



Summary

CUSTOMER

NHS Wales

CHALLENGE

Consolidate and modernise pathology services

OUTCOME

Replaced 13 legacy systems with one integrated solution

Improved quality of care

Created building block for a connected care record

NHS Wales + InterSystems

Bridging the gap: Transforming pathology services in Wales

InterSystems TrakCare Lab has been providing NHS Wales' National Laboratory Information Management System since October 2013. The integrated platform has been used to transform clinical information sharing, leading to better decision making and higher quality care. Processing more than 28 million tests every year, real-time results are empowering staff to improve diagnoses and outcomes for the three million people who live in Wales. To date, the system holds details of more than 180 million requested tests from approximately 60 million individual patient encounters.

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Pathology services play a crucial role in every aspect of patient care. Approximately 70% of all clinical diagnoses in primary and secondary care rely on the insight and advice from pathologists. These disease experts 'bridge the gap' between science and medicine, dealing with more than 28 million requests in Wales every year. Underpinning a functioning pathology service is a robust and reliable laboratory information management system, or LIMS, that more effectively tracks and shares results, drives quality standards and compliance.



6 health boards
plus Welsh Blood Service & Public Health Wales



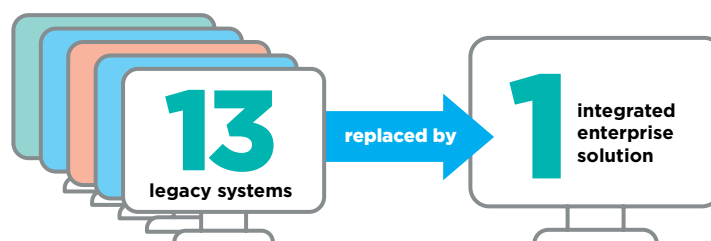
20
pathology laboratories

In 2010, the country's six health boards, as well as the Welsh Blood Service and Public Health Wales, had a total of 20 pathology laboratories. The laboratories had limited standardisation or common processes, leading to unnecessary and unwanted variation. Results were collected through several different systems therefore not readily shared between locations. In many cases, results were not easily comparable between hospitals.

Early attempts to modernise pathology services failed to gain traction, and in 2006, the Welsh Assembly Government instigated a National Pathology Modernisation Project within the Diagnostic Services Strategy. One aspect of the project was to procure a single LIMS for Wales. The NHS Wales Informatics Service (NWIS) agreed to support the procurement and subsequent development.

Partnering with InterSystems

In 2010, NHS Wales selected InterSystems as its preferred supplier to develop its new Welsh Laboratory Information Management System (WLIMS). NHS Wales was impressed with InterSystems vision to develop a modern, integrated, and efficient IT infrastructure centred around the patient. Recognising that pathology services are fundamentally important to a modern health system, InterSystems replaced 13 legacy systems with just one integrated enterprise solution: TrakCare Lab.



The LIMS project brought together the country's Pathology Service, the Pathology Modernisation Agenda for Wales, and NWIS around a shared set of core objectives:

- More efficient working practices
- Standardisation of practices and codes for all disciplines in all laboratories
- Improved clinical governance
- Ensuring operational quality through the application of complex rules
- Organisational changes
- Flexibility to meet future demand
- Opportunities for new developments and service delivery models
- Improved integration with other developing national IT strategies

Leveraging TrakCare for Wales

One of the world's most advanced LIMS, TrakCare Lab has been proven in challenging environments and across broad geographies. In South Africa, for example, it is used by the National Laboratory Service to manage pandemics and chronic illnesses. The system supports approximately 45 million people through more than 300 laboratories nationwide on a single database – an experience that was crucial in developing an effective solution for Wales.

TrakCare Lab needed to integrate seamlessly with existing and emerging platforms. It had to be simple to use and intuitive. At a time of rising digital threats, it needed to be secure.

To prepare for the future, NHS Wales needed to improve the functionality and flexibility of its existing pathology IT systems to meet current and future strategic service needs. Systems needed to be re-engineered and consolidated into one. Doing so provided a solid basis on which to develop an ambitious initiative to create a fully integrated record accessible across the whole of Wales.

Brent Varley, LIMS Programme Manager at NWIS, states:

“The ability of TrakCare Lab and its underpinning integration technology has proven to be of great value in linking with the Wales Master Patient Index and other national systems to manage demographic and patient legacy data and in forming the Wales-wide clinical record.”

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Instant impact

The TrakCare Lab system was rolled out in phases, with health boards across Wales incrementally adopting the platform. Recognising the complex web of interdependencies and challenges, InterSystems developed a standardised methodology that could be adapted to local requirements. Every organisation benefited from 24/7 support from technical and clinical experts to manage the transfer. The rollout began with the Hywel Dda Health Board in 2013, with blood sciences adoption completed by May 2015 and the main tranche of other disciplines completed with the final histopathology adoption in April 2018. Since then, Wales NHS has also implemented mortuary and blood transfusion modules.

InterSystems TrakCare Lab made a positive impact almost immediately. Speaking early in the project, Dr Mike Simmons, then Public Health Wales Microbiology Consultant for Hywel Dda, said: “We are already seeing many benefits in Hywel Dda, including improved clinical outputs from the microbiology labs, which are having a very positive benefit in respect to patient care.”

To ensure the rollout was successful, InterSystems experts became trusted members of all implementation project boards, standardisation boards, change management boards and service management boards across the country’s six health organisations. The integration of InterSystems personnel within the NHS Wales structure was essential and helped to avoid the typical problems that affect arms-length public sector IT implementations.

System improvements

Before the implementation of TrakCare Lab, laboratory clinicians in Wales had to navigate 13 separate pathology systems with little chance of seeing data from each of the systems. Piecing together a complete picture of a patient’s medical history was difficult, and in some case impossible. Instead, clinicians would find they regularly had to repeat tests, wasting precious time and resources. Of fundamental importance to the project was the ability to allow healthcare professionals in Wales to access to a standard, up-to-date diagnostic record.



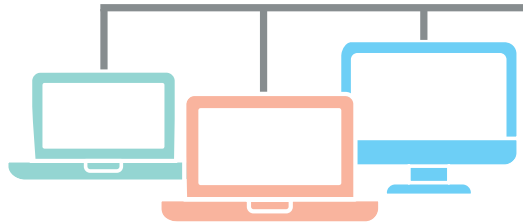
28
million
pathology requests
every year

Today, TrakCare Lab gives pathology clinicians instant access to a patient’s past and recent test results – including those ordered by GPs, doctors and several point-of-care systems. The completely integrated system makes results available as required to healthcare staff across Wales. Every year the system processes more than 28 million test results, all of which can be accessed in seconds.

Results are shared electronically with secondary care doctors through the Welsh Clinical Portal, with GPs through primary care systems, and with numerous specialist care clinical systems.

To deliver the results, InterSystems built more than 50 external interfaces, including the National Patient Index, National Welsh Portal, National Point of Care systems, and departmental systems, including those used by renal and oncology departments.

50+
external interfaces were
built by InterSystems



The solution ensures that an integrated pathology solution and a comprehensive record is maintained, providing clinicians with a local, health board or national view as required.


The system is also built with security and the sanctity of patient data in mind, keeping access to functionality and information carefully managed. Users are only permitted to see the specific functionality and data that they are entitled to see according to their role and location. The design of the system means that access can be limited to department, organisation and national scope as required.

Total quality care

The total adoption of TrakCare LIMS has allowed NHS Wales to improve the standard of clinical quality and care. Users are confident that the standardisation of pathology tests has reduced the number of unnecessary duplicate or repeat tests that patients experience. They can have confidence that their clinician has the information they need to make the best decisions for their care.

All clinical activity is managed through a series of standardised procedures and processes that ensure the testing, processing and presentation of all tests are conducted to the appropriate quality, reducing any unnecessary variation. The system is proving to be an integral part of improving clinical standards, providing the ability to recognise and rectify shortcomings in systems, processes and individuals.

Within the solution, InterSystems built a significant business intelligence component that provides management reporting and statistics. Executives benefit from real-time information surveillance and management, so they can access a complete picture of the service, including workflow and capacity.



Information can be used by managers to ensure much more efficient use of resources, enabling the distribution of workflow across sites. This has helped to ensure that laboratory capacity is managed most effectively and efficiently.

The system has effectively facilitated and supported significant efficiencies. Even though a central support team needed to be established, the centralised hosting structure has seen Wales-wide data management and extraction costs reduced.

The high-availability features of the InterSystems database and the InterSystems-designed architecture underpinning the system ensures that the system is always available. Hosting in multiple datacentres by NWIS ensures high availability should disaster impact one of the hosting sites. InterSystems support staff and system management experts work closely with the NWIS support teams to proactively manage, monitor, and support the solution 24/7. Progressively enhanced during the programme, the platform is also built to withstand malicious attacks, ensuring that sensitive data is kept secure at all times, giving patients and professionals complete confidence.

Delivering outcomes

Nearly a decade after the programme launched, TrakCare Lab is a fundamental part of modern healthcare IT infrastructure in Wales. Designed from the ground up with the future in mind, even today it offers a high level of flexibility that ensures leaders can be confident that it can meet anticipated need. The LIMS is delivering efficiencies, helping Wales to manage in an economic environment that remains challenging and cope with the rapidly growing demand for treatment.

The TrakCare Lab system continues to be developed to this day with InterSystems and partners adding functionality to improve the patient experience. A current hardware refresh and associated system upgrade to the latest version of TrakCare Lab is underway as a result of a five-year contract extension agreed in 2019.

With a positive outlook for the future, the lab modernisation programme in Wales has seen significant reductions in costs through the provision of a single integrated system and achieved a fully integrated Wales-wide electronic patient record containing all pathology results: a significant achievement as other parts of the UK and the world look to achieve similar ambitions.

TrakCare Lab is ensuring better quality care based on a continuous and accurate care record for each patient. It has been one of the essential building blocks of a connected care record for the country – ensuring patients and clinicians benefit from accurate and real-time care information. The experience with NHS Wales and TrakCare Lab has supported InterSystems in developing the current state-of-the-art TrakCare Lab Enterprise solution – the world's first Laboratory Business Management System – which further enhances the capability and functionality to enhance laboratory services.



The power behind what matters.

