

# University Hospitals of Morecambe Bay case study: Using structured terminology to deliver better patient care

## Summary

University Hospitals of Morecambe Bay NHS Foundation Trust (UHMBT) is an early adopter for the use of Lorenzo. Its senior doctors and management team have a deep and long standing belief in the importance of an Electronic Patient Record (EPR) using a structured terminology, as a key factor in both delivering better patient care and achieving much higher levels of operational efficiency. This case study aims to provide an overview of their achievements.

## Organisation profile

UHMBT operates from three main university hospital sites: Furness General Hospital, Royal Lancaster Infirmary and Westmorland General Hospital. Each hospital has a range of general hospital services, with full accident & emergency departments, critical/coronary care units, consultant led beds at Barrow and Lancaster sites, plus a primary care assessment service with GP led inpatient beds in Kendal. All three sites provide a range of planned care, including outpatients, diagnostics, therapies, day-case and inpatient surgery. In addition, a range of local outreach services and diagnostics are provided from a number of community facilities.

The trust's intention is to have a true digital EPR solution that provides a rich patient record which can be used by clinical staff in support of patient care.

## Background

UHMBT's strategy is for a true digital EPR system that provides a rich patient record that can be used effectively by clinical staff in support of that patients' care.

The principle is that better information at point of care will support better clinical decisions and better clinical outcomes and such a system will also enable the administrative and management data to be derived.



The focus for UHMBT has therefore been to deliver a system to clinical staff. This has been supported with comprehensive training, as well as senior management commitment and clinical leadership.

In-house IT development and support has ensured delivery of a product that is configured for the clinic, provides an appropriate view for each clinician, as well as providing add-ons, reports and linkages to other systems and data sources. UHMBT have invested in the product configuration and user support.

This was always going to be a journey for UHMBT; to deliver a comprehensive EPR in one go was not an option. An incremental approach with functionality introduced through well managed projects and initiatives was the approach that has enabled the system, with increasingly sophisticated functionality, to be introduced and used.

## Business process

In 2013 Lorenzo will become the primary source for the patient record. UHMBT are progressing towards a target of more than 80% of clinic appointments being provided without need for paper hospital notes, with outpatients due to be regarded as “paperlite” by May 2014.

The system provides standard PAS functionality, with clear business processes being evident and supported within the system. For example, in A&E ‘Decision to Admit’ has to be completed before ‘Discharge and admit to ward’ can be entered.

Functionality supports many aspects of the hospital business processes such as clinic management and full electronic patient record with clinical notes providing for the semi-automated production of electronic discharge summaries.

Reports from the system support clinic management, clinical audit and increasingly are supporting the patient journey enabling clinical staff to much better inspect and analyse related patient episodes.



The EPR is augmented with information from any device that can be connected to the UHMBT network; data from such devices being fed directly into the Lorenzo system; for example, EEG, ECG, audiology and DEXA results can be brought into the patient record.

All systems are launched from within Lorenzo so as well as providing the patient record; Lorenzo has been set up to act as a portal to applications such as PACS and specialist applications like their endoscopy system. This retains the provenance for that patient when accessed in this way.

Reports are available for each clinician that support their clinical audit work. Through a simple reporting system, a clinician can identify the patients for audit saving over a day per month for each clinician.

The initial implementation of Lorenzo was mainly to provide PAS functionality and clinical letters. This in itself brought notable benefits. Immediate Discharge Summaries (IDS) are generated by the system and bring standard data (structured clinical terms in SNOMED CT such as symptoms, diagnoses, co-morbidities and operations) through from the record.

The IDS uses the RCP headings with the detail being tailored and agreed with GPs in the area, ensuring they provide the quality information required on discharge.

This has also enabled eLearning to be developed for junior doctors, locum staff and clinical nurse specialists, on how to complete their recording to ensure that the information required is available.

It's worth noting that SNOMED CT is introduced to staff as ‘structured terms’ – and is presented through usage in the system. Effective searching for the required SNOMED CT term is also built into the training and various self-help guides provided by the training department.

Tracking the patient journey through different episodes of care is becoming possible as UHMBT develop a rich patient record. The possibilities this offers for analysis and patient care are significant.

The focus for UHMBT has been in obtaining a quality patient record available when and where needed.



This in itself has brought significant benefits; semi-automated production of clinical letters and identification of patients for clinical audit provides additional benefits.

UHMBT have a long term development plan for their electronic systems and further benefits will be realised as they build on their solid EPR foundation.

## Approach

Lorenzo has been introduced in stages through a number of initiatives, progressively increasing the functionality available. The full system now implemented was deemed too extensive to do as a single roll-out and be successful in its use and adoption. Roll-out of each stage has been phased across all hospital sites by clinical speciality. The first initiative has been towards paperlite; the current focus is to move to the EPR as the primary source for the patient record.

Investment was made in the network, PCs and screens for staff use. In areas where it is necessary to examine information in other systems at the same time as Lorenzo, such as the PACS system, two screens were provided for staff. It was felt performance was critical to clinical success. Mobile devices are also high on the agenda and “proof of concept” projects have already been successful using iPADS in the ward environment. Mobile devices are intended to be brought into service to better enable use of the system in some areas.

Particular attention has been paid to usability by clinical staff and Lorenzo allows screens to be tailored to individual clinicians’ needs through buttons and menu configuration as well as favourites lists. As part of each clinic go-live, time was spent ensuring the clinical notes for that clinic were structured as required, that reports needed were available, and that interaction was facilitated for each clinician through optimal configuration of screens with ordering of buttons and menus to suit the individual.

## Benefits

The initial implementation of Lorenzo was mainly to provide PAS functionality and clinical letters. This in itself brought notable benefits. Immediate Discharge Summaries (IDS) are generated by the system and bring standard data (structured clinical terms in SNOMED CT such as symptoms, diagnoses, co-morbidities and operations) through from the record. The IDS uses the RCP headings with the detail



being tailored and agreed with GPs in the area, ensuring they provide the quality information required on discharge. This has also enabled eLearning to be developed for junior doctors, locum staff and clinical nurse specialists, on how to complete their recording to ensure that the information required is available.

It's worth noting that SNOMED CT is introduced to staff as ‘structured terms’ – and is presented through usage in the system. Effective searching for the required SNOMED CT term is also built into the training and various self-help guides provided by the training department.

## Challenges and lessons learned

There are a number of substantial challenges in launching and embedding a major EPR system. There is a need for leadership at executive director and senior clinical leader level.

Without this dovetailed leadership, launching and developing a digital EPR system in an organisation would be very difficult.

There is a clear need for the organisation to have clarity about understanding its business strategy, its business objectives and its clinical services strategy; and for the Health Informatics strategy to underpin and support the business and clinical strategy.

Strong project and risk management are also essential to successful deployment; using modular development and introduction of the EPR functionality. Embedding linkage to other clinical systems is also important for clinician usability.

Securing clinical engagement is a major

requirement to the success of delivering an EPR agenda. This is a “high energy sport” and needs effective networking, effective communications and engagement with individuals and whole departments. This process is supported by a “clinically led” Informatics process.

The role of Chief Clinical Information Officer (CCIO) as a “change manager” is really important, working with Clinical Directors and senior nurse leaders. The role of Medical Director is also vital to support change management through some discrete mandatory steps, such as possession of smartcards, mandatory training, mandatory uptake of business processes such as sole use of IDS as discharge information to GP’s, and viewing clinic referral letters on screen. Discrete use of mandatory levers can shape quicker uptake of change.

A further key step is the need to match appetite for change within the organisation, with capacity to learn new processes and functionality, while matching this to the capacity of the training department. UHMBT favoured a progressive, stepped approach to rolling the EPR functionality and capability and then developing new modular capability. This meant that the capacity to change the clinical care business processes was not overwhelmed at any stage.

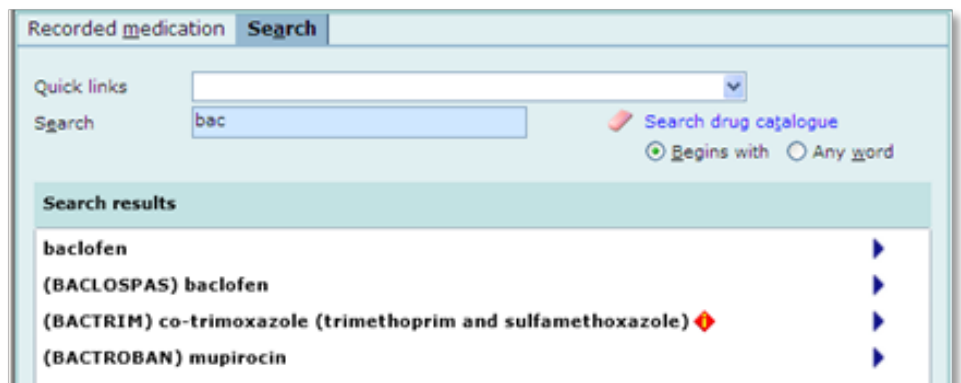
All of the above will fail if the IT estate and infrastructure is not satisfactory. PC desktop computers, laptops and networking, including wireless, servers and service desk support all need to be present at the right specification to support delivery, implementation and performance of a digital EPR.

## Training

Every clinician underwent training before using the system, and particular attention was paid to ensuring they could find the structured terms in SNOMED CT that they needed to record.

Effective search techniques were covered and there are a number of ways clinicians can find the appropriate SNOMED CT terms; from string tokens when they know what they wish to enter to more advanced search techniques. Some changes to the system have also been made

so for example, where a number of procedures are commonly undertaken together in a clinic, these ‘code sets’ can be entered through a single quick code entry.



Searching for terms starting with 'bac'

Configuration has also ensured that things like defaulting to today’s date when appropriate is built into the system.

Training has been a fundamental element of roll-out. Every clinician has received training on the system and this has been carefully managed to ensure this was done ahead of go-live or new functionality.

Training dashboards were made available to all managers to they could monitor the training progress of their area; these dashboards were also available to senior management. All training started with classroom based delivery and then further training in the clinic. All training has a related skills based competency test, and these must be signed off as successfully completed by managers; access to the system is not available until a pass has been achieved. The training environment is critical; this has to be up-to-date and in-line with the live system.

It is also critical that extensive testing has been undertaken and the system is not put live until there is full confidence in the system performing.

Trainers also have to be well prepared in advance, both in understanding the processes behind particular screens and the implications of not completing a data item, as well as being able to give clear guidance on best practice.

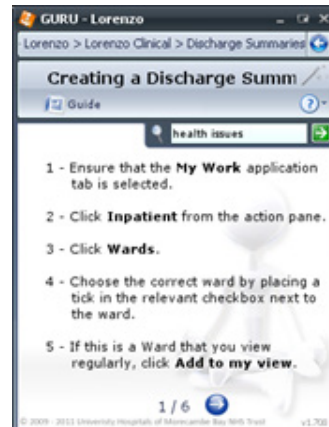
All new doctors must undergo system training before starting, with 1 day being allocated as part of their induction; they are not issued with their Smartcard until this has happened!

Guides and on-line learning materials are readily

available as well as in-context help in the system.

A self-help system called 'GURU' has been developed by UHMBT and is available at any point in the system. Trainers are available on go-live dates, and additional training is provided at the point of care.

There is also extensive training support, for example, a clinician can ask for a trainer to shadow them for a period of time during the day to ensure they are using the system effectively – this approach has been well received and is frequently used.



Online help using GURU

## Further information

This case study is one of a series focused on the implementation of an Electronic Patient Record (EPR) and the benefits of using SNOMED CT to provide structured clinical content.

For more information on SNOMED CT visit <http://systems.hscic.gov.uk/data/uktc/snomed/training> where you will find case studies and training materials.

We have developed a new website [www.infostandards.org](http://www.infostandards.org) which supports the broad information standards community by providing an environment in which users can work together to share ideas and learn from each others' experiences.

The site has been developed openly, so you can provide feedback along the way and we would very much welcome your input.

For specific queries please contact the helpdesk via [information.standards@hscic.gov.uk](mailto:information.standards@hscic.gov.uk)

Ref. 4844

Health and Social Care Information Centre  
1 Trevelyan Square  
Boar Lane  
Leeds LS1 6AE

[enquiries@hscic.gov.uk](mailto:enquiries@hscic.gov.uk)  
0845 6006016  
[www.hscic.gov.uk](http://www.hscic.gov.uk)