

Modernizing the Type 1 Diabetes Exchange Platform

T1D Exchange | Patient engagement, cohorting, and research execution workflows

Who it was for: T1D Exchange, patients, caregivers, and researchers

Nucleus's role: Portal modernization, data integration, and study workflow development

Overview

Nucleus supported T1D Exchange in modernizing its digital platform to better serve patients, caregivers, and researchers. The work brought together a rebuilt portal, connected health data, and administrative tools for running studies, addressing both the community experience and the organization's research workflows.

The engagement focused on making the platform more useful to patients and families while helping research teams work with existing data assets. Relevant content and tools supported the participant experience, while cohort selection, survey authoring, and outreach capabilities supported study execution. The project account reports growth from 80,000 to 120,000 users over three years.

The Challenge

T1D Exchange had a large community but limited digital services to sustain engagement among patients and caregivers. The legacy experience was dated, and engagement had stagnated. Modernization needed to address the usefulness of the experience as well as the technology supporting it.

At the same time, existing data assets were underutilized. The organization needed a more scalable way to connect relevant information with research activities and to support study execution. Limited capabilities in these areas also constrained opportunities to develop research partnerships and monetization models.

The challenge was to bring community engagement and research operations into a more connected platform. Patients and families needed relevant content and tools, while administrators needed practical ways to identify cohorts, prepare surveys, reach participants, and work with the resulting responses.

What Nucleus Delivered

Nucleus rebuilt the portal with a modern experience for patients and families. The platform provided relevant content and tools, supported by secure connections to health, laboratory, and related data sources for personalization.

The technical foundation combined a React front end, a Python backend, and AWS infrastructure. A supporting data platform ingested and cleansed electronic medical record (EMR) and laboratory data into a patient database, making those information sources available to the platform's workflows.

For administrators, Nucleus delivered a study engine supporting cohort selection, survey authoring, and outreach through email and SMS. These capabilities provided a more structured path from defining a participant group to collecting study responses.

The survey engine captured responses and produced research-ready exports. Together, these capabilities linked the participant-facing portal with the administrative processes needed to organize and execute studies, expanding the platform beyond its legacy community experience.

How the Workflow Operated

Portal experience. The React front end provided the interface for patients and caregivers, with a Python backend supporting platform functionality on AWS. Content and tools were designed to make the digital experience more relevant to the community.

Data preparation. The data platform ingested EMR and laboratory information, cleansed the incoming data, and incorporated it into a patient database. Secure data connections supported the use of health and related information for personalized experiences.

Study administration. Administrators used the study engine to select cohorts, author surveys, and coordinate participant outreach by email and SMS. Bringing these activities into the platform supported a repeatable study workflow.

Response capture and export. Survey responses were captured through the survey engine and made available as research-ready exports. This connected participant response collection with the information outputs used in subsequent research work.

Reported Impact

The project account reports that the platform's user base grew from 80,000 to 120,000 over three years, an increase of 40,000 users, or 50%.

Other reported outcomes included higher engagement and retention, new research and product partners, and faster study execution cycles. The modernization supported these objectives by improving the community experience and providing more structured tools for research administration. No quantified retention rates or study-cycle time reductions were supplied.

Capabilities Demonstrated

The engagement demonstrates Nucleus's ability to combine digital experience modernization, health data integration, and research workflow development. The solution connected patient-facing services with administrative capabilities for cohorting, outreach, survey delivery, and response export.

For T1D Exchange, the work provided a modern platform foundation for serving its community and supporting research execution. It brought previously underutilized data and study processes into a more connected environment for patients, caregivers, and researchers.