



Cloud Based Disease Research Registry to Connect More Sources for Collaborative Results

First Line Software partnered with an innovative company to develop an international platform for rare disease registries and related research. Each registry aggregates data from EHR systems and other various sources. Utilizing the OHDSI OMOP/CDM open-source data model for operational patient data representation, we developed an extensive technical and content management infrastructure that incorporates the necessary metadata model and CDM extensions. This platform is being utilized by several separate teams across three continents working both internally and externally with customers.

Engagement scope and details

Given First Line Software's extensive experience in Healthcare and our unique OMOP/CDM expertise, we have assembled a multi-functional team working in close contact with the leadership and the management using agile development processes.

We are completing a wide range of data-related and infrastructure tasks, including:

- The rapid evolution of a multi-tenant, cloud-based, interactive platform for data collection that supports workflows and logic for clinicians, patients, and researchers
- Building an integration pipeline with Healthcare institutions to utilize intelligent patient matching, data profiling, and data quality functions
- Transformation and mapping of patient data from different EHR systems and legacy data sources to OMOP/CDM
- Data modeling for numerous observational entities of high complexity in support of specific diseases and workflows
- Development of clinical content management tools and infrastructure for collaboration of researchers and clinicians.

Technical implementation highlights

- Cloud-based multi-tenant solution hosted in Microsoft Azure
- Technology stack: Single page architecture, Angular JS, Java Bootstrap, microservices, Microsoft SQL Server Database, Forgerock
- Integration pipeline is based on Intersystems HealthConnect infrastructure
- Intelligent patient matching using open source machine learning software and algorithms
- Persistent storage in OMOP/CDM and extensions; shadow storage for UI is in JSON
- Data conversion from external sources in CCD, FHIR, HL7, proprietary interfaces, and data formats to OMOP/CDM and JSON

First line software expertise in rwe research data standards

As a healthcare software development company, First Line Software, has teams of analysts, medical informationists, and engineers with deep expertise in OMOP/CDM who have been mapping and extracting observational data from a variety of data sources, modeling complex observational entities, and developing tools and applications around OMOP/CDM for research and analytics.



First Line Software Empowers clinical research for innovative treatments and drug discovery

Real world data (RWD) and real world evidence (RWE) are playing an increasing role in healthcare decisions and the development of new treatments for a wide range of diseases and conditions. We help the Medical and research community leverage RWD and RWE to support clinical trial designs and observational studies, develop decision support systems, to improve the quality and reduce cost of care utilizing advanced software and technological development.

Real world patient data is routinely collected from a variety of sources including:

- Electronic health records (EHRs)
- Claims and billing activities
- Disease registries
- Patient-generated data including in home-use settings
- Other sources, such as mobile devices and wearable devices

Relying on many years of experience in building and integrating software for medical practices, clinical systems, and working with health data, First Line Software is uniquely positioned to support Life Science companies and Healthcare Institutions in their RWE research and usage of RWD. We have created robust processes and methodologies for extraction, mapping, and cleansing of patient data and transforming it into formats suitable for RWE research, and assembled dedicated teams of analysts, medical informaticians, and engineers who are working alongside our client teams.

Learn more: firstlinesoftware.com/healthcare

About First Line Software

First Line Software is a premier provider of software engineering, software enablement, and digital transformation advisory services. Leveraging its long history of distributed agile development methodologies, First Line Software delivers both excellence and efficiency in complex projects in healthcare, warehouse management, web content management, ecommerce, retail digitization, machine learning, and cloud computing.

First Line Software is consistently recognized globally with industry rankings and awards. As active members in Object Management Group and the Industrial Internet Consortium, First Line Software collaborates on establishing standards for technology, enterprise integration and Industrial Internet. As an Episerver Gold Partner, First Line provides implementation and customization services to direct clients and in cooperation with other Epi Partners.

Headquartered in the U.S., the global staff of 750+ technical experts serve clients across North America, Europe, Asia, and Australia, including Accenture, Bonnier Group, Clinic to Cloud, Partners HealthCare, Viastore, and others.

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