

Clinical Trial Recruitment and Compliance Platform

Multi-signal matching, enrollment workflows, and compliance monitoring

Who it was for: Patients and trial coordinators

Nucleus's role: Data integration, trial matching, enrollment workflows, and compliance monitoring

Overview

Nucleus developed a clinical trial recruitment and compliance platform to connect fragmented patient information with trial discovery, matching, and enrollment workflows. The engagement addressed both the patient-facing experience and the operational needs of trial coordinators, with integration capabilities for health systems.

The platform brought together electronic medical record (EMR), genomic, and social signals to support multi-dimensional matching and scoring. It also connected enrollment activity with ongoing compliance monitoring, using record updates to trigger risk calculations, recommendations, and follow-up actions.

The Challenge

Clinical trial recruitment was slow and costly because eligibility information was fragmented across data sources and match precision was limited. Identifying potential participants required bringing together relevant information and assessing its relationship to trial requirements. These conditions created additional work for recruitment teams and slowed the path from identifying a candidate to initiating outreach.

During trials, protocol deviations created further operational burden and delays. Recruitment and enrollment capabilities therefore needed to be complemented by a way to monitor changing information and surface issues for follow-up.

The platform needed to support both a direct-to-patient experience and health-system integrations. Patients required an opt-in enrollment path, while administrators needed cohort outreach tools. A shared technical foundation had to support both channels.

What Nucleus Delivered

Nucleus unified EMR, genomic, and social signals within a matching and scoring platform. Combining these inputs supported assessment across multiple dimensions rather than relying on a single source of eligibility information.

The solution included a React portal, Python services, and an AWS infrastructure foundation. Agent-driven trial discovery supported the identification of trials, while multi-dimensional match scoring helped organize potential matches for the recruitment workflow.

Enrollment capabilities supported patient opt-in as well as administrator-led cohort outreach through APIs. This provided paths for direct engagement and integration with health-system workflows, addressing the needs of both patients and trial coordinators.

Nucleus also delivered continuous compliance monitoring triggered by record updates. An event-driven risk calculator connected to a recommendation engine, with alerts and tasks providing an operational path for follow-up. The design linked changes in available information to actions within the trial workflow.

How the Workflow Operated

Data integration. EMR, genomic, and social signals were brought together to support matching and scoring. The combined information provided inputs for evaluating potential patient-to-trial matches across multiple dimensions.

Trial discovery and scoring. Agent-driven discovery identified trials for consideration. Multi-dimensional scoring then supported the matching process, helping teams focus identification and outreach activity on relevant potential participants.

Enrollment and outreach. The portal supported patient opt-in, while APIs enabled administrator-led cohort outreach. These complementary paths connected the direct-to-patient experience with the integration requirements of health systems.

Monitoring and follow-up. Record updates triggered event-driven risk calculations. A recommendation engine generated corresponding outputs, which were routed into alerts and tasks to support compliance follow-up. This created a repeatable connection between updated information and operational review.

Reported Outcomes

The supplied project figures report +72% match accuracy and +87% therapy compliance.

The project account also describes faster identification and outreach, reduced coordinator overhead, and a higher-quality enrollment cohort. These outcomes align with the platform's focus on bringing eligibility signals together, supporting structured enrollment, and connecting record changes with follow-up activity.

Capabilities Demonstrated

The engagement demonstrates Nucleus's ability to combine multi-source data integration, agent-driven discovery, match scoring, and event-driven monitoring in a connected platform. Patient-facing enrollment and administrator-led outreach extended that foundation across different recruitment channels.

The resulting workflow brought recruitment and compliance activities into a more coordinated process. It gave patients a route to opt in and provided trial coordinators with tools to identify potential participants, organize outreach, and respond to changes during trial participation.