The EHR4CR platform has an open, standards based, service oriented architecture. The open architecture encourages development of alternative and new tools both at the platform level as for use locally at a hospital.

The EHR4CR architecture consists of a set of technical specifications covering all aspects of the platform at different logical levels, ranging from web service communication to security specifications, clinical data models and preferred medical terminologies.

The EHR4CR platform: the future of clinical trials
The number of clinical trials in Europe is declining. Medical advancement is slowing down. Medical research of the future needs a more dynamic and more efficient organisation of clinical trials. The EHR4CR service platform delivers this by leveraging information already stored in Electronic Health Records.

The EHR4CR platform:
• connects trial sponsors and investigators
• provides services such as protocol feasibility on real data and computer aided patient recruitment
• ensures patient privacy and confidentiality
• enables better use of data in hospitals.

For more information visit http://www.ehr4cr.eu/platform

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Electronic Health Records for Clinical Research

An IT platform enabling more efficient clinical trials
Medical data is complex. In order to efficiently process large amounts of patient data to increase trial process efficiency, IT-systems need to be able to do more than simply exchange information. They need to be able to ‘interpret’ its content. Solving this semantic integration challenge is at the core of the EHR4CR platform.

The EHR4CR platform specifies a Common Information Model (CIM). Additionally tool builders can consider all platform information to be structured according to this CIM. Additional to this, tool builders have access to a higher-order query formalism convenient for transforming complex eligibility criteria into CIM queries.

The EHR4CR platform is an open IT platform that unlocks the information stored in Electronic Health Records for improving clinical research while fully respecting patient privacy and ensuring a high level of security. The platform enables efficient communication between sponsors and investigators, speeding up clinical trial protocol design and patient recruitment. Hospitals connecting to this platform will increase their participation to clinical trials and as such facilitate patient access to new and better treatments.

The EHR4CR platform is a portal to a multitude of services for sponsors at each step of the clinical trial process, including:

- Protocol feasibility testing based on real world data
- Trial site selection based on up-to-date information
- Patient recruitment progress monitoring
- Improved data quality

Hospitals benefit from the platform in multiple ways with access to:
- up-to-date information on new and running trials (invitations to participate)
- support tools for data managers and investigators, including unified communication with sponsors
- platform tools for data analysis
- computer-aided recruitment tools.

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Privacy by design

Patient privacy has been a primary concern for the design of the EHR4CR platform. An external ethical board of international experts - including patient organisation representatives - has been actively involved from the very beginning.

Some key points:
- no data at the individual patient level leaves the hospital site during the protocol feasibility and patient recruitment stages
- aggregated information is checked and protected against re-identifiability before leaving the hospital site
- platform tools for use at the data sources support different levels of access to be configured in accordance with local privacy policies
- all services are integrated with the EHR4CR security framework: a standards-based integrated solution providing authentication, authorisation and audit in distributed systems.

Of course EHR data is not natively structured according to this CIM. The combination of an ETL (Extract, Transform and Load) step and the EHR4CR semantic integration layer takes care of the transformation between the local information models and the EHR4CR CIM. Mapping between models is a tedious job. EHR4CR introduces a business process for iteratively updating mappings and improving data quality supported through the platform tools.

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