Introduction

A new patient is admitted to a clinic and a notification event is generated through a process.

1. Study cohort defined by researcher
2. Data warehouse queried for eligible subjects
3. Future appointment scheduled based on demand for eligible subjects
4. Eligible subject arrives in outpatient clinic
5. Screening procedures performed and subject notified via e-mail and/or phone
6. Subject contacted by investigator for recruitment into study

The message is received by the Mirth gateway listening on TCP/IP.

DISCERN implementation

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2. Data warehouse queried for eligible subjects
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HL7 message processing

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Design

The design of DISCERN addresses the information category by utilizing both retrospective and prospective data. The retrospective data are available in the data warehouse and represent the medical records of patients who are potential subjects for a clinical trial. In the case of rare conditions, the patient may be identified and not need to begin recruitment. More often, the initial notification criteria for subjects require current information about the patient, such as the last result for a particular test done in the patient’s medical record. DISCERN's model designed to receive new patient data while identifying potential subjects. This comprehensive approach leverages both retrospective and prospective data in an effort to define the best candidate list.

2. Communication: Leveraging technology to communicate efficiently with study staff

Automatic communication with research staff is a large part of DISCERN. The design incorporates scalability to paper communications of other recruitment methods such as cold-calling or direct mailing. DISCERN can meet with the patient in person, which is the most effective method of enrollment (Verheggen 1998).

3. Workflow: Enhancing workflow

Providing specific data on when and where clinical trial data is needed to aid in the design of DISCERN. The information category by using both retrospective and prospective data. The retrospective data are available in the data warehouse and represent the medical records of patients who are potential subjects for a clinical trial. In the case of rare conditions, the patient may be identified and not need to begin recruitment. More often, the initial notification criteria for subjects require current information about the patient, such as the last result for a particular test done in the patient’s medical record. DISCERN's model designed to receive new patient data while identifying potential subjects. This comprehensive approach leverages both retrospective and prospective data in an effort to define the best candidate list.

The DUKE University Health System (DUHS) has designed a comprehensive open-source solution that leverages both retrospective data warehouse information and real-time health level seven (HL7) streams to aid in the effective recruitment of new patients into clinical trials. The DUHS System has implemented a data warehouse query and alert system to identify eligible patients currently in the DUHS patient database. The DUHS system was designed to interact with the DUHS patient database, allowing for the identification of patients eligible for clinical trials and the efficient communication with the investigator responsible for the trial.

Yet to be devised.

Data-driven clinical research has several commercial and “home-grown” systems in support of research enrollment. While few institutions are leveraging these data warehouse into the accretion of healthcare data, but staggering amounts of the cost and efficacy of research recruitment and enrollment. Beyond widespread implementation of hospital information systems have led to the documentation of data sources to identify a cohort of potential subjects. Information category by using both retrospective and prospective data. The retrospective data are available in the data warehouse and represent the medical records of patients who are potential subjects for a clinical trial. In the case of rare conditions, the patient may be identified and not need to begin recruitment. More often, the initial notification criteria for subjects require current information about the patient, such as the last result for a particular test done in the patient’s medical record. DISCERN’s model designed to receive new patient data while identifying potential subjects. This comprehensive approach leverages both retrospective and prospective data in an effort to define the best candidate list.

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Data management: Utilizing economies of scale for data storage and security

Data management is also addressed by DISCERN. The retrospective data collected by the hospital will be stored in our secure data warehouse. Strategies to integrate these data and provide the most accurate information possible are handled by our centralized data warehouse. Preparatory data are managed by the rigorous standards of HL7 messaging. Data unique to the use of DISCERN are managed by the information management team. The centralized management of enrollment and retention data allows for zero-cost of staff, and removes the burden management from the individual investigator.

DISCERN is a comprehensive solution to the challenge of improving recruitment through implementation of the best practices (Verheggen 1998). Because DISCERN is based upon open-source standards, it is sustainable and easily adapted by other institutions at a relatively low cost.

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