

Using Analytics to Automate Heart Failure Data Aggregation

Leads to increased efficiency and report quality and additional time for patient care



Guy's and St Thomas'
NHS Foundation Trust



50 percent reduction in the time required to complete the NICOR audit, **saving more than 400 hours annually.**



52 extra days that registered nurses can spend seeing patients each year, rather than performing manual data entry.



DOS has given us access to data from various source systems enabling us to automate this data collection. Previously, linking the systems would not have been possible.

Andrew Guilder, Senior Quality Improvement Analyst

THE CHALLENGE

With nearly 200,000 new diagnoses in the U.K. each year, heart failure is one of the prioritised conditions tracked by the National Institute for Cardiovascular Outcomes Research (NICOR). This meant that for each heart failure admission, registered nurses at Guy's and St Thomas' NHS Foundation Trust collected data from five different sources, and then filled out a 10-page form for each patient. Information from the forms was then manually entered into the NICOR web portal.

This manual process for data collection and reporting was not only time-consuming and resource-intensive—but was also highly susceptible to error.

THE SOLUTION

To address these challenges, Guy's and St Thomas' chose to implement the Health Catalyst® Data Operating System (DOS™) platform and the Instant Data Entry Application (IDEA) to automate data aggregation.

The organization uses DOS to integrate the data from the five source systems and extract data for nearly all of the elements required for heart failure readmissions; registered nurses then use IDEA to input the remaining required elements, which flow directly into the DOS platform. The data from the platform is then converted to a CSV file that is easily uploaded to the NICOR web portal.

THE RESULT

Leveraging DOS and IDEA, Guy's and St Thomas' has streamlined the NICOR submission process—decreasing the amount of time necessary for data collection and reporting, improving data quality and accuracy, and increasing the ability to identify other care opportunities. This has substantially enhanced the Trust's caregiving mission, allowing nurses to spend more time caring for patients.

TARGETING CARDIOVASCULAR DISEASE—ENGLAND'S £7 BILLION EXPENSE

Cardiovascular disease causes one in four premature deaths in England each year and costs the country's NHS more than £7 billion per year, making it a priority for the NHS.¹ There are nearly 200,000 new diagnoses of heart failure in the U.K. each year. Trusts report information on the treatment and management of unscheduled heart failure admissions to NICOR annually.² The NHS, the government, and regulatory bodies use the data to improve the quality of care.³

THE NEED FOR MORE EFFICIENT CLINICAL DATA ABSTRACTION

The NICOR heart failure audit includes 144 data fields, with approximately one-third of these fields required. For each heart failure admission, registered nurses at Guy's and St Thomas' collected data from five different sources, filling out a 10-page form for each patient. The forms were then handed to an administrative team member, who manually input the data into the NICOR web portal.

The clinical data abstraction process was performed manually, making it extremely time-consuming and requiring a full-time resource dedicated to inputting the forms. The manual process also increased the likelihood of error.

Guy's and St Thomas' wanted to improve data accuracy and completeness whilst moving away from its burdensome, manual data entry processes. The organization was also interested in using the heart failure data for improvement. It needed a solution that would reduce the number of resources required to collect and report heart failure data and enable it to use the data for improvement.

DATA SOURCE INTEGRATION DRIVES NEEDED INSIGHTS

To address these challenges, Guy's and St Thomas' chose to implement the Health Catalyst® Data Operating System (DOS™) platform and the Instant Data Entry Application (IDEA) to automate data aggregation.

The organization uses DOS to integrate the data from the five source systems and extract 132 of the 144 data elements required for heart failure readmissions; registered nurses then use IDEA to input the twelve remaining required elements—including a score for breathlessness, peripheral edema, ECG, echo, MRI systolic dysfunction, chest x-ray pulmonary edema, confirmed diagnosis of heart failure, device mode, device therapy, stable on oral therapy prior to discharge, heart failure management plan, and valid NICOR submission—which flow directly into the DOS platform. The data from the platform is then converted to a CSV file that is easily uploaded to the NICOR web portal.



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.

RESULTS

Leveraging DOS and IDEA, Guy's and St Thomas' has streamlined the NICOR submission process—whilst improving data quality. The results substantially enhance the Trust's caregiving mission.

- **50 percent reduction** in the time required to complete the NICOR audit, **saving more than 400 hours annually**.
- **52 extra days** that registered nurses can spend seeing patients each year, rather than performing manual data entry.



WHAT'S NEXT

Guy's and St Thomas' will expand its use of the heart failure data and will implement applications and visualizations that will allow the organization to use the data for improvement. 🔥

REFERENCES

1. Kearney, M. & Oldridge, L. (2019). Health Matters: Using data to improve cardiovascular outcomes. *Public Health Matters Blog*. Retrieved from <https://publichealthmatters.blog.gov.uk/2019/03/13/health-matters-using-data-to-improve-cardiovascular-outcomes/>
2. British Heart Foundation. (n.d.). *Heart failure*. Retrieved from <https://www.bhf.org.uk/information-support/conditions/heart-failure>
3. National Institute for Cardiovascular Outcomes Research. (n.d.). Retrieved from <https://www.nicor.org.uk/>

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.

Learn more at www.healthcatalyst.com, and follow us on [Twitter](#), [LinkedIn](#), and [Facebook](#).