



OPPORTUNITY

NHS GGC faced significant inefficiencies, particularly in patient no-shows and resource allocation. Such inefficiencies imposed on NHS GGC significant costs in wasted resources and longer wait times.

INNOVATION

This challenge presented a clear opportunity to leverage artificial intelligence to predict patient attendance and optimize resource use, thereby reducing costs and improving patient care.

SOLUTION

Working within existing InterSystems TrakCare deployments, NHS GGC trained, implemented, and refined AI models that predict key metrics for patient use of healthcare services.

IMPACT

Accurate prediction of patient no-shows and readmissions reduces waste across the healthcare system and frees up resources for other patients, as well as delivering a picture of patient utilization of health resources and enabling better planning.

NHS GGC Optimizes Healthcare Resources and Reduces Inefficiency with Patient Flow AI Prediction

The innovative AI Patient Flow Optimization at [National Health Service, Greater Glasgow & Clyde](#) (NHS GGC, Scotland) is revolutionizing patient flow management. Harnessing the power of artificial intelligence, this solution accurately predicts patient attendance, length of stay, and readmission rates, significantly reducing no-shows and optimizing resource allocation. The success of this initiative is driven by robust collaboration between NHS, technology partners, and academic institutions, making it a prime example of innovation in healthcare.

Accurate, Collaborative Prediction Improves Resource Usage and Accessibility

Enabled by **InterSystems TrakCare™**, the AI initiative uses advanced models to predict patient attendance, length of stay, and readmission rates, with the attendance prediction model demonstrating 92% accuracy. By focusing on high no-show clinics, like orthopedic knee and dermatology, the project aims to prevent missed appointments and ensure that more patients can be seen.

Collaboration is a cornerstone of the project, involving NHS Greater Glasgow & Clyde and technology partners like InterSystems. This multidisciplinary approach ensures that the AI solutions can be quickly and practically integrated into live systems to benefit healthcare services. The AI models also address healthcare inequalities by predicting patient no-shows and enabling targeted interventions to improve inclusivity and accessibility.

Reducing No-Shows, Improving Provider Workplaces

The AI-Driven Patient Flow Optimization initiative has the potential to significantly enhance the operational efficiency and patient care at NHS Greater Glasgow & Clyde. By accurately predicting patient attendance, length of stay, and readmission rates, for example, the project aims to reduce no-shows by 10%, potentially freeing up over 2,600 new appointments. Additionally, the initiative is expected to reduce stress and improve the workload for healthcare clinicians and managers.

“The part [we’re] most proud of is the partnership working. We support many academic projects researching and developing AI, but this is about practicality in an existing live system... through the direct integration with the familiar TrakCare ecosystem, we are able to more quickly deliver benefits into live services.”

NHS Greater Glasgow & Clyde eHealth team

Keys to the NHS GGC Patient Flow AI Initiative

Predictive Accuracy: The AI model for attendance prediction is 92% accurate, with a sensitivity of 97% and specificity of 88%. Trained on data from January 2023 to December 2023 and tested in January 2024, this model targets orthopedic knee and dermatology clinics, which have historically high no-show rates.

Familiar TrakCare Platform: The initiative integrates with the widely used TrakCare patient management system, allowing healthcare providers to work within a familiar environment. This integration simplifies the learning curve and increases the adoption rate of the AI solutions.

Continuous Model Refinement: The team is currently monitoring and refining the models to maintain their accuracy over time and ensure ongoing effectiveness.

Stakeholder Involvement: The project’s success is built on strong stakeholder engagement and training, which are essential for the smooth implementation of AI technologies.

About the Winner: NHS Greater Glasgow & Clyde

National Health Service, Greater Glasgow & Clyde (NHS GGC), is the largest health board in Scotland, providing comprehensive healthcare services to a population of 1.3 million people in the Greater Glasgow and Clyde region of the United Kingdom. With major hospitals such as the Beatson West of Scotland Cancer Centre, Glasgow Royal Infirmary, and the Queen Elizabeth University Hospital, NHS GGC ensures access to both primary and specialized care across numerous health centers and clinics. Committed to enhancing health and reducing inequalities, NHS GGC offers a wide range of services, including maternity, scheduled care, emergency care, mental health, and sexual health services, making a significant impact on the well-being of the community.

About the InterSystems Impact Awards, Selected by an MIT Panel

Each year, select client organizations are recognized at the InterSystems READY conference for projects driving positive change. Nominations are evaluated by independent judges from MIT on three criteria:

- **Makes a significant difference**
- **Breaks new ground**
- **Sets an example**

To learn more about the InterSystems Impact Awards visit

<https://www.intersystems.com/intersystems-impact-awards/>.

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