Imperial College Healthcare NHS Trust's Imaging Department goes live providing intuitive radiology workflows

Needing little introduction, Imperial College Healthcare NHS Trust is one of the country's largest trusts and teaching centres, providing acute and specialist healthcare for nearly two million people in north west London. The Trust comprises of 5 hospital sites - Charing Cross, St Mary's, Queen Charlotte's & Chelsea, Hammersmith and Western Eye – and is one of just seven dedicated health science centres in the UK. With academic links to the Imperial College itself, the Trust puts research into practice by applying medical studies and disciplines into their acute healthcare environment.

Imperial College Healthcare invests significantly in its staff and resources. With over a million outpatients, 280,000 A&E attendances and 186,000 inpatients, a team of 10,000 doctors, nurses and health professionals support the Trust. One busy area of the hospital is the Imaging Department; nearly 500 staff and the best state-of-the-art diagnostic equipment offer a comprehensive range of radiology examinations.

“We had truly set ourselves a challenge with a “Big-Bang” Go Live across 3 large London hospital sites - and we are delighted to announce its success”.
Laurence Musker, Radiology IT Programme Manager
A truly integral part of the Trust's clinical remit, Imaging uses the latest techniques to support Imperial College Healthcare's teams in the diagnosis and treatment of the full range of medical problems and their vast range of apparatus supports the 119 modalities and 440,000 examinations.

**TRUST CRITERIA – WORKFLOW NEEDED FOR EFFICIENCY GAINS**

To manage radiology processes and to accommodate the sheer extent of patient examinations, Imperial College Healthcare's Imaging department required sector-specific software solutions to support the department and provide traceability of appointments and clinical documents. From 2012, Imperial College Healthcare adopted a RIS (Radiology Information System) and PACS (Patient Archiving Communication System) from GE. After 3 years of use, the Trust took the decision to investigate new clinical systems to support the hospitals’ radiology processes. Laurence Musker, Radiology IT Programme Manager, comments:

“Imperial College Healthcare started the process to procure a new provider of RIS and PACS. We were looking for improvements in our departmental workflow and needed certain efficiencies that an advanced workflow structure could offer”.

Laurence had identified that technologies and radiology IT applications had become more sophisticated and innovative within the 3 years in which they had appointed their legacy system. In addition, the Trust’s own requirements were becoming more complex; more patients, larger administration surges and the sector requirement to “go paperless” brought added clerical challenges. It was becoming vital that Laurence and the Imperial College Healthcare team had a RIS and PACS framework that could not only support the department with clinical images, but bring a level of workflow intuition to smooth departmental practices and allow better management of patients and their bookings. In July 2015, after creating process, user and site criteria, Laurence was confident that the Trust could go out to tender with firm RIS/PACS solution

“Imperial College Healthcare NHS Trust needed a system that had proven success and could work immediately – straight off the shelf. We formerly ran a function-centric system - which did not allow for an efficient workflow in a very busy hospital environment - but times had changed since our early RIS. We had reached a detailed solution specification and criteria for a patient-centric RIS system”.

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CONTRACT AWARDED TO SOLITON IT AND CARESTREAM

Along with the emphasis on workflow, the Imaging department also stipulated autonomy of image communications - the Trust needed to send medical images which included routing to GPs and external referrals. They needed a concise interface that could be adopted by any of the radiology staff and used intuitively in point-of-care and examination sessions by radiographers where time-keeping and exam diligence where critical factors. The structure of RIS workflow management and PACS imaging support had to integrate seamlessly - both together to create a united enterprise-wide solution and with the Trust's other clinical systems to enable fluid patient record sharing, reduction in printing tasks and transparency of clinical data. The potential cost and resource investment of 2 new applications meant that Laurence and his team had to see operational improvements and measurable benefits in the new RIS and PACS solution. In 2015, after assessing the market offerings for both RIS and PACS systems, Laurence appointed products from two market-leading vendors, Soliton IT for RIS and Carestream for PACS applications, with the intention of a compressed 1-year transition from the previous GE technology.

RADIOLOGY+ REDUCES TRUST'S BACKLOGS WITHIN 2-WEEKS

Soliton IT, a UK-based RIS developer, had previously assured Laurence of their clinical experience with their excellent reputation in Reporting and VR (Voice Recognition) deployments. Soliton IT’s RIS product, Radiology+, provided Imperial College Healthcare with automation of radiology tasks with its advanced workflow dynamic, including modular features which were customised for both the Trust and individual users. Daily tasks such as scheduling patient appointments, protocolling, vetting, data-entry, inter-departmental messaging and departmental reporting tasks were displayed in intuitive worklist fashion, by clinical discipline, for easy identification. Equally, the “assign to” option allowed redistribution of protocolling and reporting tasks to tackle administration surges and reduce backlogs. In addition, Radiology+ offered an innovative statistics-generation element to the RIS; graphical statistical analysis on area performances highlighted, in quantative terms, where areas for improvement lay.

Imperial College Healthcare's principle of becoming a RIS-driven site was rewarded with quick tangible results. The new radiographic workflow of integrated RIS and PACS made huge differences to reporting procedures, and maintaining patient bookings had become easier due to concise and colour-coded scheduling interfaces available to the administration team. Within 3 weeks of deployment, the Trust had reduced their former appointment backlog and patients’ radiology experience had become smooth and more streamlined.
CARESTREAM’S PACS OFFERS PROVEN IMAGING PROFICIENCY

The integration of Carestream Vue PACS brought additional advantages in terms of clinical imaging functionality. Carestream Health is a worldwide provider of medical imaging systems with specialities in X-ray imaging platforms and a particular focus on PACS development. Their leading PACS application, Vue PACS, provided Imperial with the clinical tools and applications needed for radiologists to perform examinations with advanced visualization and 3D post processing. The combined Soliton IT and Carestream solution was already successfully in use in many other hospitals with seamless integration - bringing enhanced functionality to radiology and Imaging departments.

Laurence comments on the compatibility of the 2 systems:

“Radiology+ and Vue PACS integrate nicely together - both visually as an interface and functionally to offer improved processes to our radiographers, consultants and the radiology administration team. Radiologists found it easy to report and their workload management was easier to handle”.

The changeover encompassed significant data migration which, considering both Soliton IT and Carestream’s previous deployments in large NHS Trusts, Laurence was confident could be handled efficiently and meticulously. Over 143TB (5-million studies) had to be migrated from their previous GE live PACS archive to the new application and Soliton IT showed their technical capability of implementing the data transfer for legacy RIS data with their own scripts.

MULTI-SITE GO-LIVE FULFILLED AHEAD OF SCHEDULE

Radiology+ and Vue PACS integrated well with Imperial College Healthcare’s other HIS and OCS applications – Cerner PACS/OCS and Sunquest ICE (for the GP Diagnostic Cloud). Completed within 8-months (ahead of the year's transition deadline), the dual solution went live on 30th May 2016 and is currently in use by over 300 radiology users. Ever considerate of future system potential, Laurence and the Imperial College Healthcare team have already plans to adopt Soliton IT’s Radiology+ Mobile – a portable version of the RIS with quick-fire data capture and optimised security which is suitable for mobile clinicians. Soliton IT's additional development of the Trust's Nuclear Medicine workflow also tackles the complex multi-procedure nature of this discipline, incorporating auto-scheduling for the stages of tiered patient bookings and dose management features.

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Laurence comments on the compatibility of the 2 systems:

The Trust was impressed with the integration qualities and emerging improvements of the Carestream and Soliton IT solution, and we were overwhelmed with Soliton IT’s flexibility with our requirements and willingness to adopt, build and develop all our needs into their product”.

Maggie Buckley, Project Manager for Soliton IT, was responsible for RIS deployment at Imperial. She comments:

“The Imperial College Healthcare implementation introduced several challenges for the Soliton IT Project Team. A previous experience had made the Trust uneasy about the change; we found ourselves working closely with Imperial to both overcome this and instil confidence in the new deployment. This close working relationship enabled us to address concerns, maintain project momentum and overcome any day-to-day issues which this complex installation presented.

Imperial College Healthcare’s unique development requirements, whilst technically challenging, were successfully fulfilled and have since been incorporated into our standard deployment package. This will ultimately be of benefit to all our current and future customers. This multifaceted and high-pressure project benefitted from Soliton IT’s commitment and pro-active approach. As a result, we developed an excellent working relationship with the Trust which shall continue throughout the lifetime of the contract”.

Charlie McCaffrey, Managing Director of Carestream Health UK Limited, adds:

“When faced with the challenge of bidding to replace the legacy RIS-PACS Solution at Imperial College Healthcare - which included implementing and migrating legacy RIS and PACS data against a very aggressive timetable with associated penalties and liabilities - it became clear that Carestream, as a prospective Prime Contractor for the RIS-PACS-VNA solution at Imperial, would not be able to implement a 100% Carestream RIS-PACS-VNA solution in the restricted time given. We therefore chose to partner with Soliton IT for the RIS element of the RIS-PACS-VNA bid and were delighted to be awarded Prime Contractor for supply of this solution. Carestream sub-contacted the provision of the RIS to Soliton IT who provided a flexible, innovative and customised solution which met Imperial’s requirements and within the time constraints given. The Soliton IT and Carestream Implementation teams worked well together, as did the Commercial Teams who provided Imperial with the flexibility to choose, customise and optimise their workflow and provided them with the flexibility to adjust workflow as new developments become available and evolve over the duration of the 10-year agreement. Carestream looks forward to continuing to work with Soliton IT to meet the needs of Imperial College Healthcare NHS Trust”.
RADIOLOGY+ - KEY BENEFITS

- Proven integration with Carestream PACS
- Flexible, modular and adaptable to individual user and site requirements
- Developed in collaboration with NHS users
- Intuitive and easy to learn
- One content-rich interface provides an at-a-glance view of Radiology tasks
- Specialist clinical modules available
- Mobile application for mobile users
- Fully integral voice recognition with clinical contexts incorporated
- Supports multi-site configurations