

Analytics Reveal AAA Programme Improvement Success

Increased efficiency in data collection, analysis, and new insight to guide care



Guy's and St Thomas'
NHS Foundation Trust



880x more patients reviewed than in the previous year's chart audit.



30 percent relative reduction in time from referral to procedure for all vascular referrals.



It's incredibly powerful to have data. For the first time, we can ask and answer specific questions about patients.

Rachel Bell
Vascular Consultant
Clinical Director for
Cardiovascular

THE CHALLENGE

As part of its efforts to improve the timeliness of care for patients undergoing abdominal aortic aneurysm (AAA) repair, Guy's and St Thomas' NHS Foundation Trust needed to collect data to guide care redesign—a campaign of change that aims to deeply embed continuous improvement at the frontline—help assess the impact of specific interventions, and gauge progress toward desired outcomes.

The problem? A burdensome data collection and evaluation process—which required the analyst to review multiple sources of data and took up to six months to complete for even a small sample of patients—seriously limited the organisation's ability to use the data for improvement. Guy's and St Thomas' needed a way to visualise and confirm its AAA care redesign improvement efforts and help move patients through the system to receive appropriate care.

THE SOLUTION

The solution to Guy's and St Thomas' programme needs was to implement the Health Catalyst® Data Operating System (DOS™) platform, including a Referral Pathway analytics application.

- DOS enabled the organisation to aggregate and standardise data across source systems, including measures such as time from referral to the first appointment with the vascular surgeon, time from referral to surgery, hospital length of stay, patient progress through the AAA care pathway, and others.
- The Referral Pathway analytics application enabled the organisation to quickly and easily visualise key measures related to referrals and other measures of patient progress through the AAA care pathway.

THE RESULT

Improved data and analytics have enabled Guy's and St Thomas' to analyse, evaluate, and monitor outcomes for the entire AAA cohort and evaluate operational performance and associated patient outcomes—helping to reduce patient harm and improve patient satisfaction.

STRIVING TO PROVIDE TIMELY CARE

Data is the foundation of healthcare improvement efforts because driving improvement depends on the ability to effectively monitor the impact of process changes on outcomes.^{1,2} Without meaningful, timely, and actionable data, improvement efforts stall—and many fail. Guy's and St Thomas' needed the ability to efficiently collect data to help guide its care redesign programme.

CARE REDESIGN YIELDS INNOVATION AND IMPROVEMENT

The care redesign programme at Guy's and St Thomas' focuses on continuous improvement at the frontline. The programme empowers teams to question the quality and efficiency of the care they deliver and to assume responsibility for refining and reimagining it. The overall goals of the programme are to develop care pathways and processes that are maximally efficient and deliver demonstrably better outcomes for patients, at the same time as embedding a novel approach to designing and managing care systems.

Care redesign embeds a process of team based, clinically led, pathway design—and continuous redesign—that is evidence-based, reproducible, minimises unnecessary variation and makes the best use of available data.

MANUAL DATA COLLECTION AND ANALYSIS IMPEDES IMPROVEMENT

Guy's and St Thomas' identified the opportunity to improve the timeliness of care for patients undergoing AAA repair. The health centre's AAA team engaged in the organisation's care redesign programme to improve outcomes, efficiency, and patient experience, developing and implementing a new care pathway for these patients.

As part of the care redesign programme, the AAA team completed a manual audit of historical data for a small sample of 20 patients to determine the median time from referral to review and from referral to surgical repair, identifying the opportunity to eliminate waste and improve value for the patient.



ABOUT GUY'S AND ST THOMAS'

Guy's and St Thomas' NHS Foundation Trust, a part of King's Health Partners, is an academic health centre and a pioneer in health research, providing high-quality teaching, education, and patient care. The health centre is committed to ensuring efficient and effective patient care.

The organisation redesigned both the clinical pathway for patients undergoing AAA, and the workforce, adding a registered nurse coordinator who facilitates patient progression through the AAA care redesign pathway. The registered nurse coordinator receives all elective AAA referrals, and then collects the various information required to ensure patients receive timely, appropriate care. The registered nurse coordinator contacts each patient, helping the patient understand the planned next steps. The registered nurse coordinator uses the care redesign AAA pathway to support the patient, and the larger care team, through the various care phases, ensuring the patient receives and completes an appointment following the initial referral. For patients requiring surgical repair, the coordinator expedites completion of the required pre-op activities, ensuring readiness for surgery and a smooth post-operative experience.

Whilst the organisation had collected baseline data that informed its improvement efforts, evaluating the effectiveness of the improvement efforts was challenging. It collected data with a manual process, requiring the analyst to review multiple sources of data and various notes.

Guy's and St Thomas' could evaluate the patients' progress through the care pathway and gather the outcomes data of interest, but the process was time-consuming, sometimes taking the analyst up to six months to complete the manual data review for a small sample of patients. The registered nurse coordinator who facilitated patient movement through the AAA care pathway manually tracked patient progression with a spreadsheet.

The organisation and the AAA team needed to evaluate if the care redesign efforts were making the desired impact on outcomes. It was particularly interested in evaluating the registered nurse coordinator's impact on patient progression and outcomes, but burdensome, manual data collection processes were limiting its ability to use the data for improvement. To evaluate the effectiveness of the care redesign efforts, Guy's and St Thomas' needed better data and healthcare analytics.

HEALTHCARE ANALYTICS ENABLES CLINICAL IMPROVEMENT

The solution to Guy's and St Thomas' programme needs was to implement the Health Catalyst® Data Operating System (DOS™) platform, including a Referral Pathway analytics application. DOS combines and standardises data across source systems to provide actionable insights in a single technology platform.



The real power of good data for clinicians is the power it has to help them better their practises. Previously, people would disregard data because it was of poor quality. Now, we can demonstrate the outcomes that are being achieved, and share opportunities for improvement. We have the ability to access and use data that we've only dreamt about before.

Matthew Fuller
Vascular, Senior
Physiotherapist

DOS enabled the organisation to aggregate and standardise data across source systems, including measures such as time from referral to the first appointment with the vascular surgeon, time from referral to surgery, hospital length of stay, patient progress through the AAA care pathway, and other measures of interest.

The organisation utilises the analytics application to visualise the duration of referrals. Using the analytics application, Guy's and St Thomas' can quickly and easily visualise the following:

- Total number of referrals.
- Outpatient and inpatient referral rate.
- Mortality rate.
- Average number of days:
 - To procedure, including provider-specific referral data.
 - From referral to first outpatient visit.
 - From referral to last outpatient visit.
 - Patients in surveillance prior to procedure.
 - From referral to first procedure visit.

Guy's and St Thomas' can also easily visualise data for various years and can quickly sort data by patient demographics, age groups, and procedures and diagnosis codes.

Rather than relying on manual, time-intensive tracking processes in excel spreadsheets, the organisation now uses a patient tracker analytics application. The registered nurse coordinator can use the analytics application to easily identify patients with a referral. The registered nurse coordinator can also use the data in the analytics application to monitor and facilitate patient progress through the AAA care pathway, ensuring patients receive care in a timely manner.



Questions that used to take weeks to answer can now be answered with the click of a button. We're able to provide clinicians data every week, rather than only once every three years.

Rachel Bell
Vascular Consultant
Clinical Director for
Cardiovascular

RESULTS

Improved data and analytics have enabled Guy's and St Thomas' to monitor and evaluate outcomes for the entire AAA patient cohort:

- The organisation **reviewed 880 times more patients** than it reviewed in the previous chart audit . Guy's and St Thomas' easily analysed all vascular referrals for a three-year period (17,652 referrals).
- Rather than evaluating a sample of only 20 patients, the organisation is now **able to review data for all patients with AAA**.

Using the data platform, the organisation was able to visualise and confirm its AAA care redesign improvement efforts:

- **30 percent relative reduction in the time from referral to procedure** for all vascular referrals and a **17.5 percent relative reduction in the days from referral to admit** for the patients whose care is coordinated by the registered nurse coordinator.
- **14 fewer days** between the referral to admission for patients with AAA who received care coordinated by the registered nurse coordinator than for other vascular patients .
- **Reduction in the time** the registered nurse coordinator spends collecting data—time that can now be used to improve patient progression and improve the experience and care for patients pending data quality improvements and management of patients in appropriate pathways.

The organisation is able to obtain and monitor data to evaluate operational performance and the associated patient outcomes.



WHAT'S NEXT

Guy's and St Thomas' plans to widely disseminate its newly available data, increase data literacy, and broaden its ability to use data to accelerate outcomes improvement. With a successful, scalable model to reference, other departments within the organisation can replicate the same—or similar—process improvement efforts that lead to better patient outcomes. 📈

REFERENCES

1. Agency for Healthcare Research and Quality. (n.d.). Collect and Use Data for Quality Improvement. Retrieved from <https://integrationacademy.ahrq.gov/products/playbook/collect-and-use-data-quality-improvement>
2. Shah, A. (2019). Using data for improvement. *BJM*. 364:l189. Retrieved from <https://www.bmj.com/content/364/bmj.l189>

ABOUT HEALTH CATALYST

Health Catalyst is a leading provider of data and analytics technology and services to healthcare organizations, committed to being the catalyst for massive, measurable, data-informed healthcare improvement. Our customers leverage our cloud-based data platform—powered by data from more than 100 million patient records, and encompassing trillions of facts—as well as our analytics software and professional services expertise to make data-informed decisions and realize measurable clinical, financial, and operational improvements. We envision a future in which all healthcare decisions are data informed.

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