South London and Maudsley NHS
NHS Foundation Trust

D-CRIS PRODUCT DESCRIPTION

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What is CRIS?

Clinical **R**ecord **I**nteractive **S**earch unlocks and transforms clinical data held in Trust systems to provide a rich and pseudonymised resource allowing researchers to investigate hypotheses and identify patient cohorts. CRIS also provides an invaluable tool for service evaluation and clinical audit. CRIS delivers the following benefits:

Increases efficiency

- Faster delivery of results from research initiatives leads to earlier improvements in patient care.
- Supports strategic and service quality reviews to improve business planning.
- Efficient studies protect the reputation of both the Trust and the NHS.

Reduces costs

- Quicker and more efficient identification of viable studies ensures better targeting of Research and Development funding.
- Reduces researcher time spent on study feasibility.
- Reduces the number of days spent on inappropriate sites and incomplete studies.

Promotes collaboration

- Enables industry sponsored collaborations, from trials feasibility and planning, through to clinical trials, including recruitment to post-licensing effectiveness studies.
- Builds closer working relationships between practising clinicians and academics.

Clinical Records

Trust Electronic Patient Record (EPR) systems hold a wealth of useful patient data. CRIS transforms this information into a pseudonymised database appropriate for research use.

Data Transformation

The transformation of data enables researchers to access the wealth of information recorded during patient care by healthcare professionals. This includes data recorded in coded and structured form, for example dates and numbers, plus data held in unstructured free text form, for example, within written assessments, progress notes and correspondence. After transformation, free text data can constitute a large part of the content of information held within CRIS, although this will depend on the amount of unstructured data held in the source EPR system.

The CRIS solution uses a Trust defined data dictionary to transform Trust EPR data. The data dictionary defines the content and structure of the CRIS data repositories.

The transformation process uses the patient's EPR system identifier to derive a unique ID for each patient in the database. This ID does not allow researchers to identify patients. However, where patients have given appropriate consent, the ID can be used by authorised personnel to contact patients who have been identified as potential recruits to an ethics approved research project.

Regular processing keeps data up-to-date and ensures complete access to de-identified historical patient information.

Confidentiality and Security

Each Trust using CRIS has a security model that includes technical and process safeguards to manage the use of the system and protect ethical and legal rights.

Developed in consultation with service users, these measures provide a template for Trusts to set in place local versions of security processes and safeguards to obtain Caldicott, Trust Executive and Ethics approvals.

The transformation process de-identifies all data including free text so that researchers cannot see any patient identifiers. De-identification includes (but is not limited to) the following examples:

- names and addresses masked (in both structured and unstructured text);
- post codes truncated;
- year and month of birth only displayed;
- patient identifiers such as NHS number removed.

Data transformation also masks information relating to carers.

In addition, CRIS provides capability to allow individual patients to opt out of their data being used for research purposes.

Interactive Search

CRIS enables researchers to interrogate de-identified patient data directly and efficiently through either of two complete data repositories.

Query Tools

CRIS leverages Microsoft FAST technology to provide a speedy and accurate search tool. Researchers can quickly and easily construct queries by selecting from fields within the data hierarchy. The system supports the use of wild cards for partial matching and the use of quote marks when specifying the exact criteria to match.

CRIS extracts relevant records based on the researcher's query, for example a particular coded diagnosis and/or a particular text string in a clinical assessment. The researcher can specify the fields to display, these may be the same as or different from those they searched against. On running a query, CRIS displays how many patients match the chosen criteria and returns results in a spreadsheet view with one row per patient and a column for each data item chosen.

In addition, the CRIS SQL data repository allows users with SQL expertise, and knowledge of the underlying data structure to construct more complex queries.

Additional Features

- Researchers can save queries for future use, thus saving time.
- Active alerts of new patients matching saved queries, allows researchers to widen their study cohort.
- Researchers can export results as CSV files for further analysis and mining using statistical tools.
- All searches within CRIS are recorded and made available for audit by a CRIS administrator, to monitor compliance with security protocols.