The National Health Service for Scotland (NHS Scotland) is Scotland’s national healthcare system. NHS Scotland is comprised of 14 regional Health Boards, each responsible for the delivery and improvement of its population’s healthcare services. The organization helps people to sustain and improve their health, ensuring better and faster access to local healthcare. NHS Scotland works to provide better quality care nationally while optimizing resource allocation for the most efficient use of government funds. Their initiatives are designed to help achieve health outcomes that meet public targets, promote equality and diversity, and address local priorities.

Underutilized Health Service Data

The centralized business intelligence systems at NHS Scotland focused on national data sets and did not provide individual NHS Boards with the insights they needed to ensure efficiency. Existing solutions amongst individual NHS Boards lacked basic capabilities, such as data visualization, and did not accommodate mobile development or self-service. “There was a recognition that we were not making enough use of the data that we had available in order to make operational, tactical, and planning decisions,” stated Jonathon Todd, Head of Information Management at NHS Glasgow and Clyde. The complexity of the solution’s functionality prevented clinicians and business management from interacting with the data. “We wanted to get to the part where people were truly self-serving and not waiting for us to be a report factory,” mentioned Todd, “and there was a danger that that’s exactly what we were becoming, and the skills of my analytical team were not being used to the best effect.” As management of information became part of NHS Scotland’s strategic plan in 2011, government funding became available to improve business intelligence across all NHS Boards. Leadership encouraged co-operation and collaboration amongst NHS Boards to develop strong use cases.

Creating a Roadmap to Healthcare Innovation

MicroStrategy was an easy choice for many NHS Boards because they were interested in an all-inclusive platform. “In the future, we won’t have to go out and procure a mobile solution,” said Todd, “it’s actually already there.” Many NHS Boards weren’t looking for quick-fix solutions; they knew that their business required the longevity, scalability, and governance of an enterprise-class

“I think we have delivered very, very quickly, and if you look at our history of BI developments within the health service, what we’ve produced within the last couple of months – the variety and the reception that we’re getting from the end-users – shows us that, yes, we have chosen the right tool. And I think it can only get better.”

-Jonathan Todd
Head of Information Management at NHS Glasgow and Clyde

*NHS Boards deploying MicroStrategy include NHS Greater Glasgow & Clyde, NHS Lanarkshire, NHS Fife, and NHS Forth Valley.*
business intelligence platform to continue to provide innovative healthcare service. “We’ve got confidence in the roadmap,” Todd stated, “we need to do today’s work, we need to do tomorrow’s work, but we also want to be able to do next week’s work and work six months from now within the same tool.”

**Improving Healthcare Quality and Patient Care**

NHS Boards leverage MicroStrategy to more effectively educate and distribute critical information to key players across all levels of the service. More specifically, the data-rich, intuitive visualizations enable users to quickly identify outliers and trends when examining issues such as hospital capacity or disease prevalence. “Recipients of this, they’re not just seeing the data come alive, but they’re getting a real story behind it,” stated Todd. To fully take advantage of this, Health Boards using MicroStrategy have collaborated to develop a diverse, powerful lineup of applications that deliver key insights on a wide range of practices and performance areas.

**Organizational Spend Analysis**

NHS Scotland is able to visualize information from its corporate data warehouse concerning purchasing and finance for all 14 Health Boards. This application uncovers potential savings by tracking spending by category and comparing purchase prices across all regional NHS Boards. With this application offering improved data governance and enhanced visibility via web and mobile accessibility, NHS Scotland has decreased purchasing costs and cut waste.

**Nursing Quality Hub**

This application delivers key hospital status information focusing on four performance areas—safety, effectiveness, organizational structure, and workforce—to senior managers and service managers. Ward managers, charge nurses, nursing directors, and senior management can now view current statuses and historic trends of KPIs at ward, unit, and hospital level, providing a clear view of nursing quality and exposing where action is needed. The increased visibility between wards has fostered a healthy sense of competitiveness that continues to improve performance. The same KPIs are used at a monthly level to report within the Clinical Governance dashboard.

**Accident and Emergency Waiting Times**

NHS Scotland has pledged to have Accident and Emergency (A&E) patients seen by doctors within four hours of their arrival. This real-time dashboard gives a comprehensive view of A&E status across a given Health Board. NHS

“We’ve got confidence in the roadmap. We need to do today’s work, we need to do tomorrow’s work, but we also want to be able to do next week’s work and work six months from now within the same tool.”

-Jonathan Todd
Head of Information Management at NHS Glasgow and Clyde
Before MicroStrategy

- Underdeveloped and underutilized business intelligence
- Lack of innovation
- No accommodation for mobile development or self-service

Goals

- Enterprise business intelligence solution
- Definitive road map including both mobile and self-service capabilities
- Provide innovative information-related healthcare services

After MicroStrategy

- Improved patient care
- More efficient use of funds through collaboration
- Increased visibility and data governance
- Speed to market of applications across regional boards
- Clear view of hospital performance

Boards deploying this application are improving patient care by giving management a clear view of patient status and overall status of the unit. The prominent display of this application on a white board has eliminated the need for clinicians to be at a computer, thus increasing the clinical time available to treat patients. The dashboard displays patients plotted by arrival time, triage category, and number of minutes before breach of the four hour time frame. Clinicians can now easily view whether or not a patient has been assessed, and whether or not a patient has breached, or is within risk of breaching, the time frame. NHS Boards deploying this application are currently developing predictive analytics to forecast emergency activity attendance trends. This application has been built to scale and could extend to provide a countrywide view.

Live Bed Status

Using the Live Bed Status application, senior management, clinicians, and bed managers can visualize where free beds are located and easily ensure patients are promptly admitted to the most appropriate ward to suit their conditions. A patient’s status can easily be updated or modified directly through the interactive mobile dashboard with MicroStrategy’s transaction services. Furthermore, senior managers can easily monitor occupancy and take necessary action to prevent a crisis. This application has empowered bed managers to dramatically enhance patient experience by unblocking beds to improve patient flow.

Capacity and Flow Management

This application gives a current status of A&E departments, the Acute Assessment Unit, and general bed availability. KPIs are monitored and flagged when approaching full capacity level, allowing staff to identify where action needs to be taken. This application helped an NHS Board to manage a difficult winter in 2012.

General Practitioner Practice Profiles

This application enables general practitioner practices to view their performance against targets set each year by the Scottish government. It has encouraged healthy competition and reduced administrative overhead.

Community Mental Health

With a comprehensive view of the performance of mental health teams, managers now have a better understanding of a team’s workload. This
application is refreshed daily and allows service and team managers to view, analyze, and benchmark performance by area and team. It has successfully reduced the amount of time clinicians need to spend organizing this information on a computer, freeing them up to focus on their clinical tasks.

Community Health Partnerships
This application delivers information to clinical and non-clinical staff to improve overall patient experience. The application includes data from 14 different targets identified as being the most likely reasons that an individual visits one of their centers and has replaced the use of several large reports and Excel spreadsheets.

Health Failure Monitor
MicroStrategy is helping an NHS Board to closely monitor patients who suffer from heart failure with the Heart Failure Monitor application. Building upon the foundation of the A&E dashboard, this application checks each A&E patient’s CHI number (NHS Scotland unique identifier) against the Heart Failure database to determine if they are a patient with heart failure. If a match within the database is found, MicroStrategy Distribution Services sends a notification to the Heart Failure Consultant so that they can intervene. This application ensures these high risk patients receive proper care and are not inappropriately withdrawn from heart failure medication.

NHS Boards using MicroStrategy have drastically improved service quality and patient care since its implementation of MicroStrategy. By sharing knowledge and MicroStrategy project templates across regional boards, NHS Scotland has reduced the cost and accelerated the speed to market of each successive application project.