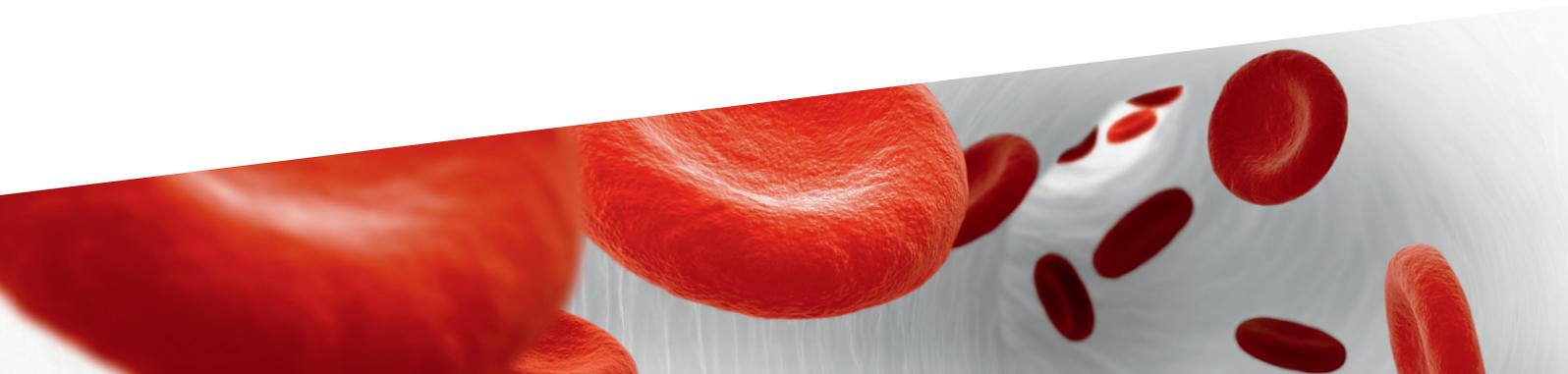


Sysmex Efficiency Review



XN-Series – Royal Oldham Hospital

The challenge ahead

The main laboratory at The Royal Oldham Hospital, part of the Pennine Acute Hospitals NHS Trust, serves a population of over 800,000 to the North and East of Manchester. The Trust has developed an investment plan to improve the comprehensive range of acute, general and gynaecological services delivered at the hospital. As a part of this investment plan, the busy Haematology department issued a Tender in 2013 for the replacement of its existing analysers and equipment. The laboratory faces a daily challenge to provide thousands of accurate and reliable diagnostic results within strict time limits. The objectives of the tender were to:

- deliver a more efficient and effective service;
- have a single point for sample loading, with automated sample sorting and storage;
- and reduce running costs.

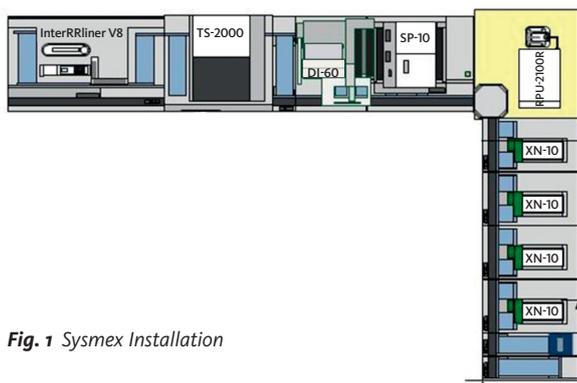


Fig. 1 Sysmex Installation

The chosen solution

The tender was won by Sysmex UK Ltd. Following the tender award, the haematology department has significantly changed its analytical equipment (fig. 1) and IT systems. In 2014, a new, fully automated solution was installed, including:

- an XN-9000 system for FBC analysis (4 XN-Series FBC modules);
- an SP-10 blood film and staining system and DI-60 providing digital imaging for blood film review;

- a TS-2000 for automatic sample sorting and archiving;
- an integrated Starrsed RL for ESRs;
- an RPU-2100R reagent preparation unit to reduce reagent changes and storage space;
- and *Extended IPU* software to improve workflow standardisation and control, and synchronise sample, order and data flow.

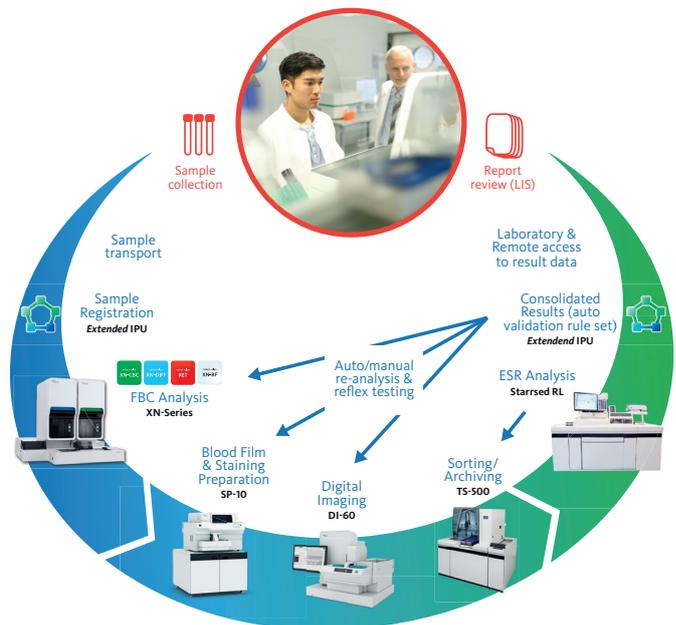


Fig. 2 Full Laboratory Workflow with the Sysmex Solution

The Haematology department performs on average 2,179 cycles per weekday and 286 cycles per weekend day (fig. 3). The analytical stage on the XN-9000 from system loading to result, takes an average time of 6.52 mins during quieter periods (n=164 : 11:00 – 12:00) and an average time of 14.23 mins during the busy afternoon period (n=398 : 16:00 – 17:00) (fig. 4). 95% of samples had an average turn-around time of < 1 hour, whilst A&E samples had an average TAT of 24.12 mins.

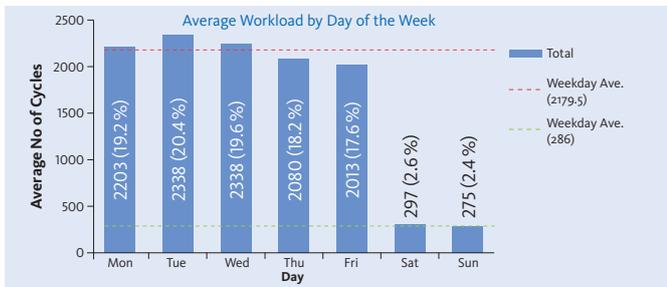


Fig. 3 Average daily workload (May 2015)



Fig. 4 Average TATs/analysis times (XN-9000 loading to result)

The benefits realised

The new system has created a lean approach, optimising the workflow, reducing manual intervention and implementing several improvements (fig. 5), including:

- balanced workloads for a more efficient and effective service;
- automated Reticulocyte and Nucleated RBC now included routinely;
- a reagent system that reduces storage and handling requirements;
- smart barcode reader which simplifies sample handling and routine testing;
- integral ESR testing that saves time and money;
- automated sample sorting saving > 700 man hours/year.

Intelligent balancing of workloads delivers a more efficient and effective service

Previously, samples were allocated between the department's four Haematology analysers according to which instrument was least busy. The XN CT-90 automatically balances the workload between modules ensuring minimum turnaround times.

Automated Reticulocyte counting and Nucleated RBC now included routinely

Formerly, samples requiring Reticulocyte testing could only be processed on 2 of the 4 analysers. Reticulocyte counts and film preparation, staining and processing are part of pre-programmed reflex testing and now run automatically. Nucleated RBC is now delivered as standard with each FBC to levels as low as 1/1000 WBC. This ensures a reliable white blood cell count, even at high NRBC concentrations. WBC values are provided automatically if NRBC are present. It also saves precious time by reliably replacing the manual NRBC counting and white blood cell correction.

Significant reduction (88%) in reagent storage space required with fewer changeover periods

Laboratory staff used to change between 4 and 5 reagent containers daily (20 Kgs kegs were stored externally). A Reagent Preparation Unit has now reduced the time spent changing reagents to once or twice a week and concentrated reagent packs are easily stored within the laboratory.

Smart barcode reader helps to simplify sample handling

Previously an operator needed to manually check the position of every barcode which was time consuming and could cause delays. Now an integrated tube turner makes sample loading simpler. The XN BT-40 barcode reader eliminates barcode reader errors* and saves vital time.

Integral ESR testing saves on tube costs and handling time

81,000 separate ESR collection tubes were handled manually every year, but EDTA tubes are now automatically transferred to the integrated Starsed RL ESR analyser for a more streamlined and efficient workflow, delivering significant savings.

Automated sample sorting saves more than 700 man hours per year

Sorting and archiving over 2,000 barcoded samples a day was completely manual. Automating this process saves over 3 hours of operator time a day and provides opportunities to look at staffing arrangements. Racks are automatically transferred to a tube sorter after FBC analysis, and then on to any further tests or sample archiving.

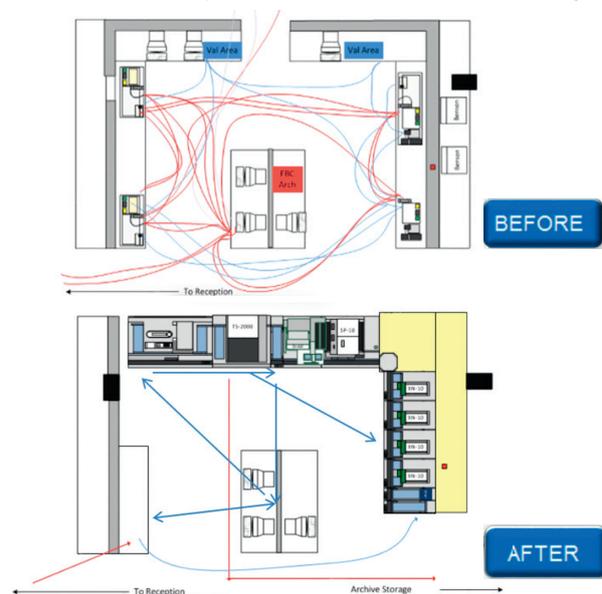


Fig. 5 Laboratory layout pre- and post-installation showing sample intervention by laboratory staff

'We have seen significant improvements in the workflow through the department since the installation of the Sysmex automated system.'

Jane Nelson, technical manager and training lead at the Royal Oldham Hospital

*dependent on the tubes and labels compatibility with the XN-9000

About Sysmex

Sysmex UK Ltd is the distributor and support network for Sysmex automated haematology and coagulation diagnostic analysers, reagents, information systems for laboratories and healthcare facilities within the UK and Ireland. Sysmex Corporation is the global leader in systemisation, providing solutions to streamline and improve the workflow of the busiest laboratories.

For further information please contact Sysmex UK by email info@sysmex.co.uk or phone 0870 902 9210. For product information please visit the Sysmex UK website www.sysmex.co.uk