



## Global Digital Exemplar Improves Patient Safety with FDB Multilex and Saves 2,500 Bed Days per Year, Equivalent to almost £1 Million of Savings

### Introduction: The Benefits of FDB Multilex at Cambridge University Hospitals NHS Foundation Trust

Cambridge University Hospitals NHS Foundation Trust (CUH), a Global Digital Exemplar Trust, introduced a comprehensive electronic patient record (EPR) system with e-prescribing as part of its eHospital digital transformation programme, with the key objective to improve patient safety and quality of care. CUH chose Epic as its EPR system and integrated it with the active medication clinical decision support solution, 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 FDB Multilex implementation.

FDB 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 FDB Multilex solution has enabled medications to be utilised and prescribed more effectively throughout the Trust and with fewer errors.

The FDB Multilex solution includes alerts (e.g. drug interactions, duplicate therapy, drug-disease contraindications, dose

warnings and allergy alerts) that are triggered and displayed to all appropriate clinical staff. In the first year following the go-live of the EPR at CUH, the FDB 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. Andrew Staples, lead pharmacist for electronic prescribing, reporting and metrics at Cambridge University Hospitals:

***"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."***

The Dictionary of Medicines and Devices (dm+d) is the NHS standard dictionary for medicines and devices licensed in the UK. CUH with FDB Multilex has been dm+d compliant since go-live enabling CUH to meet the minimum datasets required for NHS England and Clinical Commissioning Group (CCG) reporting.



## The Benefits of Closed-Loop Medication Management

The EPR and FDB 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. FDB Multilex provides the medication data structure and barcode information that underpins this process. The resulting partnership meant CUH had 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.



**100%** reduction in sedation related prescribing errors in paediatrics



**100%** recording of the indication for antibiotic prescribing



**2,500** bed days per year saved due to allergy-related prescribing alerts in the system reducing adverse medication reactions



**80%** increase in patients receiving antibiotics within 90 mins of arrival at the emergency department due to electronic sepsis alerts



**50%** 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



**4,500** appointments a year freed up in orthopaedics through the virtual fracture clinic

## Next Steps for the CUH eHospital Programme

CUH is currently launching a new patient portal 'MyChart' which gives patients secure access to their electronic 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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## 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 FDB 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.

FDB Multilex seamlessly integrates into the EPR system, providing comprehensive medicine information at the point of care. Integrating FDB 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.

# CUH eHospital Programme Milestones

- 2010** eHospital vision; branding & clinical engagement initiated
- 2011** Procurement commenced
- 2012** Preferred suppliers selected
- 2013** Trust-wide network upgrade & infrastructure update / eHospital programme team commence EPR build
- 2014** Trust staff trained how to use EPR system (12k + staff) / EPR went live across the entire Trust in Oct 2014
- 2015** CUH awarded HIMSS EMRAM Stage 6
- 2016** Launch of MyChart patient portal pilot
- 2017** Selected as a NHS Global Digital Exemplar and working towards HIMSS EMRAM Stage 7

## Summary

This case study for Cambridge University Hospitals NHS Foundation Trust demonstrates how FDB 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)**

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Our solutions in the United Kingdom and Europe include FDB Multilex, FDB OptimiseRx, FDB FirstLight, FDB MedKnowledge, Map Pathways, Map Referrals, Map Quickstart, ZynxOrder and MCG India.

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