

Global Digital Exemplar
improves patient safety
with FDB Multilex, saving
2,500 bed days per year



When Cambridge University Hospitals NHS Foundation Trust (CUH), a Global Digital Exemplar, introduced a comprehensive electronic patient record (EPR) system with e-prescribing as part of its eHospital digital transformation programme, its key objective was to improve patient safety and quality of care.

CUH chose Epic as its EPR system and integrated it with active medication clinical decision support from FDB Multilex. Within just a year of launching e-prescribing CUH recorded measurable benefits, including improved safety and efficiency savings, as a direct result of their EPR and Multilex implementation.

Background: CUH eHospital programme

Cambridge University Hospitals NHS Foundation Trust (CUH) is one of the largest in the UK with approximately 1,000 beds and over 9,000 employees. In 2014 it became the first NHS Trust to implement the Epic electronic patient record (EPR) system, integrated with Multilex, as part of its eHospital digital programme to provide high quality patient care with the use of modern computing technology.

CUH took a 'big bang' approach to its EPR implementation, rolling-out a complete EPR, including specialist modules and complete e-prescribing functionality, in one go, across both of its hospitals – Addenbrooke's and The Rosie. Implementation marked the start of the journey to improve patient safety and quality of care across the entire Trust.

The EPR system is used in both inpatient and outpatient areas and spans all clinical areas, including, A&E, wards, critical care, outpatient clinics, surgery, pharmacy, laboratory, and radiology services, with typically 3,200 concurrent clinical staff in the system at peak times.

Multilex seamlessly integrates into the EPR system, providing comprehensive medicine information at the point of care. Integrating Multilex into the EPR enables active medical checking against a patient's medical record, delivering real-time clinical alerts and warnings during the prescribing process.

This case study demonstrates how Multilex can support acute trusts to:

- ✓ Improve patient safety and quality of care
- ✓ Spend less on avoidable admissions readmissions
- ✓ Derive maximum value from an EPR implementation
- ✓ Achieve the highest levels of EMRAM (HIMSS Analytics EMR Adoption Model)



“We selected FDB Multilex as our data provider due to its experience of working with Epic in the USA. It’s a proven UK medication database which allowed us to be dm+d compliant from go-live.”

ANDREW STAPLES *Lead Pharmacist for Electronic Prescribing, Reporting and Metrics, Cambridge University Hospitals*

The benefits of Multilex at Cambridge University Hospitals NHS Foundation Trust

Multilex provides comprehensive medicine information and integrating this information into an EPR system gives prescribing staff instant access to medication data at the point of care. At CUH the Multilex solution has enabled medications to be utilised and prescribed more effectively throughout the Trust and with fewer errors.

The Multilex solution includes alerts (e.g. drug interactions, duplicate therapy, drug-disease contraindications, dose warnings and allergy alerts) that are and displayed to all appropriate clinical staff. In the first year following the go-live of the EPR at CUH, the Multilex medication alerts resulted in prescribers changing their intended therapy in 16% of cases. **This has reduced adverse medication reactions at the Trust, resulting in savings of approximately 2,500 bed days per year, equivalent to £0.98 million.**

The benefits of closed-loop medication management

The EPR and Multilex integration has enabled CUH to realise the benefits of a closed-loop medication management process, from prescription ordering and supply through to administration.

Following implementation of e-prescribing through its EPR system in 2014, CUH went live with Barcode Medicine Administration (BCMA) in 2015. This enables medication to be barcode scanned at the point of administration to the patient. BCMA works to minimise medication administration error by alerting the nurse if the medication selected does not match the prescription. Multilex provides the medication data structure and barcode information that underpins this process. The resulting partnership meant CUH has a much larger and accurate barcode data file therefore improving the scanning success rate and overall efficiency.

Closed-loop medication management was a key requirement for CUH achieving Stage 6 of the HIMSS Analytics Electronic Medical Record Adoption Model (EMRAM) that measures the adoption and utilisation of electronic medical records (EMR also known as EPR) functions. **Notably, CUH was the first UK NHS Trust to achieve this status within a year of go-live of a trust-wide EPR.**

The benefits of the CUH eHospital programme

With the introduction of the EPR at CUH there has been a **99% reduction in paper notes across inpatient and outpatient areas.** Furthermore, as the EPR talks directly to the pharmacy robot, discharge medication preparation time has halved from 90 mins to 45 mins, meaning that patients do not need to stay in hospital for longer than they need to.

Now that clinicians record all patient care and treatment in the EPR system, in real time, CUH has access to a wealth of accurate data to review/compare and report on to continue to improve patient safety and quality of care.

When the Trust makes process changes, such as creating new workflows or alerts in the EPR, they look at all the relevant data in the system prior to the change then compare it a few months down the line when the change has been embedded.



Benefits

REDUCTION OF PRESCRIBING ERRORS



Reduction in sedation related prescribing errors in paediatrics

IMPROVED INDICATION RECORDING



Recording of the indication for antibiotic prescribing

INCREASED BED CAPACITY



Bed days per year saved
Due to allergy-related prescribing alerts in the system reducing adverse medication reactions

IMPROVED QUALITY OF CARE



Increase in patients receiving antibiotics
Within 90 mins of arrival at the emergency department due to electronic sepsis alerts

REDUCTION IN TIME



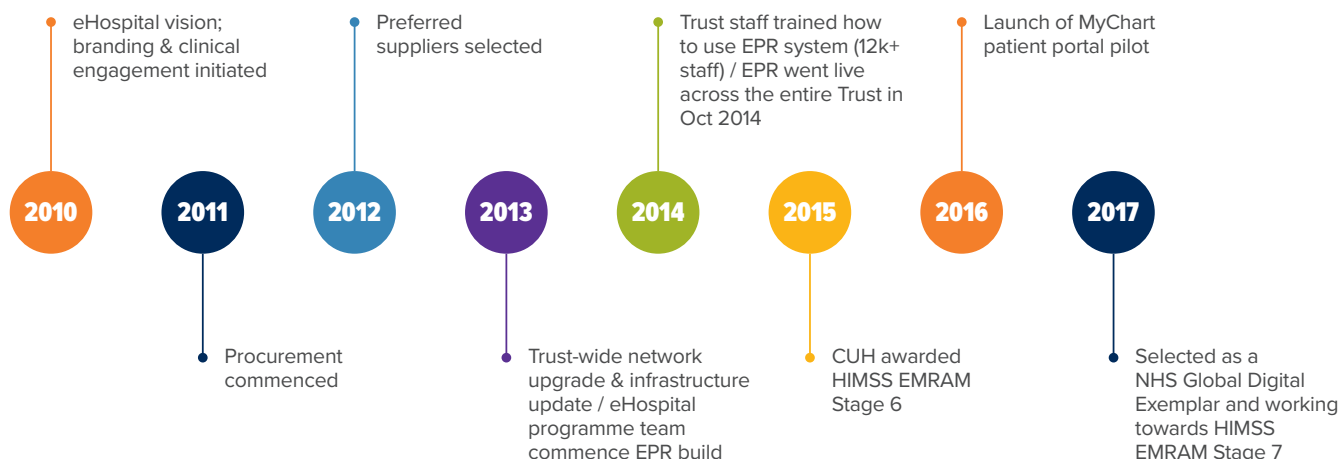
Reduction in the time it takes for discharge medications to be dispensed from pharmacy
Meaning patients do not stay in hospital for longer than necessary

INCREASED EFFICIENCY



Appointments per year freed up
In orthopaedics through the virtual fracture clinic

CUH eHospital programme milestones



Next steps for the CUH eHospital programme

CUH is currently launching a new patient portal 'MyChart' which gives patients secure access to their electronic medical record, including their current medications. Patients can add/edit their medication list as this changes, but always subject to formal reconciliation by a CUH clinician. MyChart is designed to improve communications between patients and clinicians, giving patients more control of their health information.

Enabling joined-up electronic healthcare is high on the agenda too for CUH. They are now developing their EPR platform to enable key patient information to be shared electronically with other digital hospitals and primary care services.

CUH is one of the highest rated Trusts in the UK for the effective use of technology in providing high quality patient care and, as such, it will continue to focus on using technology to deliver ongoing and further improvements for patients. As a Global Digital Exemplar Hospital Trust CUH is also committed to sharing its digital learning with other NHS Trusts.



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