Customer Profile

- **Facility:** Royal Preston Hospital
- **Location:** Lancashire, United Kingdom
- **Size:** 700 beds and 28-bed critical care unit
- **QCPR Applications:** Registration/ADT, Laboratory/Radiology Orders and Results, Wait list, Clinical Documentation
- **Challenge:** To automate and streamline clinical documentation in a care area with a large volume of data and complex workflows
- **Objective:** To implement a complete paperless patient record aligned with United Kingdom Health Department requirements by 2018.

Lancashire Teaching Hospitals NHS Foundation Trust is one of the largest and highest performing National Health Service trusts in the United Kingdom. They offer general services to 370,000 people in Preston and Chorley, and specialty care to 1.5M people across the Lancashire and South Cumbria regions.

Royal Preston Hospital has 700 beds and provides a full range of clinical and emergency services, as well as several regional specialty services including cancer, neurosurgery, and rehabilitation. It is also the major trauma center for Lancashire and South Cumbria with a 28-bed critical care unit.

The Challenge

The UK Department of Health has mandated that all hospitals in the country be completely paperless by 2018. Patients admitted to Royal Preston Hospital Critical Care Unit with severe and life-threatening illnesses and injuries are closely monitored and supported by a variety of medical devices. The patients require frequent assessments by nurses, physicians and other health professionals. They receive numerous medications and undergo
frequent blood testing. This high volume of data needs to be documented accurately and efficiently in the patient record. As a result, 76 different paper forms with several thousands of data elements were used in Royal Preston Hospital Critical Care Unit.

At Lancashire, implementation of QCPR electronic record began with the patient registration, radiology and laboratory orders/results, and scheduling modules. The next big task was clinical documentation. Some of the most complex workflows and documentation requirements are seen in critical care units. Would QCPR be flexible and robust enough to support extensive clinical documentation requirements seen in Royal Preston Hospital?

The Solution

A team led by Dr. Daniel Cottle, Consultant Intensivist at Lancashire Teaching Hospitals NHS Foundation Trust, was tasked with determining just this. They rolled up their sleeves and analyzed their workflows, defined all the required templates and screen views, and ensured all data elements were included. Dr. Cottle says, “The team knew that there was a huge opportunity to use the computer system to support how they worked. They started by examining their workflows and data flows throughout the patient’s stay. They then identified and removed duplication and set about translating them into [Harris Healthcare’s] workflows.”

The team quickly realized that indeed QCPR would effectively support clinicians working in the Critical Care Unit through:

**Automatic scheduling of nursing tasks**

The team defined various assessment templates to ensure best practice and conformity to the facility’s protocols by all clinicians. When a new patient is admitted to the critical care unit, QCPR automatically creates tasks for the nurse to complete admission, risk, nutrition, and safety check assessments. These tasks display on the nurse’s work list and the patient’s schedule. The nurse can quickly enter the information using efficient documentation items like drop-down menus, check lists, radio buttons, and free text fields.

Ongoing assessments are also scheduled to appear on the clinician’s task list once per shift. When an observation is documented, the previous assessment is displayed so that the nurse can compare and note any changes.

**Tailored flowsheet**

QCPR’s Interactive Care Grid provides a summary flowsheet view of all key information on the patient that can be tailored by each care unit. In Royal Preston Hospital Critical Care Unit, the flowsheet displays patient information such as vital signs, lab and radiology results, and fluid intake and output. The flowsheet automatically displays all parameters documented on, including ventilator settings, and presents the information in a logical organized manner for easy viewing. Royal Preston’s Critical Care Unit defaulted the interval to 1 hour, whereas in a medical-surgical care area it could be 4 or 8 hours, as per their standards. At any time a clinician could view or document information at intervals as small as 5 minutes.

76 different paper forms with several thousands of data elements were used in Royal Preston Hospital’s Critical Care Unit.
**Automatic calculations**

QCPR’s Intake and Output module allows efficient documentation of all fluids received by the patient. The hourly, shift and 24 hour fluid balances are automatically calculated by QCPR and displayed in the record immediately when entered. This allows and instant view of the patient’s fluid balance at all times.

Assessment scales calculations, such as the Glasgow Coma and the Early Warning scores, are also automated reducing the risk of calculation errors and saving precious time to busy clinicians.

**Links to facility’s protocols and evidence-based practice**

While documenting a problem, the nurse can immediately enter a care plan simply by right clicking on the problem itself. The care plan can include several predefined interventions from which the nurse can choose the most relevant. Reference links to hospital protocols or online evidence-based practice are displayed to provide clinical decision support.

**Embedded rules engine**

When building out the Critical Care configuration, the Lancashire Teaching Hospitals NHS Foundation Trust team leveraged QCPR’s embedded rules engine to further support clinicians in their goal of providing excellence in care. The embedded rules engine allows configuration of business rules that automatically trigger when a certain condition is met.

For example, when documenting the insertion of a peripheral, central or arterial line, the nurse enters the size and type of catheter, the insertion site, and any comment related to the procedure itself. QCPR then automatically schedules all related nursing tasks for the maintenance of the line, such as site observation every shift and daily dressing changes. QCPR also displays an alert when the line has been in place for 7 days and prompts a site change. Furthermore, in the case of an active central line order, the patient is automatically added to the central line management queue so that the central line team is made aware of the new line and follows up on a regular basis. This streamlines care, fosters best practice, and enforces hospital protocols.

**Data element dependency**

The team also made use of the QCPR data element dependency feature to display fields based on specific documentation by the clinician. For example, if a user documents the patient has a tracheostomy as their airway type, then all fields associated with tracheostomy will display. However, if they document that the patient has an endo-tracheal tube, the fields for the endo-tracheal tube will display instead, thus streamlining documentation.

**Careful Planning and Execution**

The successful transition from paper to electronic did not happen by chance. Rather, it was the result of several months careful planning and preparatory
work by the Lancashire Teaching Hospitals NHS Foundation Trust team under the excellent clinical leadership of Dr. Daniel Cottle and Ms. Tracie Traynor, Senior Critical Care Sister.

There was an intense collaboration between the clinical and technical teams of Lancashire Teaching Hospitals NHS Foundation Trust and Harris Healthcare’s professional services to define the ICU-required flowsheets and assessment templates. Instead of simply replicating the paper flowsheets, the team examined the existing clinical workflows and processes and, where possible, streamlined them in the electronic system. Then the team did extensive testing, not only in a simulated environment, but also in a live clinical environment. Next, the team developed an elaborate training program, which was attended by 97% of all staff working in the unit prior to the go-live.

The Results

On 30 September 2015, a significant milestone was reached in Royal Preston Hospital’s Critical Care Unit. At 7:00 AM all nurses and physicians stopped using pen and paper and started using QCPR electronic health record to document clinical information on their patients. By 2:00 PM, every single patient's record in the unit had been successfully migrated to the electronic system. The facility chose to transition to computerized documentation without simultaneous paper documentation.

For two weeks, go-live support from Lancashire
Teaching Hospitals NHS Foundation Trust clinical systems trainers, clinical super users, and the Harris Healthcare team was available. They ensured that questions or issues were addressed promptly and made any necessary minor tweaks to the QCPR configuration.

A few months after the rollout, Lancashire Teaching Hospitals NHS Foundation Trust has noted several main advantages to their documentation processes:

- More standardized processes and patient care in the Critical Care environment
- Vast amount of data generated in the Critical Care area is captured, managed, and reported on
- Instantaneous and simultaneous access to the medical record by multiple clinicians at the Royal Preston Hospital and other sites within the organisation
- Clinical decision support to clinicians
- Clinical order sets support more complete medical investigation
- Problem based documentation allows more streamlined access
- Reduced risk of errors from manual transcription from one document to another
- Improved accuracy, legibility, timeliness and completeness of documentation
- Drop-down menus and numerical fields provide enhanced access to data for audit and research

QCPR is proving to be a success at this Lancashire facility. It is a flexible, comprehensive clinical documentation system that effectively supports documentation in care areas with even the most complex workflows. Ms. Traynor commented, “With the deployment of QCPR’s Clinical Documentation, all information is now together in one place and available at the clinicians’ fingertips. This saves precious time for the nurses who are now able to spend the extra time providing patient care.”

Marcia Van Nuil, Implementation Consultant at Harris Healthcare, also said, “What I found so amazing about this project is that the team at LTH were totally committed to building out a documentation system that would meet their needs. Tracie Traynor...actually designed the desktop according to workflow. She drew it on paper, I built it for them and then we fine-tuned the configuration to fully reflect their clinical practice and workflows. It was a great process to go through and I think that is why it is working so well for them.”

Next phases

With the successful deployment of QCPR in the Critical Care Unit, Lancashire Teaching Hospitals NHS Foundation Trust’s enthusiastic and determined team has a vision of moving to complete paperless documentation enterprise-wide. They are planning to implement the following QCPR functionality in the coming years:

**Clinical documentation deployment across all other care areas**

With the experience in Critical Care area behind them, the team is now confident about deploying QCPR across all other care areas.

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—Tracie Traynor, Senior Critical Care Sister
Medication order entry with clinical decision support

While Lancashire Teaching Hospitals NHS Foundation Trust's physicians are already ordering laboratory and radiology procedures via QCPR’s Computerized Physician Order Entry (CPOE), medications and intravenous fluids are currently still ordered on paper. Implementation of QCPR’s medication order entry will provide further benefits. It will provide robust real-time clinical decision support when the physician enters a medication. Alerts will be automatically generated for patient-specific drug-allergy, drug dose, and drug-drug orders. In addition, alerts are based on patient demographic data points, such as age, gender, height, weight, and renal function, at the time of order entry.

QCPR will also generate cautions for drug, food, and alcohol interactions, and alerts for pregnancy and lactation. Clinicians can also access links to online reference/knowledge-based resources through QCPR.

Integrated medication management

Lancashire Teaching Hospitals NHS Foundation Trust will further benefit from QCPR’s real-time, closed-loop integrated medication management (IMM). It is designed with physicians, nurses, and pharmacist in mind, and has patient safety as its cornerstone. IMM provides clinical decision support at every step of the medication management process, including ordering, preparation, and administration. Bar code scanning further contributes to patient safety throughout the medication process.

Capture physiological data from bedside devices

To save clinicians’ precious time and prevent transcription errors, Lancashire Teaching Hospitals NHS Foundation Trust plans to automatically capture patients’ vital signs from bedside physiological monitoring devices. These values are then transferred directly into QCPR for nurse validation. For example, if a blood pressure cuff is kinked, then the values sent by a physiological monitor will not reflect the true physiological status of the patient. In this case the nurse has the option to accept or reject the received values and enter new values or comments.

Dr. Cottle concludes: “Our challenge was to create an electronic patient record for [Lancashire Teaching Hospitals NHS Foundation Trust] and to bridge the gap between the clinicians and the [Harris Healthcare] system. I think we’ve created a system that reflects how we work now, and that will support us in developing patient care pathways in the future. The more we develop the system, the more we refine it.”

About QCPR

QCPR is our complete electronic health record (EHR) solution. It integrates all aspects of patient care into a single, confidential electronic patient record that can be exchanged easily between health organisations and communities.

Visit our website to learn more: www.harrishealthcare.com