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Database – collection of different ECG and implementation of SCP format in different EHCR systems

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1. Database

In the OpenECG project there is established a database to facilitate scientists and developer's access to SCP-files from different vendors. The database which is placed at Danish Center for Health Telematics and made public through the OpenECG portal for members (www.openecg.net), so they can download and upload examples of different ECG's based on the SCP format.

It includes approximately 50 ECG's from different vendors.

The work in establishing the database has been divided into 4 tasks:

- T5.1 Organization of a database for the storage of ECG tentatively compliant with the SCP-ECG standard.
- T5.2 Collection of ECG samples from different vendors with special emphasis to their multilingual capabilities and their ability to use different charsets.
- T5.3 Facilitate submission of SCP-ECG samples from members.
- T5.4 Convert existing Computerized ECG to the SCP-ECG standard.

The database is developed in a MySQL database, combined with a PHP (Hypertext Preprocessor), which is an open-source, server-side, cross-platform scripting language that is used to generate dynamic Web pages or to build browser-based applications. The PHP script can be embedded in the HTML page to generate HTML code that is inserted in the Web page at that point, or the PHP script can generate the entire HTML output. One of PHP's strengths is easy database integration also with MySQL.

Examples on uploading and downloading SCP ECG's are shown.

2. SCP / EHCR implementation

To day more than 250.000 ECG's are registered in Danish Primary Health Sector or in ambulances every year. Most of them are stored digitally in EHCR and ECG systems. Many of the ECG's are relevant for proper treatment of patients when acute admitted to hospitals, for having a second opinion or a telemedicine interpretation.

But until now it has not been possible to electronically transmit these ECG's to hospitals or databases in cardiology centres except using the same brand and model of equipment.

The wide use of EDI in Danish Health Sector has led to development of a national standard for exchanging documents with images and other binary elements.

This standard: MEDBIN has been developed and implemented in different EHCR systems and now used for dermatology images and other binary elements. A recent development in the use is to exchange ECG based on the SCP format between different patient record systems.

When using the SCP-ECG standard for exchanging ECG's it is now possible to exchange ECG's from different brands of EHCR and ECG machines between all partners in the health sector. The interpretation and viewing can be done in an open source viewer developed for this purpose in the OpenECG project or by using a SCP compliant ECG product.

A demonstration of transferring an SCP - ECG using MEDBIN between two different EHCR systems is presented.

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