Volume 6 / Issue 1-2 / 2011 - Cover Story

From Micro- Towards Macro- Mobility

One of the main problems in the operation of complex hospital information systems (hIS) is a lack of functionality for the deep integration of administrative and clinical patient data, documents, reports, which are generated and stored in a variety of different software modules or specifi c clinical applications. These proprietary systems often use their own data models and storage routines. The customers are so dependent on these systems, that the systems are established over a long time. Thus, the implementation of hospital-wide electronic health records that allow a patient-centric view of all relevant administrative and clinical data is becoming more difficult.

The excerpt describes a project from the ENTSCHEIDERFABRIK* as a best practice approach with conditions for the following tasks: For two hospitas, solutions were designed implementing the IHE-MDES, TianiSPIRIT EHR. Each involved different system environments and had successful operation.

- Content migration and consolidation of proprietary clinical databases.
- Design of a hospital-wide Master Patient Index (MPI) including its benefits
- Implementation and usage of a standardised and IHE-based repository for patient and clinical data as a basis for consolidated systems and portal solutions.
- Usage of unique object identifiers (OIDs) for all administrative and clinical patient data.

Challenges and Tasks

At one of the workgroups at Summer-Camp 2010 the related topics below were developed for both hospitals (Fig. 1) and prioritised. The particular challenges in the two hospitals were:

- The consolidation of active and heterogeneous data resources; and
- The integration and usage of different technical and nonuniform system platforms. There was also a major focus on functional and technical interoperability with the HIS. A question that came up with respect to consolidation was:
- "Could we get approval for the shutdown of the previously active and proprietary legacy systems?"
- The implementation was done using the "Proof of Concept". project type

Pilot Projects for Implementation at the Hospital of Stuttgart and the University Hospital of Essen

Hospital of Stuttgart

The main aims were:

- The consolidation of three proprietary radiological (legacy) information systems (RIS) by a technical integration of different system platforms.
- The subsequent establishment of a retrieval based integration, both for radiological data in the HIS, as well as in the new central RIS.

To solve these challenges the hospital of Stuttgart implemented the IHE-MDES, TianiSPIRIT EHR.

The administrative and clinical data of 180,000 patients were migrated out of the old proprietary systems into the IHE-MDES, TianiSPIRIT EHR. All of the combined radiological data / findings were included. In addition a web front end for retrieval tasks is provided by the TianiSPIRIT EHR. In parallel the MPI for all administrative and clinical patient data was customised based on the IHE-Profiles PIX (Patient Identifier Cross Referencing) and PDQ (Patient Demographics Query).

University Hospital of Essen

In Essen, the university hospital has concentrated successfully for many years on three specific priorities in research, teaching and patient care: Cardiovascular, oncology and transplantation. For example, in July 2010 the hospital established a new subsidiary, with the Western German Heart Centrethus expanding its capacity in cardiac surgery significantly. Since 2008, the visceral centre is the leader in the European transplant area. Oncology will also be strengthened with the construction of the Western German Proton Therapy Centre. With the establishment of the Centre for Terminal Heart- and Lung Diseases in 2009 and the Ruhrland Hospital 100 percent owned subsidiary it also built up a strategic business segment for all the seriously ill patients who often cannot be treated in other hospitals.

The aims of the central IT department of the University Hospital of Essen are:

- To gather all administrative and clinical data that arise during the patient treatment within the different clinics; and
- To provide administrative and clinical data to all the involved clinics / health professionals in a structured way with a common user interface, independent from the primary clinical systems.

The basis and first choice is a neutral portal, independent from the HIS. Standards like IHE are helpful for implementation. an overall MPI is needed. The first goal was to make all required patient information available for all health professionals (users) in the University Hospital of Essen and the Ruhrland Hospital in one system – EHR (Project Type: Proof of Concept).

Results and Potential Benefits

Hospital of Stuttgart

The proof of concept to consolidate the RIS in the TianiSPIRIT EHR in late September was successfully completed in 2010. The following results and benefits were achieved: *Reduction of required IT resources for legacy systems, such as:*

- Licenses;
- Infrastructure;
- Maintenance (care), and
- Staff and know-how.

With the TianiSPIRIT EHR users were provided with multidisciplinary access to clinical data out of the leading systems.

University Hospital of Essen

The design of the TianiSPIRT EHR, a portal solution between the University Hospital of Essen and the Ruhrland Hospital, began in October 2010. The following results and benefits are to be expected:

- A case-related and lifelong clinical centric view on each patient's EHR;
- Fast and convenient connection to external partners through the cross enterprise EHR (ceEHR)
- Ability to design standardised clinical pathways within the ceEHR;
- Benefits for health professionals by using this IT tool EHR by delivering the net new functionality "uniform view on clinical pathways and research aspects", and
- By using the EHR the restrictions of different IT systems and landscapes (internal HIS and RIS, external HIS and RIS, etc.) disappear.

Conclusion

At the end of this ENTSCHEIDERFABRIK it can be said that in the proof of concepts, the previous objectives were achieved and that the hospital management and the health professionals are satisfied with the IHE MDES, TianiSPIRIT EHR:

- Creation of a IHE conform centralised clinical archive by using the IHE-MDES, TianiSPIRIT HER;
- Former proprietary and duplicate-prone administrative and clinical data out of legacy systems are now available IHE conform and MPI sorted (unique);
- By having IHE conformed data, and
- A new kind of vendor independency is reached. The hospitals became independent from proprietary data bases, data, releases and versions (for HIS and portal solutions), the executive management / CIO achieved future and investment security out of this IT project.

User friendly portal functions are largely feasible:

- The solution design of the so called hospital enterprise bus (HEB), is open for the technical integration of further systems;
- Compliance with (inter)national projects and scenarios is realised (eFA, EGA, ePSOS, etc.), and
- The implementation of the IHE-MDES, TianiSPIRIT EHR makes a clear roadmap for upcoming system migrations possible, with respect being in *time*, in *line* and in *budget*.

Published on : Thu, 16 Feb 2012