Elevating Cardiovascular Registry Performance with AI-Assisted Abstraction

A story of how one cardiovascular quality team expanded capacity, improved accuracy, and reclaimed valuable time using **Health Elements**

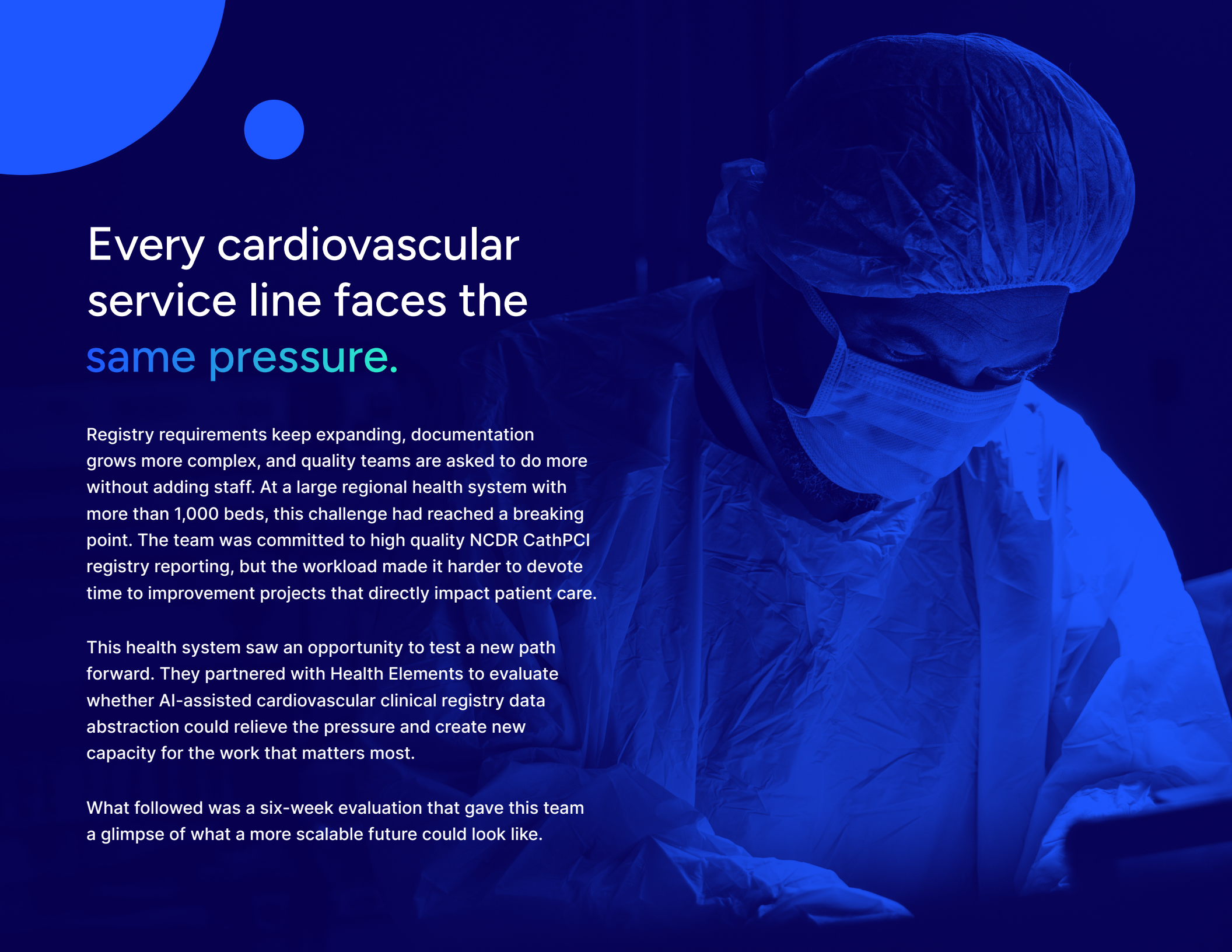
Health Elements

Every cardiovascular service line faces the same pressure.

Registry requirements keep expanding, documentation grows more complex, and quality teams are asked to do more without adding staff. At a large regional health system with more than 1,000 beds, this challenge had reached a breaking point. The team was committed to high quality NCDR CathPCI registry reporting, but the workload made it harder to devote time to improvement projects that directly impact patient care.

This health system saw an opportunity to test a new path forward. They partnered with Health Elements to evaluate whether AI-assisted cardiovascular clinical registry data abstraction could relieve the pressure and create new capacity for the work that matters most.

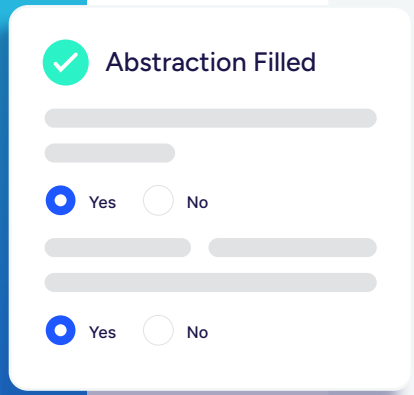
What followed was a six-week evaluation that gave this team a glimpse of what a more scalable future could look like.



The Challenge

The health system's cardiovascular quality quality department was responsible for registry abstraction, data analysis, stakeholder engagement, and ongoing quality initiatives. With rising case volumes and persistent attrition, the team relied on analysts and registered nurses as a stop gap solution to complete data abstraction, impeding professional growth and capacity to materialize a genuine quality improvement program to support the service lines.

They wanted a solution that would support accuracy and reliability, but also give their clinicians and analysts the breathing room needed to focus on improvement. Older versions of AI-based data abstraction had not met their accuracy threshold (90 percent or greater) to effectively abstract data for clinical registries at scale.



The Solution

To understand what AI-assisted abstraction could offer, the health system and Health Elements designed a six-week evaluation centered on real CathPCI registry data. The project included:

- Reviewing 42 medical records for 50 procedures supplied by NGHS
- Comparing AI-generated results to NGHS cardiovascular abstractors across 60 CathPCI data elements of varying difficulty
- Weekly working sessions where NGHS reviewed the outputs and provided feedback
- A final evaluation that covered 1,098 questions across 10 unique cases

This process allowed their team to assess performance in a real clinical context. It also helped the AI model learn the nuances of the the system's documentation environment, just as a new abstractor would during onboarding.

The Results

High accuracy that builds confidence

After six weeks, the evaluated elements reached a mean accuracy of **96.3 percent**, above both the project threshold (90 percent) and the published mean accuracy for human auditors in ACC audits (95 percent). By the end of the study, the health system team could see how quickly the model adapted as they provided feedback. Accuracy is expected to improve beyond 96.3 percent as the LLM-based abstraction continues to learn.

More time for the work that matters

The healthy system saw an estimated **84.5 percent time savings** for the included elements, and forecasts that AI-supported abstraction has the potential to reduce the time required for complex registry abstraction by **80 percent or more**. These findings suggest that quality teams could shift from reactive data entry to proactive quality management as clean, structured data becomes available earlier.

A stronger foundation for cardiovascular quality improvement

With fewer hours spent on repetitive abstraction tasks, the health system gained new space to focus on improvement activities, deeper reviews, and cross departmental collaboration. The story here is not automation for its own sake. It is about creating a more resilient cardiovascular quality program that can keep pace with growing registry requirements while supporting higher quality care.

> We are still collecting data on the full impact of this partnership, but the early results speak for themselves. We've already seen meaningful cost savings from AI-supported registry abstraction, and our teams are spending less time on repetitive work and more time on improving patient care. Innovation only matters if it creates real value. What we are seeing so far gives us a lot of confidence. We are excited about the potential Health Elements AI data abstraction has for our cardiovascular service line.

Senior Health System Executive

Conclusion

The collaboration between a large regional health system and Health Elements shows what is possible when cardiovascular programs pair clinical expertise with modern AI-assisted data abstraction. High accuracy, major time savings, and a more scalable workflow are achievable through a partnership model that incorporates LLM-powered abstraction.

For cardiovascular service line leaders looking to reduce registry abstraction costs, increase abstraction capacity, and move closer to concurrent review, the early results offer a clear signal. AI-supported abstraction is not a future concept. It is a practical path to a stronger cardiovascular quality program today.

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