

Laboratory IT and Service Consolidation: It's (not) all Doom and Gloom!

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Introduction

Path Links was formed in 2001 by joining the NHS pathology services in Boston, Grantham, Grimsby, Lincoln, and Scunthorpe. This created a single managed network operating across the County of Lincolnshire. This network operates across two NHS Trusts, North Lincolnshire and Goole NHS Foundation Trust and United Lincolnshire Hospitals NHS Trust, with the trust in the north of the county the operational lead for the service.

Path Links serves a population of approximately 1 million, making it the largest clinical pathology network operating in the United Kingdom. Laboratory services are provided at each of the Path Links sites offering Blood Transfusion, Haematology, Biochemistry, Microbiology, Immunology, Cellular Pathology and Andrology services. Each year, Path Links processes 4.5 million specimens, performs 20 million tests and generates 5 million test reports.

Within Blood Transfusion around 100,000 group and antibody screen samples are tested per year across the five Path Links sites. From these, approximately 30,000 red cell units are crossmatched every year with the majority of these units being crossmatched electronically.

A shared multi-disciplinary LIS (Laboratory Information System) (Dedalus iLaboratory/Apex) has been in place since 2003 and has facilitated electronic issue of red cell concentrates since 2008.

Methods

During 2021, we installed a combination of automated (Bio-Rad IH-500) and semi-automated (Bio-Rad Banjo ID-Reader) systems for ID-Cards (fig. 1). Since each laboratory had different workloads and testing needs the implemented solution was tailored to each site. All instruments were networked through Bio-Rad's IH-Com software, to allow single point of access to patient information, worklists, and results. IH-Com centralises data in a single database meaning only one connection to the LIS was required.

Part of the implementation project was the removal of automated testing on the Grantham site as the workload was, and remains, low (around 200 samples per month). A manual solution is in situ on this site for urgent work. However, most of the workload is comprised of non-urgent pre assessment specimens and as such they are transported to either Boston or Lincoln laboratories for automated testing.

Processing the Grantham work in this manner allows electronic issue to be available for specimens that meet the requirements. Specimens from patients with alloantibodies are also processed off site at Boston or Lincoln, with crossmatched blood being transported back to Grantham on internal transport.

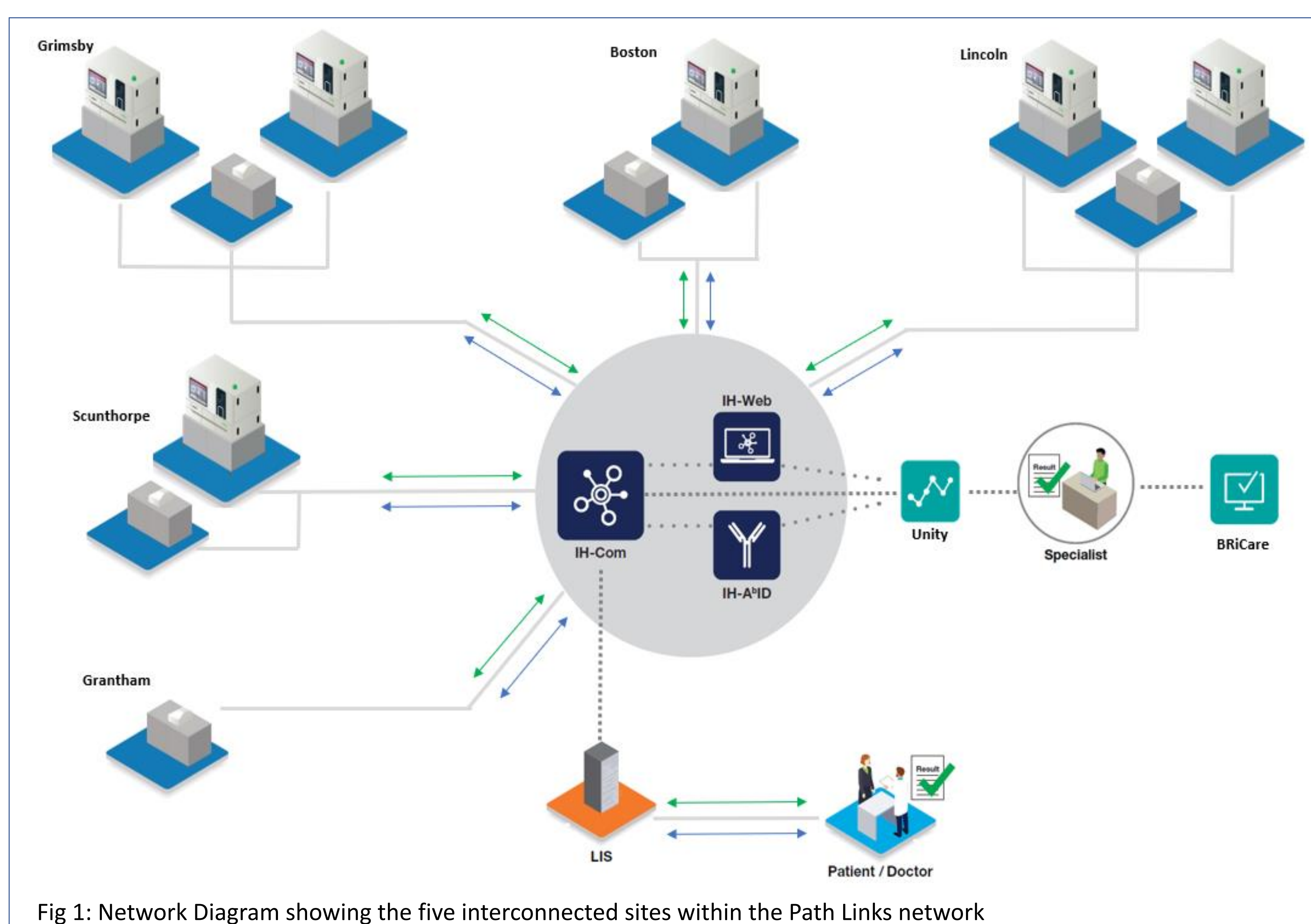


Fig 1: Network Diagram showing the five interconnected sites within the Path Links network

Discussion

The nature of the Path Links pathology network has allowed the development of a highly specialised transfusion service that is able to react to changes in local and national policy very quickly. The transfusion managers in the network divide out the roles of a regular transfusion manager, allowing an individual to specialise in one area – e.g. IT, regulatory compliance, governance, quality and research opportunities.

By implementing a networked IT solution for transfusion, Path Links was able to demonstrate a massive saving in resources through consolidation of services and sharing of staff expertise across sites. For example, the shared middleware (Bio-Rad IH-Com) allows a Biomedical Scientist on any site to view the images for any result regardless of the original testing site. This allows for improved cross-site support both within core hours and especially out of hours. Additional tools such as IH-Web, a browser-based version of the middleware, facilitates support from senior staff dialling in from home.

Large financial savings have also been made in several areas. Firstly, the reduction in the number of interfaces to the LIS, down from 7 interfaces to a single interface, has afforded a significant cost saving due to the annual interface maintenance fee charged by our LIS supplier. Further to this, the removal of automated testing at Grantham has presented a cost saving to the trust without compromising patient safety. In time the manual backup solution (Bio-Rad Banjo ID-Reader) may be removed, however this remains under review as the trust are implementing a Covid recovery plan which may increase the workload received at Grantham.

IH-A^bID antibody identification software assists the Biomedical Scientists in decision making. To date Path Links has not implemented this routinely, instead opting to use the software when there is a complex mixture of antibodies to aid identification. The software also has

the capability to recommend additional antibody panel cells for further inclusion or exclusion of antibody specificities.

Unity Real Time QC (Quality Control) trending allows for immediate cross site comparison of data points, allowing any analyser performance issues to be picked up and actioned in a timely manner.

Finally, BRiCare, Bio-Rad's remote support and monitoring system increases instrument availability and reduces response time for technical support calls. This is essential for sites with only one automated platform where maximum analyser uptime is a priority.

With the announcement of the proposed 29 pathology networks by NHS England (2019), a networked transfusion solution provides opportunities for improvements in quality and efficiency as well as offering cost savings. The sharing of patient transfusion history across trusts improves the safety of the transfusion service as seen locally in Path Links and nationally in the new National Haemoglobinopathy Register. In time I would like to see this kind of data sharing facilitated automatically across the country, either via Integration Engines or a national Transfusion LIS such as that seen in Wales.

References

1. NHS England and NHS Improvement. (2019) Pathology Networking in England: State of the Nation

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