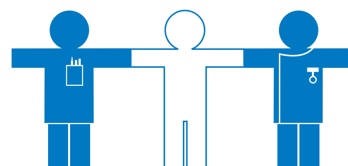
NHS
London

Building the Foundations

Release LC1 of Cerner Millennium®
for Acute Trusts in London



NHS Care Records Service

The NHS in London is working towards the introduction of the NHS Care Records Service, a fully integrated healthcare information system with an electronic care record for every patient. The NHS Care Records Service will help transform healthcare delivery and support NHS staff more effectively in caring for patients.

Authorised users will have access to up-to-date, accurate and comprehensive patient information, including treatment records and diagnostic images, and patients will be able to select their preferred time and place for clinical appointments using Choose and Book.

In a programme overseen by NHS London, BT is deploying Cerner Millennium® to support acute trusts in London as part of the NHS Care Records Service (NHS CRS). Deployment will take place in a series of releases, each of which is outlined in the brochure *Step by Step Towards the Future.*

The LC1 release in London provides the basis of an electronic patient record and enables authorised staff to access a patient's medical record within a particular trust to review past medical examinations, capture new information, schedule appointments, order tests and review results. Requests and clinical documentation are included, for example, allied health professionals' orders, dietary orders and specialist assessment forms.

As part of the NHS CRS, systems are being installed throughout London in primary, community, mental health and acute settings. In the future, the system will enable authorised NHS staff across London to access summary records for patients in their care as well as detailed records held within the trust. The summary care record will include core information to help in an emergency, including allergies and medications. The system will also support the development of integrated care pathways (ICPs).

The aim of this brochure is to provide interested parties with a more in-depth view of the features and benefits of this release of Cerner Millennium® for acute trusts in London.

Patient Administration System (PAS)

The PAS module includes patient registration, scheduling and information management. By streamlining the registration process and collecting key patient information only once, it improves the patient experience and efficiency at the trust. All PAS functions are fully integrated both with each other and with the Cerner Millennium® modules for clinicals, accident & emergency (A&E), maternity and theatres.

Enterprise wide master patient index (MPI) stores and maintains personal and demographic data, supports the identification of duplicate records and is able to merge records (and unmerge if required). It also provides an audit trail of users and the data they have accessed.

Registration management facilitates the registration, admission, transfer and discharge of patients and creates a unique patient number that coordinates the patient's movements within the trust. All demographic, next-of-kin and episode information is collected upon pre-registration or registration. Patient referral and waiting list information can be collated for waiting time reporting.

Current state bed management provides up-to-date 'real time' bed status so that users can check availability and assign beds.

Bed status is automatically updated following an admission, transfer or discharge. Pending admissions, transfers and discharges to wards are automatically shown.

Scheduling management allows the set-up and maintenance of clinics, including cancellation of whole clinics or individual time slots. This enables scheduling across the trust, including multiple sites, and coordinates a single view of clinics.

This module also manages appointment booking, outpatient clinics, cancellations, 'Did not attend' (DNAs) and generates the associated patient letters. Users can rebook single and multiple appointments for a patient, including group sessions. The system supports theatre bookings and links with waiting lists to ensure timely appointments.

Choose and Book (CAB) is supported by the PAS. The PAS enables authorised staff to book CAB slots and allows authorised external users to book appointments at the trust.

Patient document tracking and case note tracking (including existing paper-based records) is enabled by a record management tool called ProFile™. By organising work queues, the system identifies potential delays and manages workflow more effectively. Requests for notes are automatically generated when a patient is admitted and when an appointment is confirmed.

Coding enables the user to record or view details of problems, clinical diagnoses and procedures using subsets of SNOMED-CT. These are also incorporated into the discharge summary. Authorised users can record ongoing or episodic diagnoses, onset date, and severity.

The problem section for coding captures relevant information occurring during the patient's lifetime, whereas the diagnosis section relates to a specific episode of care. This release also supports the 3M™ MediCode™ and 3M™ Dialect™ encoders.

Clinical module

The clinical module automates many care-related tasks and covers the complete lifecycle of patient care for acute trusts. The module is based primarily on PowerChart®, which provides authorised users with flexibility in recording and viewing patient data. For example, Flowsheet functionality provides a longitudinal view of the patient record to help identify trends in results or assessments.

Much of the information for the clinical module is entered through PowerForms, a series of data collection screens relating to the patient event. Forms can be accessed either as 'view only' or 'modify' by authorised users, and relevant information can pre-populate other forms or documents. Users can view any forms already completed for a patient via FormBrowser.

Clinical functionality covers problems and diagnoses, procedures, allergies, visit lists, care provider, summary, demographics, requests for tests, diagnostics, surgical procedures and referrals, result flow sheets and clinical documentation / assessments. The main features are detailed overleaf.

Clinical assessments and documentation are supported by PowerForms. Integrated assessment forms capture clinical data at various points in the patient care process. Forms are designed to support the best possible flow of data for patient and provider. Conditional fields are supported, that is, questions are only asked when relevant to previous answers. There are currently 39 clinical assessment forms with maternity and A&E having their own. These forms can be completed by more than one user, for example, discharge planning can be started by a nurse on the ward and subsequently updated by a physiotherapist.

Discharge summaries can be created using a template that automatically populates certain parts of the document. Other parts of the summary are completed using free text.

Core document management lets the user view and store external documents, such as referral letters. Users can attach scanned documents to the patient's file as well as a wide range of file types, for example, picture and Word files.

Decision support links to external reference information to support clinical decision-making, for example, protocols and guidelines relating to the placing of requests. The inbox is used to alert clinicians to the receipt of results and abnormal results are highlighted. Links to internet sites / the trust's intranet to provide access to patient information leaflets are also available.

The requests, results and reporting application can be used by different care providers and administrators, for example, to support order entry, review, validation, inquiry or reporting of clinical requests. Functionality available includes the following:

Request management (laboratory and radiology requests) enables users to place requests and review request history, including allied health professionals' orders, dietary and other orders. The system supports multiple requests, specimen tracking and duplicate request checking for radiology. Users can order a group of tests in one request.

Result viewing provides a single view of clinical events. Users can select an individual result and view additional, detailed order and result information.

Requests for transport and assessment are accommodated. Electronic notifications and printed requisitions support portering activities.

Inbox functionality enables notifications and results to be received electronically. When laboratory or radiology orders are requested, authorised users will be notified via their inbox when results arrive. They can forward results to other authorised users for review or signature, or give other team members access to their inbox if they are away.

Patient list management enables the user to organise and access patient information by location, specialty or other criteria, for example, viewing patients on a specific waiting list.

'At risk' flags can be placed to indicate allergies, infection control alerts, and vulnerable children. Details of allergies are entered in the patient's clinical record and can be seen as alerts in scheduling if appropriate.

Care pathways

This module ensures optimal workflow and provides a 'starter set' of multi-disciplinary care pathways and plans.

Care pathways may include requests, therapeutic and diagnostic interventions, as well as activities that may be associated with patient-specific outcomes and variations from the care pathway. They can be multi-disciplinary, single or multi-phase and can have more than one outcome for each phase. Three pathways are available initially, namely stroke, generic day case and chronic obstructive pulmonary disease.

Accident & Emergency (A&E)

By tracking a patient's progress from A&E through to hospital admission and / or discharge, this module automates a wide range of functions, including registration, triage, tracking, requests and medical records. The module enables the following:

Patient registration is accelerated by an automatic check of patient history for details of any previous encounters.

Triage and tracking functionality supports multiple tracking lists, including location lists, bed lists, speciality lists, and personal lists. Authorised users can filter data views for specific locations, beds and providers. The Manchester triage form can be used to assess and prioritise the patient, and the system supports streaming. The QuickAdmit feature enables patients to be quickly registered or pre-registered so they are immediately visible on the electronic tracking board. Full registration needs to be completed as soon as the relevant information is available.

Alerts and notifications. Tracking status alerts can be configured to support the 'four hour wait' and notify the user of instances where a patient has been waiting too long in a location or for an event to take place.

Clinical documentation incorporates care details and includes adult and paediatric assessments.

Patient discharge summary information is made available along with outpatient referrals and appointments for follow-up care.

Theatres

This module covers surgery and theatres, and is fully integrated with PAS, PowerChart® and waiting lists. The system consolidates clinical information gathered during the patient journey and authorised theatre staff can view and update admissions, discharges or transfers.

The module uses SurgiNet®, a surgical information system that coordinates theatre workflow and ensures that theatre resources are used efficiently. All the information documented during the case is collated into a series of pre-operative, peri-operative and post-operative notes which can be printed and displayed within PowerChart®.

Patient scheduling for theatres enables a comprehensive patient schedule to be set up across departments. It supports a range of functions, including appointment booking, multiple-facility scheduling, draft and final theatre lists. It calculates average operating times to facilitate more accurate theatre scheduling and captures DNAs and cancellation information.

Multi-resource scheduling and conflict checking covers patient / theatre availability and care team members. The system schedules pre-anaesthesia activities and equipment booking.

Maternity

This module focuses on the initial documentation for the maternity process and builds on the PAS. Basic pre-delivery and post-delivery assessments can be recorded, and previous appointment information is viewable across the entire maternal care plan.

Registration of new babies with National Numbers for Babies (NN4B) takes place directly after the birth, with real-time request and assignment of an NHS number for the newborn. The mother's demographic details are pulled through to the baby's record.

Maternity appointments need to be accepted on the system by a hospital clinician, so that requests for tests and investigations can be placed using PowerChart®. When the patient arrives for her first antenatal appointment, her details can be recorded on the maternal booking assessment form.

Maternity care documentation includes the maternal booking assessment, maternal and newborn delivery details, postnatal summaries, newborn delivery details (including still births, multiple births) and newborn postnatal summaries.

Antenatal details plus data from labour, delivery and newborn summary notes are pulled through to the maternal and new born postnatal summaries.

Spine integration

The Spine is the national central database of patient records. Spine integration provides support for Single Sign On and Spine Directory Services, and holds details of all system users and their allocated roles. The system supports the following applications:

- Choose and Book, the electronic booking service, enables referrals and direct appointment bookings to be made.
- Single Sign On provides Smartcard-based security for the NHS Care Records Service (NHS CRS). Users are only given access if they have registered with their trust's Registration Authority (RA) and have a valid Smartcard and PIN.
- Patient Demographic Services, the national patient master index, is used to register / obtain new NHS numbers.

Information management & reporting

The system supports statutory reporting and returns, including mandatory CDS data set elements, with separate reporting for A&E, maternity and theatres. Operational reporting is also supported, with standard reports for clinical, PAS, maternity and theatre modules.

Reporting is supported by several tools, for example: ExplorerMenu supports predefined statutory and operational reporting, whilst PowerVision® is a reporting tool for A&E, where users can create and customise their own reports. Analysis and management reporting is enabled by PowerInsight™, a data warehouse updated every 24 hours. Data can be transferred between applications if required, and users can create key performance indicators and dashboards. The following are available:

PAS analysis lets users analyse and report on waiting times, care events such as patient orders, interventions, clinical events, results, procedure codes and interaction with associated service providers.

Reporting clinical pathways enable analysis of current pathways, namely stroke, generic day cases and chronic obstructive pulmonary disease.

Contract management / commissioning are integrated with registration and include definitions of contract rules and evaluation against the Commissioning Data Set to allocate contract identifiers.

Future functionality

Functionality for subsequent releases builds on this deployment, with the addition of the prescribing module.

A profile of future releases can be found in the accompanying guide to the NHS CRS acute system, *Step by Step Towards the Future.* The guide is available from NHS London, who can be contacted at www.connectingforhealth.nhs.uk/london or by email at london.communications@nhs.net

Summary of benefits

- **Improved patient management from admission to discharge, with faster access to patient information leading to quicker diagnosis.**
- **Improved bed management and discharge planning, helping to reduce length of stay.**
- **Faster access to clear discharge notifications, so that people in other care settings, such as GPs and health visitors, are better informed about a patient's after-care requirements.**
- **Improved coordination of care and multi-disciplinary team working through clinical pathways and care plans.**
- **Easier scheduling of assessments and tests, plus increased adherence to care plans / care pathways leading to higher standard of care for the patient.**
- **Better quality data, as pre-populated forms and drop-down lists make data more accurate, complete and timely.**
- **Better scheduling, for example, booking appointments, searching for available beds and maintaining waiting lists, leading to a better patient experience and increased utilisation of resources.**
- **Improved theatre scheduling using historical average operating times.**
- **Improved reporting and analysis, leading to better performance management and capacity planning.**
- **Easier access to online information, with full colour screens and a rapid search facility making it quicker to find records and add data.**

Working together with

Glossary of terms

ExplorerMenu supports predefined statutory and operational reports.

Flowsheet provides a longitudinal view of patient data to help identify trends in results or assessments.

FormBrowser enables users to view any forms already completed for a patient.

PowerChart® enables authorised users to record and view patient data in a flexible manner.

PowerForm is a series of data collection screen containing questions about the patient event, which can have either predefined or free text answers.

PowerInsight™ is a data warehouse solution for management reporting that is updated daily. It is also used for *ad hoc* reporting.

PowerVision® is a reporting tool for A&E, where users can create and customise their own reports and graphs.

ProFile™ enables patient document tracking and case note tracking, including existing paper-based records.

QuickAdmit enables patients to be quickly registered or pre-registered so they are immediately visible on the electronic tracking board.

SurgiNet® coordinates theatre utilisation and ensures that theatre resources are used efficiently. It builds on scheduling management functionality.

Getting ready

Transformation activities – For trusts to maximise the potential of the NHS CRS, and to ensure that care is consistently delivered to a high standard, a number of transformation activities need to take place throughout deployment and beyond. These include communication, stakeholder management, benefits and care process redesign.

Activities such as these can help staff develop their own skills whilst contributing to health care transformation. Resourcing requirements will also need to be considered at this time.

Training – Users will be trained locally within their trusts. Trusts will need to ensure that users have appropriate Windows-based computing skills before training starts.

Deployment – A deployment plan specifying activities, resources and timescales will be prepared with each trust during the pre-deployment phase.

BT

www.bt.com/health/nhsit/londonlsp
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BT is the Local Service Provider for London, working with the NHS to deliver the NHS Care Records Service throughout the capital. In addition to its work in London, BT is also developing and managing the Spine, the national database that contains key information about a patient's health and care, and N3, the new national broadband network which securely connects all NHS sites across England.

NHS London - London Programme for IT
www.connectingforhealth.nhs.uk/london
email: london.commmunications@nhs.net

NHS London, the London SHA, together with London trusts and PCTs, are responsible for delivering the London Programme for IT (LPfIT) including the NHS Care Records Service. NHS London works in close consultation with trusts, clinicians and other health experts to ensure that new healthcare IT systems are developed and deployed to meet the needs of London's NHS staff and patients.

The products and services described are subject to regular improvement and update. These descriptions and summaries are prepared with due care to avoid errors and they reflect current planning at the time of going to print. However, the definitive definitions are those in contract and related documents agreed with the Authority.

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