Lancashire Teaching Hospitals NHS Foundation Trust (LTHTR) is one of the largest and highest performing National Health Service trusts in the United Kingdom.

**ELECTRONIC PRESCRIBING MEDICATION ADMINISTRATION WITH CLINICAL DECISION SUPPORT**

The UK Department of Health mandated that all hospitals in the country become completely paperless by 2018. At LTHTR, implementation of QCPR began with the patient registration, radiology and laboratory orders/results, and scheduling modules. Nurse and Physician Clinical Documentation were next in line, first implemented in the Critical Care Units, and extended to all medical and surgical inpatient care areas of the hospital. In parallel, the implementation of an Electronic Prescribing and Medication Administration (EPMA) system was the next challenge for the organization.
Lancashire Teaching Hospitals
NHS Foundation Trust

Location
Lancashire, UK

Size
970 beds

Website
lancsteachinghospitals.nhs.uk

About
Providing acute hospital services to 370,000 people in Preston and Chorley, and specialist healthcare services to 1.5m people across Lancashire and South Cumbria.

“We have built a very robust system where safety has been the key focus which will reduce errors in prescribing and administration. There is a very clear audit trail of all aspects of medication prescribing, reviewing and administration which is excellent from governance point of view.”

— Nital Panchal, Lead EPMA Pharmacist

THE CHALLENGE

While physicians were already ordering laboratory tests and radiology procedures via QCPR’s CPOE, medications and intravenous fluids were still ordered on paper at LTHTR. When patients needed medications, prescribers would write the medications on a paper medication chart, the pharmacy team would review this, and then they would transcribe onto a pharmacy order sheet, scan and then send it to the hospital Pharmacy. The medications were dispensed and sent to the ward for administration by the nurses.

In this common workflow, the physician, nurse and allied healthcare professionals all share a single patient’s paper chart to accomplish their respective medication-related tasks. This manual workflow relies heavily on clinicians knowing and remembering information, such as a patient’s allergies, a drug-drug interaction or a drug-disease interaction as they are prescribing and verifying medication orders. Handwriting can lead to confusion and misinterpretation for the pharmacy team transcribing and dispensing the medication and for the nurse administering the medication. Furthermore, using the wrong drug or dosage form, incorrect dose calculation, and failure to adjust dosages in patients with renal or hepatic dysfunction are all potential error risks that come with the manual, or paper, medication management workflow.

There is general agreement across all healthcare providers that electronic prescribing systems reduce the likelihood of medication errors. While the incidence of medication errors and adverse drug events at LTHTR is already below national averages, the Trust continuously strives to eliminate medical and medication errors altogether and to provide “Excellent Care with Compassion.”

THE QUESTIONS

Would the implementation of QCPR’s Electronic prescribing functionality effectively support LTHTR’s medication management requirements as well as the existing medication workflows?

Would it also adequately support clinicians throughout the entire medication process - the physician at the time of prescribing, the pharmacist at the time of dispensing, and the nurse at the time of medication administration?

Finally, would this result in a further reduction of medication errors and adverse drug events at LTHTR?

THE SOLUTION

These were all questions Gareth Price, Chief Pharmacist at Lancashire Teaching Hospitals NHS Foundation Trust, asked himself when he was tasked to lead the initiative to transform the manual medication management process into an electronic one.

He pulled together a multidisciplinary team to analyse the current paper-based medication workflows and processes. Working in close collaboration with Harris Healthcare’s Professional Services team experts, the team quickly realized that the EPR’s powerful clinical decision support capabilities would not only support LTHTR’s clinicians but actually enhance, in several ways, patient safety, and the overall workflow efficiency throughout the entire medication process.
QCPR integrated medication management at LTHTR includes these key features:

• **Patient Allergy Checking:** Prescribing is not possible unless prior allergy documentation is complete. The EPR prompts prescribers to document the patient drug, environmental and substance allergies if not already done.

• **Real-time Allergy Checking:** As allergy information is updated, or additions are made in the patient record, the system performs a reverse check to determine if the patient is currently on the medication.

• **Mandatory Documentation:** Enforces rules regarding mandatory fields (e.g. second signature on high-risk medications).

• **Duplicate Alerts:** Notification if patient is already on the medication.

• **Typical Doses:** Pre-defined order sentences with typically ordered doses to streamline the one-click ordering process. This increases adherence to the hospital’s formulary and reduces the risk of prescribing incorrectly.

• **Medication Order Sets:** Pre-configured Order Sets for medications typically ordered together.

• **Clinical Review Screens:** Provides a complete picture including relevant laboratory results, vital signs, order/dose and administration information in a single screen available to prescriber.

• **Consolidated Medication List:** At-a-glance overview of all medications already documented, including all home, visit, and discharge medications.

• **Medication Administration Charts:** Distinct charts for infusion, epidural, and enteral feeding which show all active medications prescribed, simplifying the medication administration process for nurses.

• **7-Day Medication Summary:** Provides a clear view and audit trail of all medications prescribed and doses administered over the past week.

• **Work Queues:** Automatically creates work queues for doctors and pharmacy teams with review reminders to help prioritize their work.

• **Medication Reconciliation:** Formal review of all patient medications at key transition points is now done electronically in QCPR.

Success! “The first electronic prescription and administration of medicines” Tweets Nick Wood, Gynaecological Oncologist and Chief Clinical Information Officer for LTHTR

**GYNAECOLOGY WARD SCORES**

**100%**

**IN ANTI-MICROBIAL STEWARDSHIP AUDIT**
EARLY RESULTS

The solution was first rolled-out in the Gynaecology Ward, where medical, oncology and post-operative gynaecology patients are treated. Patients admitted to this Unit with medical, oncology or post-operative conditions typically require numerous medications with complex dosing, with some requiring simultaneous monitoring of laboratory values and vital signs.

Shortly after go-live in March 2017, Nick Wood, Consultant Gynaecological Oncologist and Chief Clinical Information Officer for LTHTR tweeted this message: “The first electronic prescription and administration of medicines at Lancashire Teaching Hospitals” signaling the success of the new electronic Prescribing and Medication Administration functions.

While the Gynaecology ward has been live with the EPMA solutions only a few months, the results are already apparent: the ward scored 100% in the recent anti-microbial stewardship audit which is automated through a report in QCPR. In the coming months, in-depth data analysis will be conducted by LTHTR to measure the impact of their new EPMA system on their overall number of medication transcription, prescription, and administration errors. They will also be evaluating the impact of the solution on formulary adherence and consistency in clinical practice.

Initial observations from clinicians indicate that EPMA makes it easy, efficient, and safe to prescribe, dispense and administer medications. With EPMA in place at LTHTR, electronically ordered medications go directly to the pharmacy through a streamlined, error-free process. The system guides physicians during the medication ordering process and nurses while administering. EPMA effectively supports clinicians throughout the entire medication management lifecycle.

LTHTR anticipates that its electronic prescribing medication administration system with Clinical Decision Support will bring huge benefits to the organization, its clinicians and, most importantly, to its patients. Additional results will be published once the data analysis is complete.

“We have had a great collaboration with Harris Healthcare’s clinical and technical teams to examine and evaluate our hospital workflow processes so that we not only improve the patient care experience, but streamline our clinical practices.”

– Nick Wood, Consultant Gynaecological Oncologist and Chief Clinical Information Officer