



**ROYAL PAPWORTH
HOSPITAL** ADOPTS
ELECTRONIC
PATIENT RECORD AS
CORNESTONE OF ITS
DIGITAL STRATEGY

CASE STUDY: A NEW LEVEL OF CARE



ROYAL PAPWORTH HOSPITAL NHS FOUNDATION TRUST, A LEADING HEART AND LUNG HOSPITAL IN CAMBRIDGESHIRE, ENGLAND, FACED THE DAUNTING TASK OF ADOPTING A NEW ELECTRONIC PATIENT RECORDS (EPR) SYSTEM DURING A MOVE TO A NEW STATE-OF-THE-ART FACILITY ON THE CAMBRIDGE BIOMEDICAL CAMPUS.

It was going to be a lot of successive changes, says Chief Information Officer Andrew Raynes, who is also director of digital at Royal Papworth. But executives at the hospital knew the system was necessary because it would serve as a cornerstone for the organisation's digital transformation strategy.

Digital technology is critical to informing clinical decision-making, optimising resource utilisation and providing information to management about how well the hospital and its patients are doing, Raynes says.

In fact, to crystallise the importance of the organisation's efforts, Royal Papworth adopted the slogan, "World-beating care through digital" as the title of its digital strategy.

CASE STUDY: A NEW LEVEL OF CARE

The hospital, which has around 2,000 staff, is the United Kingdom's leading cardiothoracic centre and provides regional services for cardiology and for cancer. It also provides national services for transplantation, sleep disorders and pulmonary hypertension, says Chris Johnson, a cystic fibrosis consultant and the hospital's chief medical information officer (CMIO).

The hospital needed to go digital, Johnson says, because it wanted to provide better, safer care for patients while delivering operational efficiencies. The first order of business was shifting to real-time systems and driving home the message to the staff that the "use of digital systems is as key to delivering care to patients as actually administering the medicines," he says.

ROYAL PAPWORTH PERFORMED THE FIRST SUCCESSFUL HEART TRANSPLANT IN THE UNITED KINGDOM AND THE WORLD'S FIRST SUCCESSFUL HEART, LUNG AND LIVER TRANSPLANT.

Johnson says the need for an electronic patient records system stems from an affliction that most hospitals struggle with: Royal Papworth had a mix of digital systems but still used paper for many processes. In many cases, IT systems were simply replacing paper with electronic paper rather than actually improving the workflow.

CHALLENGE

- Implement an electronic patient records system to help improve patient care
- Ensure that the new system does more than simply replace paper with electronic paper
- Establish the new system as the foundation for digital transformation

SOLUTION

- Implement DEDALUS Lorenzo electronic patient record service
- Implement modules for test requests and reporting, and prescription and medicine management
- Establish links to other healthcare organisations and interoperate with a different EPR system

RESULTS

- Improved medication safety by clearly documenting prescriptions and identifying patient allergies and medicine interactions
- Digitised more than a million documents and removed most fax machines
- Climbed from Level 1 in the HIMSS EMR Adoption Model (EMRAM) to Level 4, on the way to Level 7



FINDING AN ANSWER

Knowing that adoption of an electronic patient record system would be difficult, Royal Papworth staff visited other hospitals to understand what they'd been through.

"We've seen great implementations of a product and poor implementations of the same product," Johnson says.

"We also saw implementations that were successful, but over a 10-year period.

We wanted to make sure we implemented our electronic patient record at pace across the organisation."

The best way to do that, Royal Papworth concluded, was to sign up Dedalus to deliver its Lorenzo electronic patient record service. "Lorenzo provides us with a new patient administration system, clinical documentation and also electronic prescribing and medicines administration — really, a system that touches everything we do," Johnson says.

Dedalus began migrating Papworth records to Lorenzo in 2017.

"We implemented it within 7 months, including full electronic prescriptions' management and in 2018 also implemented Results and Reporting (R&R), meaning we can send and receive radiology requests and results [from within Lorenzo]. It also removes the variability of the input of human data by removing manual data entry steps." says CIO Raynes.

More recently, Dedalus delivered interoperability with Cambridge University Hospitals' electronic patient records system. "We are now able to send results from Lorenzo into a different EPR system and return results back into Lorenzo as well," Raynes says.

Interoperability is absolutely key to delivering care better, Johnson says. "We've got to be able to exchange clinical information with general practitioners (GPs), with other hospitals and with patients as well."

Lorenzo can serve as that hub. "Lorenzo pulls all of the information we have about a patient together in a single source so we're able to consider everything we need when we're going to make decisions about patient care," Johnson says.

"For our operational managers, it also provides a check on the heartbeat of the hospital. It gives us advanced bed management so we know, for example, when patients come off our critical care unit and we can accept a transfer from another hospital."



ALL MEMBERS OF THE HEALTHCARE STAFF USE LORENZO

"MINUTE-TO-MINUTE, DAY-TO-DAY" SAYS JOHNSON. "IT'S THE FIRST THING WE DO WHEN WE COME TO WORK — TURN ON THE SYSTEM TO SEE WHAT TASKS TO DO AND THEN START DELIVERING CARE TO OUR PATIENTS."

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- Chris Johnson, Chief Medical Information Officer, Royal Papworth Hospital NHS Foundation Trust

SINGLE VERSION OF THE TRUTH

With the integrated components for prescription and medicine management, test requests and results, and links to other resources, the hospital gains a “single version of the truth,” which improves patient safety and simplifies workflow.

For example, Lorenzo integrates with First Databank to provide allergy checks and interaction checks with medicines, Johnson says. “For the first time ever, we are now fully informed about the whole gamut of interactions and allergies that our patients have, they are presented to us in real time. The document is accurate, it’s legible, it’s clear.

And there are electronic checks to make sure that we don’t put a foot wrong when we’re prescribing.”

When you’re implementing a digital programme, there are a number of cultural changes you have to make Johnson says: “We knew we were delivering good care already, but we wanted people to understand that digital was the way forward because digital allows us to improve on that care. That’s a change in mind-set from paper documentation — from pulling a form out of a drawer and just filling it in — to really thinking digitally and about how you can use a system to its best effect.”

The digital transformation at Royal Papworth is already benefitting patients. “We’re seeing improvements in medicine safety,” Johnson says. “No longer do we have problems with legibility of prescriptions. Doctors’ handwriting is no longer an issue. Instead, we have well-presented, clearly documented, well-prescribed medicines that have been checked and so we’re seeing real patient safety benefits there.”

The organisation has also realised many other operational efficiencies, digitising more than 1 million documents and eliminating fax machines.

“We knew we had to be paper-light in all clinical areas before we moved to the new hospital, and 4 months after we went live with Lorenzo we were able to achieve that,” said Johnson.



A NEW LEVEL OF CARE

These efforts have helped Royal Papworth climb multiple levels of the HIMSS Analytics Electronic Medical Record Adoption Model (EMRAM), an index organisations can use to gauge where they stand when it comes to adopting technology to improve patient care.

“We started out at Level 1 and achieved Level 4 in just a year through the implementation of Lorenzo and the requests and results and the electronic prescriptions modules,” Raynes says.

The goal is to reach HIMSS Level 7, Johnson says, “and we want to deliver it in 2 to 3 years, so we’re collaborating with Dedalus to achieve that.

Once we’ve established that foundation, a whole lot more can stem from it. There are some exciting ideas for the new hospital that will combine all of the technology we have in a new building with Lorenzo electronic patient records.”

With Lorenzo successfully deployed, Royal Papworth moved to their new building in May 2019, which Raynes says will probably be one of the most technologically advanced hospital in Europe.

The Lorenzo foundation, after all, makes it possible to explore technologies such as artificial intelligence, voice recognition, automation and robotics to “enable us to become more and more efficient,” says Raynes.

“All of this helps to improve the safety of our patients while delivering the best care possible in our brand new hospital.”

“Lorenzo was delivered on time to quality and cost,” **says Raynes**. “It was a huge success.

Dedalus has really engaged well with my team. They’ve been like an extension of our own arms in delivering Lorenzo.”





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About Dedalus

Dedalus is the leading healthcare and diagnostic software provider in Europe and one of the largest in the world. With its innovative framework of comprehensive and process-oriented solutions, Dedalus enables a revolutionary digital transformation of country-wide Healthcare Systems fully supporting the patient digital journey. Dedalus serves more than 6,100 private and public hospitals across 40 countries, through more than 5,500 highly specialized resources, of which 2000 are dedicated to R&D activities. We aim to help caregivers and healthcare professionals to deliver better care to the communities they serve and for this reason we are very proud of doing a special job, working with healthcare organisations to improve healthcare outcomes for patients.

Life flows through our software.

For more information, visit www.dedalus.com