DataRobot

AI Elevates Patient Care
at Phoenix Children's

Phoenix Children's drove measurable improvements in patient care and operations with DataRobot AI Cloud. Without any data scientists, they reach viable models in minutes.

Challenge

Phoenix Children's wanted to use analytics to improve both clinical and operational decisions, but manually building a single model took the better part of a year.

Solution

The healthcare system turned to DataRobot AI Cloud to automate much of its predictive analytics, enabling insights without a data science team.

Result

Non-data scientists find viable models in minutes. By predicting cases of possible malnutrition, they uncover 4-5 at-risk children each week. Plus, they identify and proactively fill 9,000 appointments annually that might be missed otherwise.

Data Enriches Hospitalwide Decisions

From research to treatment, Phoenix Children's is continuously at the forefront of innovation, and as a result, is recognized among the nation's top-ranked children's hospitals.

The organization is now looking to data to help make predictions that improve both clinical and operational decisions. But manually building a single model took the better part of a year.

"Creating predictive algorithms on our own showed great opportunity, but it took so long that it wasn't scalable or sustainable," explained David Higginson, Executive Vice President and Chief Innovation Officer. "One model took nine months, and would take another nine months if we wanted to make any changes."

AI – Without a Data Science Team

Phoenix Children's turned to DataRobot AI Cloud for the promise of automating its predictive analytics and for ease of use for business and IT users.

"DataRobot AI Cloud was the most automated solution we looked at," Higginson said. "We're not statisticians, and have no dedicated staff for this, but we felt comfortable that we could do it ourselves."

As a healthcare organization, Phoenix Children's chose to deploy the solution on-premise. DataRobot Customer-Facing Data Scientists helped integrate the DataRobot platform with the hospital's Microsoft data and analytics suite, including Microsoft Power BI, and the project was up and running within a couple of days.

Phoenix Children's

INDUSTRY

Healthcare

PRODUCTS

DataRobot AI Cloud, AutoML, AutoTS

SUMMARY

Phoenix Children's is one of the nation's largest pediatric health systems. It comprises Phoenix Children's Hospital–Main Campus, Phoenix Children's Hospital–East Valley at Dignity Health Mercy Gilbert Medical Center, four pediatric specialty and urgent care centers, 11 community pediatric practices, 20 outpatient clinics, two ambulatory surgery centers, and six community-service-related outpatient clinics throughout the state of Arizona. The system has provided world-class inpatient, outpatient, trauma, emergency, and urgent care to children and families for more than 38 years. Phoenix Children's Care Network includes more than 850 pediatric primary care providers and specialists who deliver care across more than 75 subspecialties.

Want more information on how you can get these results?

Learn More

Uncovering Children At Risk of Malnutrition

Phoenix Children's applies DataRobot AI Cloud for both clinical and operational applications. The healthcare system knew that a certain percentage of children who present with other health concerns may actually have undiagnosed malnutrition. If they could identify cases of malnutrition, they could intervene and influence outcomes.

Within a couple of hours, they built a comprehensive dataset based on 10 years of hospital data. Then they used modeling to identify children who may be at-risk for malnutrition. With subsequent nutritionist evaluations of identified patients, they now uncover several patients every week.

"We are finding four to five kids a week," Higginson said. "Those are kids who would not have been diagnosed with malnutrition otherwise. It will absolutely make a long-term difference in their healthcare."

With the closed-loop augmented AI, the algorithm flags patients for clinical review. Upon examination by a nutritionist, the patient's medical record may be updated to include a malnutrition diagnosis code.

Reducing the No-Show Rate by 9,000 Appointments

Phoenix Children's also turned to DataRobot to predict no-shows for appointments, which traditionally happen about 10 to 20 percent of the time.

Using DataRobot, Phoenix Children's built a predictive model to determine who might be likely to miss an appointment and created a list for staff to call. Keeping the schedule full results in more patients being treated and more efficient use of resources.

Every day, they discovered an average of 25 patients were not planning to attend their appointments, allowing the hospital to offer those spots to others. In total, Phoenix Children's can now identify about 9,000 appointments a year that would have been missed.

Phoenix Children's has additionally applied DataRobot to predicting emergency room visits, which can vary from three patients a day to 400. If they can predict volume, then they can adjust staffing accordingly.
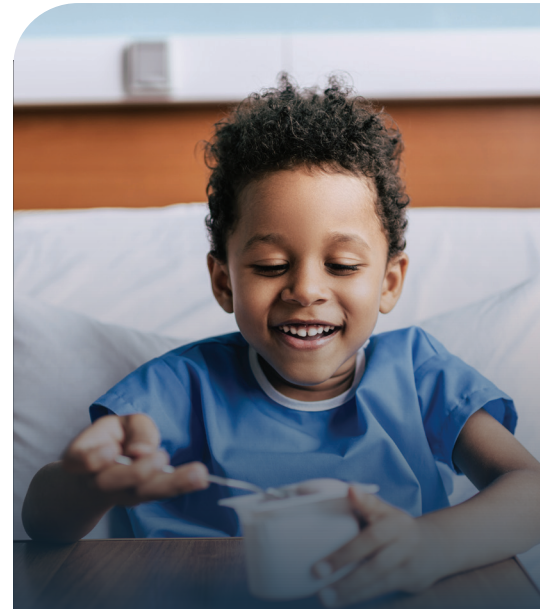
Deploying Predictive Models in a Few Clicks

DataRobot AI Cloud makes it possible for Phoenix Children's to gain valuable insights without a team of data scientists.

. "DataRobot lets me focus on what I do best, wrangling data, while it handles the complexity of model development," William Donegan, Data Architect, IT, said

With results so far, the hospital system looks forward to applying AI to other use cases in its effort to improve operations, and most importantly, elevate patient care.

"The return both clinically and financially with DataRobot has far exceeded the cost," Higginson said. "You can't put a price on improving a child's life."

"

The return both clinically and financially with DataRobot has far as exceeded the cost. You can't put a price on improving a child's life."

David Higginson
Executive Vice President and Chief Innovation Officer, Phoenix Children's

Contact Us

225 Franklin Street, 13th Floor, Boston, MA 02110, USA

datarobot.com   info@datarobot.com