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Excellent patient care. Financial responsibility. Many organizations fear these goals conflict. Not at Tayside. So we partnered with healthcare professionals at this UK health board to see patient-centric care, clinical effectiveness, and cost utility as interwoven parts of a holistic vision. To make that vision a reality, Tayside is introducing strategic innovations, including an integrated Blood Sciences Laboratory (BSL) designed to “reduce waste, variation, and harm.”

“We were clear about our vision. To translate that vision into specific solutions for increasing throughput, freeing staff time, and deploying instrumentation, we looked for a partner who could help us deliver this.”

Tajinder Chima
Tayside’s Clinical Service Manager

By crossing traditional disciplinary boundaries to streamline workflows and improve customer service, we’re transforming lab services typically considered as an expensive cost center to services valued as an investment in the healthcare economy.”

A vision of change: Meet rising demand, optimize resource usage
Headquartered at Ninewells Hospital, Dundee, NHS Tayside serves a population of approximately 400,000 with a staff of more than 14,000, providing a comprehensive range of primary, community-based, and acute hospital services. There are a total of 91 health care facilities, including large acute hospitals, regional and local hospitals, and other facilities, alongside 69 general practice sites across an area of 3,800 square miles. The new Blood Sciences Laboratory automated facility is located in Dundee’s Ninewells Hospital, which also is home to the highly respected University of Dundee Medical School. BSL serves a population of 400,000 and processes close to 6,600 tests a day—55 percent generated at Tayside hospitals and 45 percent from peripheral hospitals. By reorganizing the responsibilities of laboratory technicians, BSL can do the same tests with fewer people.

Demand for Tayside lab services has been increasing almost 3 percent a year, driven by aging patient populations and a resultant increase in diagnoses. The BSL protocol-driven tests in test volumes to meet national and local health outcome and preventive-care goals. Meanwhile, the existing lab equipment was aging; hospital officials foresaw that it would be unable to meet rising demand. With budgets always tight, Tayside set out to do more with less. Specific goals were to optimize use of staff knowledge; skills in pathology development and medical evidence into practice; and provide the resilience and flexibility to meet ever-changing healthcare needs.

“We were clear about our vision,” says Tajinder Chima, Tayside’s Clinical Service Manager. “To translate that vision into specific solutions for increasing throughput, freeing staff time, and deploying instrumentation, we looked for a partner who could help us deliver this.”

Holographic Siemens relationship transfers risk, enables innovation
Tayside evaluated a number of vendors in a tender process, choosing Siemens for its multiphase vision and comprehensive solutions portfolio. “We presented a scenario that said, ‘This is what we want to do,’ and Siemens proposed a complete solution whose multi-disciplinary approach fit perfectly with our vision,” Dr. Bartlett recalls. “The MPX contract transfers the risk and responsibility for implementing a state-of-the-art lab service from Tayside to Siemens.”

As part of its lab restructuring, Tayside is reconfiguring workflows geographically, moving microbiology and community GP orders from PRI to Ninewells. At the heart of the Ninewells and PRI lab automation will provide a full complement of pre- and post-analytical sample processing modules, along with automated reagent and consumable tracking, and end-to-end software and IT middleware. Aptio Automation will encompass multidisciplines of chemistry, hematology, serology, and immunology. (See sidebar for component details.) CentraLink Data Management System provides a central software platform for automating workflows and consolidating lab data and instruments. At PRI, the instrumentation meeting that hospital’s demand includes the Dimension® EXL™ and the ADVIA® 2120i Hematology System with Automation System. “The MPS contract also delivers FAST (Freedom, Availability, Saving Time) order and delivery management for reagents and consumables. FAST passes to Siemens from Tayside, coupled with a specialist logistics provider, the responsibility for stock-checking, ordering, receipting, backorder management, unpacking, stock rotation, and removal of unwanted packaging. “The service frees Tayside staff time while reducing inventories and ensuring product is available where and when needed,” Dr. Bartlett says.

Aptio Automation revolutionizes adaptability
The new lab environment provides Tayside with numerous benefits. The ability to run cross-disciplinary tests along the Aptio track enables faster, more-comprehensive results reporting with less human intervention. The CentraLink system can be configured with rules-based programming to send alerts and run additional tests triggered by pre-defined results parameters. The track’s multi-instrument flexibility gives Tayside the capacity to meet its large variety of testing needs, as well as to handle changing demands and add new tests to the health system, choses to include in its roster of capabilities. “Aptio Automation represents both an evolution of our automation development and a revolution in adaptability,” Dr. Bartlett says. Tayside patients likely never will know how the lab has changed; they’ll just know to expect fast, accurate results that aid effective treatment. Tayside clinicians will experience the speed and accuracy, plus more direct collaboration with lab staff regarding individual patient care, as well as improving care processes. Lab staff will experience directly how the BSL transformation supports Tayside’s goal to reduce waste, variation, and harm in the delivery of laboratory service.

“Automation isn’t about disinvestment, it’s about re-deployment,” Dr. Bartlett says. “We need to redistribute the knowledge and skills of our people to get out of the lab and focus on healthcare delivery. We also need to give laboratory professionals the time to digest recent medical developments and to consider putting them into practice to the benefit of patient care. The reason we’re moving with the Siemens approach is that it can handle increasing workloads while enabling us to use our staff better to achieve these goals.”

Preparing for changing roles in lab staffing
Change, even if beneficial, brings disruption. “It’s not changing the process strategically to minimize staff anxiety, foster cooperation, and build future-ready skills.” Dr. Bartlett says. “It’s not changing the process strategically to minimize staff anxiety, foster cooperation, and build future-ready skills.”

In creating the Blood Sciences department, we are combining three historically separate disciplines, each with quite different cultures and work practices relating to non-bench activities, workflow, tasking, and skill mix,” explains Anne Seraman, BSL Clinical Laboratory Manager. “Now with a single track implementation, the lab staff are reinventing how we work together, and creating new processes to better optimize the workflow.”

Siemens supports change management, Ms. Seraman says, with continuing education services delivered wherever and whenever they are needed. “They have been enormously supportive in reaching everyone from the grand-daddy people to the technically oriented ones who want to know every detail of how an analyzer or system works.”

Over the coming months, Tayside will gather metrics on turnaround time and other measures of care-delivery value. Hospital systems throughout the UK and beyond are watching Tayside’s progress. “The Tayside model represents productive patient results delivery.”

“The fact that we’ll be able to have hematology, chemistry, serology—a range of tests—on a single track provides fantastic opportunities to standardize and streamline testing, and to re-deploy our staff for more value-added service,” Dr. Bartlett says.

To support this transformation, Tayside is building staff cross-disciplinary skills and up-leveling responsibilities to that biomedical and clinical scientists registered with the Health Professions Council (HPC) are less involved in day-to-day throughput and more involved with quality issues and clinical-pathways development.

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