LINC Programme Case Study of Electronic Test Requesting (ETR) at Cardiff and Vale University Health Board (CAVUHB)

This case study focuses on the amazing progress that Cardiff and Vale University Health Board (CAVUHB) have made and continue to make in implementing electronic test requesting and the benefits they have realised for patients and the service.

How LINC is making a difference to improve Electronic Test Requesting (ETR) across Wales

One of the strategic objectives of the Laboratory Information Network Cymru (LINC) is to deliver a seamless end-to-end electronic pathology solution. This includes the full integration of electronic test requesting and results reporting to the new laboratory information management system (LIMS) service recently procured.

When the Laboratory Information Network Cymru (LINC) Programme first started in March 2018, only 29% of standard blood sciences and microbiology tests across all Wales were requested electronically. LINC set a target to achieve a minimum of 90% ETR uptake for all pathology requests across Wales by December 2022 in both primary and secondary care, before the new Laboratory Information Management System (LIMS) service goes live.

Through collaborative working supported by Welsh Government funding there are four key areas that have improved Electronic Test Requesting (ETR) usage:

1. Supporting and training of users

2. Provision of IT equipment such as printers and computers

3. Proactive stakeholder engagement both nationally and locally

4. Development and enhancement of the technical tools such as the Welsh Clinical Portal (WCP) and General Practice Test Requesting (GPTR).

Context

The pathology service in Wales receives more than 34 million test requests each year and ETR allows requests to be automatically received by the LIMS. When test requests are manually entered into the LIMS from paper requests, this could result in transcription errors and delays in the request being processed by the laboratory. These errors could be from writing the paper request itself, such as the patient details, or they could be during manual checking of the test in the laboratory.

The 29% of standard blood sciences and microbiology tests that were requested electronically was accounted for by the high level of ETR in secondary care in Betsi Cadwaladr and Cwm Taf University Health Boards, using the Welsh Clinical Portal and GPs in Wrexham using a commercial product. The pathology service was dissatisfied with the in-house tools and thought that DHCW had made

insufficient progress in developing the tools to meet service requirements.

A seamless end to end electronic pathology solution requires ETR to automatically send requests to the LIMS, combined with accurate results reporting and notifications back to the test requesters. Making ETR tie together as one workflow is important for all involved because it creates a better experience for the patient, requesting clinicians, and pathology staff. Part of this is ensuring the process from the lab to the clinician receiving the result is efficient and time sensitive.

It was agreed to include an option for a commercial tool in the procurement of the new LIMS service at the same time as working with DHCW to improve the in-house tools: the Welsh Clinical Portal (WCP) and General Practice Test Requesting (GPTR) to the standard needed to increase ETR uptake. DHCW have subsequently established the ETR Project Board and LINC is providing Welsh Government funding to DHCW for two developers to improve the in-house tools. DHCW has now made sufficient progress for the pathology service to embrace the use of the in-house tools, and the option of the commercial service for ETR will not be pursued.

One of the new developments is the WCP mobile application that DHCW has developed to address issues reviewing results brought forward by secondary care users and is available to download on both iOS and Android devices.

This pioneering development aims to assist the efficiency of the medical workforces' daily tasks by providing them with a form that loads quicker and is uncomplicated to use. In addition, an e-form has been developed for desktop use in the WCP and GPTR for all types of requesting and will initially be made available for histology requesting.

Improving ETR uptake

LINC has provided funding to individual health boards and trusts to recruit new staff and/or release current staff to support increasing the uptake of ETR. LINC also provided funding to DHCW to develop the WCP for Powys Teaching Health Board and this has meant that their clinicians can now request tests electronically for the first time.

ETR is a permanent agenda item on the LINC Programme Board to ensure in-house tools continue to be developed to meet pathology requirements, and the 90% ETR target usage. By March 2020, ETR had increased to 45%, and by the following March 2021 ETR had increased to 54%. At the end of December 2021 ETR usage reached 74% in primary and secondary care.

Louise Gregory, Senior Project Manager for LINC has set up a National ETR Performance Group (NEPG) that is sharing progress and good practice with ETR leads across Wales, which has been well received and attended, helping to boost ETR uptake across Wales.

One of the barriers to uptake is access to PC's and printers. Following on from the success last year of securing £600k in capital funds from Welsh Government, for end user hardware to support the uptake of ETR, LINC has repeated this request this year for a further £640k to purchase PC's, laptops, tablets, printers, and carts.

Photo: Louise Gregory, Senior Project Manager, LINC.

What's been happening in Cardiff and Vale UHB?

Following the LINC offer of funding to Cardiff and Vale University Health Board (CAVUHB) to encourage the take up of ETR, the trust has established an ETR team who have been working diligently to replace paper requests with ETR tests across their sites. The change has involved the transfer of paper test requesting to ETR via the WCP.

During engagement sessions with users, the ETR team designed an approach to rolling-out ETR that would support both the people making the requests and the pathology laboratories to bring usage up to the necessary 90% by December 2022.

Photo: outside CAVUHB Emergency Department.

Collaboration has been at the heart of making ETR work across CAVUHB, and the updates made to the WCP have improved the user journey for requesting electronically. In March 2018, CAVUHB only had 15% ETR and by November 2021 had reached 73% ETR in Blood Sciences and Microbiology, an amazing achievement.

The incredible success story of ETR in A&E at University Hospital Wales

The Emergency Department at University Hospital Wales has achieved an astounding result and has really proven how efficient using ETR can be, after going from 0% usage of ETR to 97% in just four weeks.

Dr Lyndsey McDonald, Consultant in A&E, University Hospital Wales & Clinical Director stated at the time of implementation:

"This has been an outstanding piece of work that our department has reaped the benefits from. A real multidisciplinary team effort with a shared goal. It has been an honour to have played a small role in its development."

Lyndsey McDonald, was influential in the effort to get staff onboard and supporting this new way of working.

Staff in the Emergency Department were supported by the ETR team to embrace the new electronic request, their fantastic results have convinced other departments that using ETR is easy, with a faster turnaround of results, thus improving patient care.

One of the key features that has supported the fast-paced environment has been the new Results Notification element. This feature ensures that the person who requests the test will receive a notification in the WCP when the result is ready to view.
Going directly back to the requesting clinician in real time means that there is no delay to the patient receiving the appropriate treatment. It is a great achievement for the DHCW ETR team to get this feature up and running, it is one that clinicians have been asking for to support their ability to make time-sensitive clinical decisions, especially in fast paced environments.

Result Notifications for pathology results is complimented by a workflow in the WCP used by clinicians for Radiology, Cardiology and Endoscopy results. For Radiology, when an x-ray is taken and reviewed, if there is a significant finding, the clinician will see a red dot in the WCP next to the result to indicate that the radiologist has seen something that may need attention. Similarly, when the laboratory reports an abnormal result, the text is reported in the Results Notification list in red.

Additional work has taken place to provide a robust mechanism for signing off all results and implementing any necessary treatment for patients who have already been discharged. As the notifications go directly to the authorising clinician, it saves staff from chasing paper reports, preventing any subsequent delay to treatment.

Dr David Hanna, Consultant in A&E, University Hospital Wales explains how ETR has made a difference for emergency paediatric services

"The Paediatric Emergency Unit at University Hospital Wales treats over 35,000 children a year. It's a busy clinical environment with high patient turnover, so we need safe, robust processes to ensure that results are identified and actioned.

"Most tests are processed and authorised whilst the child is still in the department, however some investigations such as x-rays and urine-culture take a few days for the results to come back.

"In these cases, the patient has often already been discharged home. Our previous processes for chasing up results involved using paper forms and folders, which occasionally resulted in reports going missing, delays to treatment or results failing to be actioned.

"Since adopting ETR and Result Notifications our team has been able to deliver significant improvements in quality of care to our patients. The information going to lab in the ETR is accurate and legible. We no longer have to take phone calls from the lab asking for more information as these fields are now mandatory on the e-form.

"Result Notifications now provides us with a robust system for signing off all our results. In those cases where an unexpected abnormal result is detected such as a positive urine culture or an undetected fracture, we can contact the family promptly and arrange a change in management.

"Keeping track of outstanding results can be difficult in a large team with junior and senior clinicians working around the clock on a shift basis. We benefit from using the Team Preferences functionality in WCP, which means that our patients' results are pooled and available for all clinicians to action and sign-off.

"Signing off results on WCP has become part of our daily workflow in the department. Our team have really got behind it because of the significant improvements in patient safety and clinical governance it has delivered.

"One of the things that has made this work a success was the expertise of the Cardiff and Vale Digital team, who worked closely with us in the implementation of ETR and Result Notifications and we owe them a big thanks for their ongoing support."

Photo: one of the A&E registrars using ETR system.

GP Test Requesting in Cardiff and Vale

Primary care uptake of electronic test requesting has been a slow burner, it has taken dedication and hard work to see improvements. GPTR usage has gone from 0% to 64% by the end of December 2021 and 75% of GP staff are trained to use the system.

GP staff are beginning to see the benefits of using the dedicated GPTR system, the joined-up system provides them with a complete history of tests and results from both primary and secondary care from anywhere in Wales.

The GP portal work that is currently being worked on by a developer is to add WCP to the GP portal landing page, this will allow clinicians to access graphing and tabulation of test results to look for patterns and themes.

How LINC are helping the Cardiff and Vale ETR team grow

CAVUHB have also received Welsh Government funding through LINC to support the use of ETR in both primary and secondary care and to champion the use of the system.

You may have seen some new faces on the ETR team of floor walkers, Jennifer Razik and Sam Parsons have hung up their lab coats in the Pathology Department at University Hospital Wales to visit staff on the wards who need help adjusting to requesting tests electronically.

LINC have provided funding for Jennifer and Sam to meet with users face to face and provide them with support and training on the system. They are also in a great position to provide feedback and report any issues directly to the CAVUHB ETR team so that resolutions can be found.

Photo: Jennifer Razik training a colleague, how to fill out the ETR form.

Challenges of implementing ETR

It's no secret that Cardiff and Vale UHB have struggled to get users onboard for ETR, but the project team aren't ones to back down and the latest figures have shown that their effort have been rewarding.

Along the way, the ETR team have learnt some valuable lessons and overcome a range of issues:

- **IT Equipment**

Ensuring that staff have easy access to enough computers and printers is crucial to making sure that staff can have access to ETR when needed.

- **Lack of Training**

Ensuring that staff are trained and feel confident using ETR has been key in getting people on board with the new system.

- **Getting Requesters Onboard**

Implementing change can be difficult at times, even when said change would be beneficial to users. With support from DHCW's Business Change team, the ETR team were prepared to meet with staff and learn about their hesitancy in using the system. Taking on the feedback, the ETR team then addressed those issues and fed it back directly to staff encouraging them to use ETR.

Tailoring an implementation strategy to keep ETR uptake rising

To make sure that the approach taken by the Health Board was the right fit, the ETR team and Board of Directors decided upon a specifically tailored approach made for Cardiff and Vale.
The CAVUHB Clinical Board of Directors were engaged with the process, who accepted the need for ETR and even agreed to mandate its use. They also agreed to support the ETR Team taking a collaborative approach to support the roll out.

In November 2020, a programme plan was set up including adjusted timelines to adopt a flexible approach that met the needs of both local and national colleagues. A large consultation with clinical leads and wards was undertaken with the ETR team physically visiting the areas to gain valuable feedback. The needs of each area were reviewed, and feedback was taken on board, the team responded to their concerns within a set time frame.

As part of the review, IT requirements were assessed and where necessary new equipment was procured and set up. This ensured that staff had the right access to IT when they needed to use the ETR system and didn't lead people to use paper request forms instead.

Specific targeted communications were used by the ETR team, these went to local forums and were distributed across the CAVUHB sites. Additionally, the team used the CEO Connect platform, which is sent to every staff member in CAVUHB, as a way of ensuring the messages about the ETR roll-out were reaching all staff.

To ensure that the team were kept up to date and that everyone was aware of any issues, feedback or updates, meetings are held every Monday morning. This was an opportunity for all staff to discuss how the roll-out was going and whether any adjustments to the plan needed to be made.

Making sure all bases were covered and that any impact to patient care was mitigated ETR was included as part of the monthly CAVUHB Patient Transformation Programme meeting. Alongside this there is also a monthly CAVUHB ETR Project Board which is attended by a range of pathology staff, WCP project staff, IT staff, and DHCW representatives.

Jenna McLaren, Senior Nurse in Emergency and Acute Medicine, emphasised the importance of team working:

"The implementation and transition to Electronic Test Requesting was successful due to the positive working relationships built between Emergency and Acute Medicine Directorate, IT and Digital Health Intelligence. This almost seamless transition has enhanced our patient care in providing timely and accurate results."

DHCW Plans for Developing ETR for Secondary Care

DHCW plan a new release of the Welsh Clinical Portal in December 2021 having been delayed due to Covid-19 priorities. This includes significant enhancements to the Results Notification and sign off capability, including the ability to forward a notification to a colleague and to add a notification to their own basket, to be able to sign off any result from any health board.

A new phlebotomy module has been developed for inpatients to enable clinicians to defer specific tests in a pathology request to a phlebotomist work list, to enable a phlebotomist to collect the sample on his/her ward round or at a phlebotomy clinic, and to print the forms. This has now been released to Swansea Bay UHB for user acceptance testing starting in January 2022 and with go live planned for March 2022.

Photo: a screenshot of the Histopathology request e-form.

Histopathology requesting has been developed using a new e-form that will allow clinicians to request a histopathology test or a cytology test via the WCP. Integration with the LIMS is due to be completed by the end of December 2021 and user acceptance testing is due to start in Betsi Cadwaladr UHB in February 2022.

Development is now due to start on a new and improved blood science/microbiology e-form to replace the current request form in WCP and following user acceptance testing by the end March 2022, is planned for release during 2022/23.

Photo: James Braun, Project Manager, DHCW.

Photo: Sally Pritchard, Project Manager, DHCW.

DHCW Plans for Developing ETR for Primary Care

Phase 1 of the GPTR Project is complete having been set up in 2011. The project developed the GPTR system, synchronised with the LIMS, the Welsh Results Reports Service (WRRS) and the Wales Pathology Handbook.

The system is being deployed across Wales and 66% of primary care ETR is now being made using GPTR/Integrated Clinical Environment (ICE). The benefits are; the improved management of test requesting workflow between primary and secondary care, a reduction in the number of labels produced and improved demand management by alerting the clinician if a patient has recently been bled.

Phase 2 of the GPTR Project started in November 2021 and seeks:

·   To support GP practices to increase usage to 90% by December 2022.
·   To maintain, and if required, upgrade the GPTR system in response to end user feedback.
·   To identify a printing solution for GPTR forms to be printed in community locations outside of the GP Practices.

In 2022 a new GP portal will be released to allow GPs access to all Wales results, documents and graphing and tabulation via the Welsh Clinical Portal (WCP).

Let us know your ideas!

Please get in touch with LINC If you have any ideas for improving the take up of ETR or wish to share your experience.

You can contact us at: LINC.PMO@wales.nhs.uk