

Doncaster Pioneers New RIS for the UK

Busy NHS Foundation Trust finds the new Canon RIS eminently up to the job and the evolutionary approach has ensured customer expectations continually met.

Background

As well as being an acute foundation trust with one of the busiest emergency services in England, Doncaster and Bassetlaw Hospitals NHS Foundation Trust is an associate teaching hospital to Sheffield University, an associate college of Sheffield Hallam University and has strong links with the Yorkshire and Humberside Deanery.

Serving a population of 420,000 across South Yorkshire, North Nottinghamshire and the surrounding areas the Trust runs three hospitals. Doncaster Royal Infirmary (DRI) and Bassetlaw Hospital, Worksop are both very busy acute hospitals with a complete range of district general hospital facilities, and Montagu Hospital, Mexborough - whilst primarily housing a small inpatient facility for patients requiring further rehabilitation before discharge - also has a nurse-led Minor Injuries unit, a busy day surgery unit and a wide range of outpatient clinics.

The 500 bed DRI and the 170 bed Bassetlaw Hospitals are the hub of the Trust's acute care services, with DRI also housing specialist services including vascular surgery, whilst Bassetlaw provides the Trust's breast care unit and renal dialysis facilities.

RIS History

John Platts, Assistant Programme Manager for the Trust for six years, now working with Sharon Burgin - Programme Manager - takes up the story. "Our Canon Zillion RIS has been installed and operating for 2 years, about a year after our PACS came online. Prior to that, legacy systems had reached the limit of their capability and changing them in a stepped approach was our choice, with PACS first to move. Migration of RIS data was completed over a single weekend and went remarkably smoothly, considering there were several million records. We were keen to ensure our data was as clean as possible, and we have kept it that way".

"Today, Sharon's and my roles are essentially as front-line response to the 500 plus users - particularly the radiology users. It is a never-ending task as new users come on stream, there is staff turnover to be managed and updates and upgrades to be planned and implemented - we are the direct link with Canon, and ISN, their support partner in the UK. We have found the Canon Netherlands team (previously known as Rogan-Delft) to be extremely supportive and keen to help, welcoming the huge amount of input we had in refining the Canon RIS product and optimising its fit for our demanding needs", he added.



John Platts - Assistant Programme Manager

"Our relationship with their UK arm - ISN - is excellent. They are always available and are particularly responsive to our needs. We also have the real benefit of having helped to develop a tailor-made system designed with our workflow needs to the fore - a luxury from which we and Canon both benefit", he continued.

The Canon RIS installation has been seen as more of an evolution than revolution, with a number of developments taking place to meet customer requirements, as is the nature of an innovative solution. The impact of the input of Consultant Radiologist, Dr Neelam Dugar and her team means that the RIS updates are generally small steps rather than large upgrades and the acceptance-testing before any go-live has been well received and the roll outs have proved to be generally issue-free as a result.

Radiology Perspective

From the radiology perspective Dr Mathew Kaduthodil, Consultant Radiologist, specialising in non-vascular interventional procedures has been with the Trust for four years. As a user he understands the settling-in period required for new IT software. "The voice recognition (VR) – as opposed to digital dictation- is important to me, as with any consultant. Issues previously identified have been largely resolved and some were to do with training the software - that will always be more or less of a challenge depending on your speech clarity, accent, time you put into the training and consistency of voice when dictating"



Dr Mathew Kaduthodil - Consultant Radiologist

"The Canon Zillion RIS is web-based and installing, updating and upgrading are so much easier than the former RIS that was a thick-client application. "

-Dr Neelam Dugar - Consultant Radiologist and Clinical PACS Lead

Dr Dugar's Contribution

The Trust, and DRI in particular, has been fortunate to have as its RIS-PACS Clinical Lead Dr Neelam Dugar, who has been at the forefront of forward-thinking PACS / RIS development in the UK for the last 15 years, both as Chair of the influential Royal College of Radiologists' UK Imaging Informatics Group for seven years to 2013, and also previously a member of the British Institute of Radiology Health Informatics Committee for many years. She has been Vice President for the Informatics Stream of the UK annual radiology congress – UKRC - for the last 2 years.

Dr Dugar has also been a leading light in the standards world and a staunch proponent of the use of standards in PACS/RIS – DICOM, HL7 and IHE, most notably in standards delivering what clinicians need. She has been the UK user co-chair of IHE-UK for a number of years and has supported the IHE-Europe Connectathon and UK Interoperability demonstrations that have taken place at a number of recent exhibitions – the latest being the EHI-Live demo at NEC, November 2015.

All of this has been achieved as well as spending a huge amount of time organising and getting the very best technology for the patients by way of PACS / RIS solutions, during her 13 years at the Trust.

The Trust's initial PACS installation was in 2006, under Dr Dugar's clinical leadership and when it was upgraded in 2012/13, they initially retained the legacy 20 year old RIS. After an extensive OJEC procurement for RIS replacement a short list was drawn up and the Canon RIS stood out as being the most modern, and the most open to the tailoring that was

required to meet the Trust's requirements. "The Canon Zillion RIS is web-based and installing, updating and upgrading are so much easier than the former RIS that was a thick-client application. There is no separate log-in process, it takes the Windows log-in, saving time for all users. The search facility is also very modern – we can now search on all sorts of criteria – local PAS ID, NHS number, date of birth, even word searches etc. – a huge improvement on our previous RIS", said Dr Dugar

"Clearly the databases used in our RIS are significantly more mature and faster and the workflow enables us to be flexible about so many functions if we need to be – I actually booked two patients in myself today because we had a long queue in the reception area and I was ready for their procedure" she added. "A next step is the opportunity of self-check-in radiology kiosks that would remove the queue entirely of course."



Dr Neelam Dugar - Consultant Radiologist and Clinical PACS Lead

Vetting workflow is hugely efficient on the Canon RIS, allowing editing and cancelling exams that are inappropriate. The reason for cancellation is communicated electronically via standard HL7 messaging to PACS and EPR type systems. "Functionality is so much faster, reducing 2 - 3 pages down to 2 - 3 clicks for a radiographer completion stage for example", commented John Platts, "a considerable time-saving benefit to the team".

Reporting has also taken a step forward, with VR – a big step on from digital dictation. Though Dr Dugar, like some of her 12 radiology colleagues, was initially sceptical, she is a complete convert. However the Trust was keen to retain flexibility, so consultants could use digital dictation and direct typing, if they wish. Again the Canon RIS proved impressive with its work flow options.

Another important clinical functionality is that radiologist reporting now uses single-click access to results from blood test reports, histopathology reports, clinical notes, discharge summaries, etc. (using url linking with other clinical IT systems like ICE and Medisec from the Canon Zillion RIS). This results in the production of a much-improved quality, and more comprehensive radiology report.

"One of the biggest improvements is the ease of putting exams into a housekeeping folder for admin tasks - previously all sorts of work-arounds were needed. Now radiologists and all other staff can put an exam into housekeeping in the knowledge that it will be picked up and acted upon by housekeeping / admin staff. It would have been unproductive for radiologists to do housekeeping tasks themselves, and departmental efficiency would have been a real issue", Dr Dugar commented. "MDTM worklists (discussion lists) on RIS were a real bonus. Although PACS allows us to create MDTM worklists, we are unable to add addendums to reports at the end of an MDTM on PACS. There is great benefit to using MDTM workflow on the Canon RIS - including worklist creating and adding of addendums at the end of the MDTM. It was one of the important reasons we chose the Canon RIS", Dr Dugar explained.

The interoperability side of RIS has also been important for the Trust. Dr Dugar praised the HL7 knowledge of the Canon team which has made messaging between systems comprehensive, yet easy. "We can see exactly where the patient is at all times, a novelty for us because our old RIS was incapable of patient tracking, and indeed many modern RIS are still unable to do this – ADT messages from the PAS are sent to PACS and RIS and displayed on the patient banner – we are able to incorporate real-time patient-location information in giving our reports, rather than relying on out of date information from a request card", said Dr Dugar.

The Vendor Neutral Archive – VNA - is an IHE XDS registry / repository is delivered through the Fujifilm PACS contract by Perceptive (Lexmark). Canon is the XDS source and scanned request cards are then converted into a PDF and registered. Currently this is 'work in progress' as the PACS supplier and Canon work together on providing this functionality but Dr Dugar has ensured that both companies' developers are in line to address this matter, something that was made possible only because of the

functionality agreed at the time of contract and tender award. "Master File Notification - MFN - is another key area that is being worked on now using standards - based messaging via HL7. When a new referring consultant or facility is created on PAS, this will automatically be updated in RIS, removing the need for manual processes and using automation of processes wherever possible", Dr Dugar added.

RIS as a Business Intelligence Source

The Trust was very careful to have a well-written watertight contract for its PACS and RIS procurements which proved invaluable to suppliers to know exactly what was expected of them. In the case of RIS where they were effectively undertaking development work jointly, this was naturally vital to Canon. Dr Dugar and her team put in a huge amount of work to ensure their specification was comprehensive, articulated well and fully understood. Nevertheless a vendor is required who is both listening, understanding and respectful that needs do change - sometimes for reasons outside the control of the client- and one who is also prepared to undertake some of the work 'on the fly'. The Trust's relationship with Canon and ISN thus far has proved that and been valuable to both parties. This was a key point, echoed and endorsed by Kieran Archer – Chairman of ISN – Canon's authorised reseller and support partner in UK.

The importance and power of the RIS as a repository of useful data and information is crucial especially as most departments fail to use the strength of a RIS in this way. "However we ensured that the Business Intelligence (BI) side of the RIS capability was included in our specifications and Canon have been excellent in responding to that", Dr Dugar added. "They have also gone much further in supporting us as our information needs have exploded following requests from government and others", she commented.

Dr Dugar chaired a session at the 2015 UKRC Congress, which included the use of RIS in providing demand capacity data that is so invaluable to hospitals. Canon / ISN was pleased to support the session by providing a speaker; the delegate reaction confirmed the need of NHS Trusts for demand, capacity and usage activity - data and information – it is part of the Big Data opportunity that is locked away in every Trust, yet rarely interrogated to the level it would be in the private sector. "As RIS installations are procured in the coming years, both our General Manager and I would strongly support the inclusion of BI functionality in RIS specifications and recommend to those in procurement to be all-inclusive about what is needed by way of BI from the RIS supplier, BUT to keep the need for an open - minded and flexible business relationship to deliver what will be required, both now and towards future needs, as the NHS will both require and expect", added Dr Dugar.

"RIS is a much more important and taxing procurement than PACS, and that is why many Trusts have avoided the upheaval that is caused, but the outcome is absolutely worth it, providing you have put the effort into the RFP documentation specifications", she concluded.

Clinicians outside Radiology

Looking outside radiology Mr Jay Dugar – senior ENT Surgeon at DRI – is able to evaluate the benefits of the RIS to other specialties, especially in relation to common tasks such as radiology appointment viewing. “Canon has provided an easy-access capability for those outside of radiology to track a patient’s progress within radiology department—i.e. when is the appointment scheduled, when completed, or even cancelled etc. A medical secretary too can search Zillion RIS for appointment information, including radiographer notes / request card,—which reduces phone calls to the radiology department”, Mr Dugar said.

He is looking to the IHE XDS based VNA solution for multi-specialty document and image archive and can see the benefits of inclusion of ‘other o-logy’ images and documents in a standard format with standardised metadata. In his area of practice Mr Dugar can see the benefits of inclusion of audiograms as PDF documents into the XDS environment. Working with the Canon Zillion RIS team on an “XDS connector”, a type of wrapper that is needed to enable sharing of the audiology PDF; could have great benefit to other specialties, once it is completed. The wrapper deals with creation of meta-data and it enables the user to decide which departments’ documents they would like to send for archiving and viewing via the clinical portal. “Canon’s response to tackling this



Mr Jay Dugar - Senior ENT Surgeon

“As with all RIS installations it is very much a team effort. We were delighted they put their trust in Canon technology and ISN support to deliver a working solution”

-Kieran Archer

About ISN

Intuitive Systems & Networks Ltd (ISN) offers design, implementation and ongoing support and maintenance services across the complete range of Canon (formerly Rogan) Medical IT solutions tailored to suit individual organisational needs and budgets in the radiology field.

From highly-available and feature-rich PACS and RIS systems to innovative cross-platform connectivity with our XDS toolset, ISN provides services across both public and private sectors in a flexible and cost-effective manner.

Our pedigree builds upon over a decade within the medical industry using tried and tested medical software systems from a leading European software developer. This, coupled with our roots in the wider systems-integration arena, results in a highly competent and effective organisation which is capable of delivering a best-of-breed, end-to-end solution for the modern medical environment.

opportunity has been excellent and their assistance directly with access to the development team has enthused and encouraged me and my clinical colleagues. The VNA has huge capability so long as you are using it correctly and the IHE standards are largely the key to this”, Mr Dugar stated.

“Our RIS experience, outside radiology, has been positive, it is easy to use, intuitive and has been largely problem free. I am enthused by the opportunity we have to work with Canon to further develop the potential that is clearly there and their support has been excellent on this front”, he added.

Canon RIS / ISN Support is a success

Overall the Trust has seen ISN as an excellent support partner which has worked on their behalf to handle day to day activity and deliver a modern, stable RIS. Kieran Archer said, “We have enjoyed the experience of working with Dr Dugar and her team and it is good to know they have appreciated our efforts. As with all RIS installations it is very much a team effort. We were delighted they put their trust in Canon technology and ISN support to deliver a working solution and we relish the opportunities that are clearly existing to develop the system further. The DRI team and all staff at the Trust have been understanding and supportive in equal measure and I am proud that they think so highly of the Canon RIS and ISN commitment and support”.