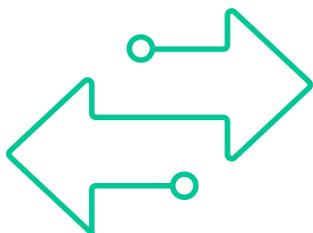# X-Lab Diagnostic Exchange

01 What is X-Lab's Diagnostics Exchange?

X-Lab's Diagnostic Exchange is a unique, global technology which enables any diagnostic laboratory to refer tests or return results to any diagnostic laboratory, anywhere in the world. As a data- and systems-agnostic hub, X-Lab's Diagnostic Exchange is a tried-and-tested universal solution for healthcare organisations across the world which contributes to the futureproofing and efficiency of diagnostics in healthcare.

X-Lab's Diagnostic Exchange has been used in the United Kingdom since 2007 and it is the solution of choice for the National Health Service (NHS). Operating in the UK under name NPEx, the Exchange is a tried-and-tested solution which is used by every NHS laboratory and a number of private UK laboratories. All UK laboratories connected to NPEx are part of the X-Lab network and are accessible to any diagnostic laboratory, anywhere in the world through the Diagnostic Exchange hub. X-Lab's Diagnostic Exchnage is a fully interoperable, globally scalable solution offering high-quality, efficient, and safe testing to all connected laboratories.

Sending tests through the Diagnostic Exchange's hub offers more than just connectivity across the world. X-Lab's Diagnostic Exchange offers benefits to healthcare providers, laboratory staff, and patients through its unique technology and streamlined workflows. Accessible for any test in any diagnostic discipline, including proficiency testing, the solution transforms the referral and reporting process from

end-to-end. Additionally, X-Lab's Diagnostic Exchange is fully IASME Cyber Essentials certified and is a secure and safe option for all laboratories.
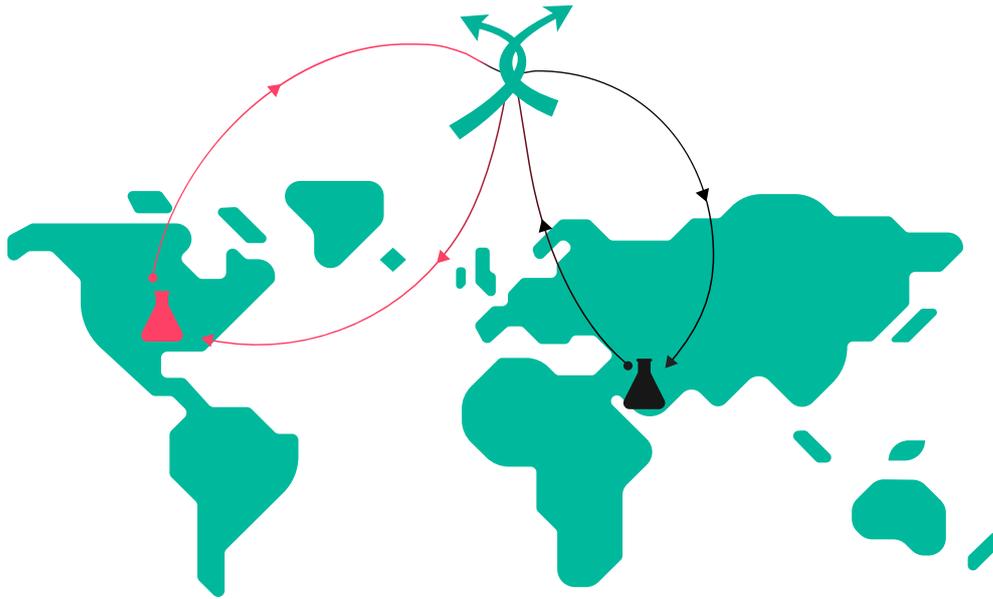
As the first, agnostic solution of its kind, X-Lab's Diagnostic Exchange digitises and automates the lab-to-lab referral and reporting process. The Exchange removes the need for inefficient manual processes that are time-consuming, incur unnecessary costs, and result in errors which ensures faster turnaround times and better care for the patient whose sample is tested. X-Lab's Diagnostic Exchange is a cost-effective and universal solution which removes the need for expensive bespoke, point-to-point workflows by opening connectivity channels between any and all laboratories and their

Since mid-March 2020, the X-Lab team have been working closely with leaders in the NHS to aid the national response to COVID-19 in the UK. **Please read more about this in section 3.**

02 How does the Diagnostic Exchange work?

Any lab can send any test, anywhere in the world, and back, through X-Lab's Diagnostic Exchange. All tests sent through the solution will be mapped against the local laboratory information system codes of the sender and, through the Diagnostic Exchange hub, will be translated into the local codes of the performer. This same premise is the basis for all X-Lab functionality, and it can be readily used for proficiency testing, microbiology testing, genetic testing, and digital pathology and imaging.

Referring Lab

| A test appears in the laboratory information system. | The system recognises this is an externally referred test and directs the test data through Labgnostic. | The performing laboratory receives and accepts the test request. | The referring laboratory assembles the test shipment and sends it with a Labgnostic shipping manifest and barcodes. |

Performing Lab

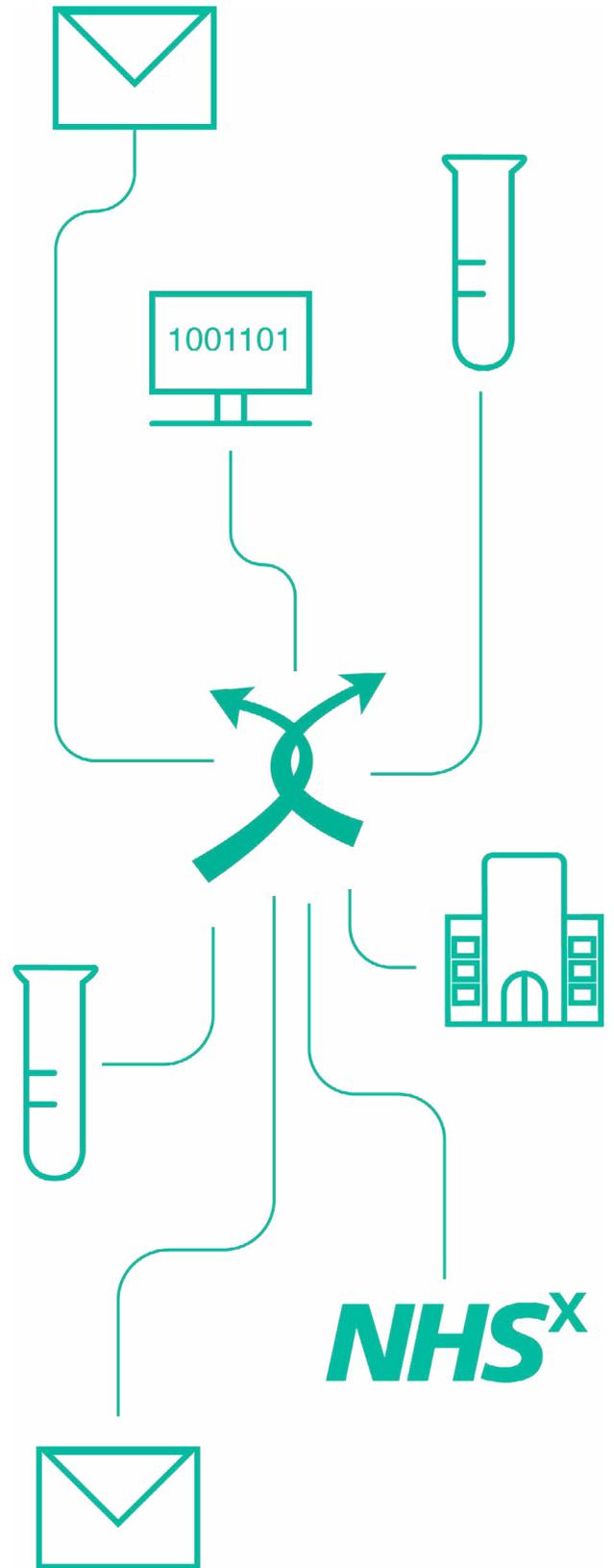| The samples arrive, are booked in using barcodes. | Samples analysed by the performing lab. | Results are generated by the performing laboratory and immediately directed through Labgnostic to the referrer. | Results are available instantly in the laboratory information system. |

03 CASE STUDY: COVID-19 and X-Lab's Diagnostic Exchange

X-Lab's Diagnostic Exchange was a key enabler in responding to the COVID-19 outbreak in the UK. The NHS mandated the use and adoption of the solution in all laboratories and was harnessed across a host of workstreams, proving its cruciality in a time of crisis. X-Lab's Diagnostic Exchange was used for all externally-referred COVID-19 tests, antibody tests, and antibody proficiency schemes run by UK NEQAS Immunology, Immunochemistry and Allergy; the service was a key enabler in the front-line worker testing schemes and reporting of work through the specially built Lighthouse Laboratories; and the team facilitated the reporting of COVID-19 test data to Public Health England and NHS organisations.

If laboratories are facing capacity challenges with their COVID-19 workload, they can easily transfer requests to any laboratory within the X-Lab network to ensure the tests are performed and the results are returned in timely manner. X-Lab's Diagnostic Exchange also uplifts laboratory capacity by removing unnecessary manual processes, and the associated risk of transcription errors, from referrals and reports. This, in turn, allows staff to focus on testing capacity which will enable volume increases. The automated, digital workflow also reduces the time it takes to refer a test and receive the result which minimises turnaround times and ensures clinicians have access to results in less than 24 hours of them being generated.

04 Benefits of X-Lab's Diagnostic Exchange

Efficiency

By ridding the lab-to-lab workflow of unnecessary manual processes Labgnostic streamlines the referral and reporting process. Administrative burdens, including transcribing results, filling out forms, sending emails and chasing results, are reduced for laboratory staff which allows them to focus on crucial testing. When results are generated, they are returned immediately from Labgnostic directly to the laboratory or organisation system. The end-to-end process, from request to result, is fast, effective and efficient.

Patient Safety

Diagnostic laboratory work centres around the patient. The efficient Labgnostic process offers faster turnaround times for all tests requested and reported through the hub. As a result, patients receive their results sooner and clinicians can make faster diagnoses. The removal of unnecessary manual processes from lab-to-lab workflows leaves less room for error. Human risks, such as transcription errors and lost results, are eliminated by Labgnostic ensuring that patients are kept safe end-to-end.

Cost

Labgnostic is a cost-efficient solution that can be found nowhere else on the diagnostic information systems market. The fully interoperable Labgnostic hub removes the need for multiple expensive point-to-point systems and invites connected laboratories to a global test exchange market at the same time. In removing unnecessary manual processes, staff can invest their time in business- and testing-critical work all while using a system which requires no additional software or hardware.

Data Quality

When transferring data through the Labgnostic hub, that data remains accessible, visible and high-quality end-to-end. Labgnostic offers sample tracking, clear audit trails, real-time visibility of sample status and location. All referrals and results are sent directly from one laboratory system, through the Laboratory hub, to another laboratory system and back. Additionally, all results can be accessed through the Labgnostic interface. Labgnostic removes human error from the referral and reporting process making for cleaner data and accurate results.

05 About X-Lab

X-Lab Ltd are based in Leeds and are changing healthcare on a global level with intelligent software solutions. Formed in 2006 by staff and students from the University of Leeds, the company quickly built a national reputation for successfully delivering ground-breaking digital health within the UK NHS, the private sector and on an international scale. X-Lab's innovations focus on designing digital solutions that transform healthcare through challenging the way its providers think and work.

The drive to build digital technologies to transform healthcare runs through the heart of X-Lab's company ethos. Our aim is to develop faster, more cost-efficient ways of delivering healthcare for both providers and receivers. By prioritising patient-safety, speed of care and provision at scale, our team consistently deliver outstanding solutions that place supporting people, be they patients or clinicians, at the core.

This sentiment runs through our multi-disciplinary team who collaborate, using their varying academic and professional backgrounds, to develop and deliver X-Lab's solutions through a common passion for improving healthcare. The team work creatively and collaboratively to develop new systems, improve X-Lab's solutions and deliver these to the healthcare providers who need them – they are the company's greatest asset.

From vision, to development, to delivery, to support: our approach is one of robust determination, reliability and commitment. In every partnership, collaboration or customer-relationship we focus on delivering quality solutions and service to deliver quality care.

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