSION

This case study exemplifies Improving's ability to deliver cutting-edge healthcare solutions through strategic partnerships and innovative use of technology. Our approach not only addressed PHSA's immediate needs but also set the stage for future advancements in healthcare delivery. Leveraging generative AI and cloud technologies, we provided a scalable, efficient, and user-friendly solution, showcasing our unique capability to transform complex problems into streamlined, impactful solutions.