CLINICAL INFORMATION AND DECISION SUPPORT INTRANET SYSTEM

Duration: January 2002 – June 2004

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Keywords: clinical decision support; clinical intranet; knowledge management;

Background: The current hospital information systems have been devised primarily to support the financial and administration aspects of care. In the same time a variety of expert systems emerged, with a potentially great impact on the level and efficiency of medical care. However most of the decision support systems struggle with the following problems (a) the required knowledge does not available at bedside (b) the advice available is not case specific (c) the decision support is not integrated with the work-flow of care. Overall, there is a broadening gap between the rapidly increasing knowledge and its practical implementation, and this can be first traced back to the burdens of communication.

Aims: Development of a knowledge-based clinical information and decision support intranet system prototype at the Medical Faculty of University of Szeged. The envisaged system serves as a general medical portal, provides the medical staff electronic sources of medical knowledge (ebooks) and has integrated diagnostic and therapeutic decision support facilities.

The most important tasks of this multidisciplinary project involving components of research, development and technology in medicine and informatics are as follows.

* The prototype is aimed to be fully functional logicialy complete however with restricted validity and knowledge.
− development of knowledge bases related to pharmacotherapy and laboratory diagnostics, and algorithms supporting therapy decisions
− joint application of these knowledge bases and patient records in individual therapy
− analysis and presentation of patient data and related knowledge base information by using mathematical modelling, statistics and visualisation
− development of a browser-based interactive interface and intranet environment

Activities:
1. Technology related R&D
   − Test environment
   − Methods and procedures
   − Standards
   − Programming
   − Content linking, dynamic environment
   − Knowledge management
   − Automated decision support
   − rule-based and algorithmic solutions
   − validation of conclusions

2. Clinical content development
   − test database of patient data
   − electronic clinical laboratory handbook (selected chapters)
   − electronic drug handbook (selected range of active agents)
   − electronic clinical handbook (Anticoagulation)

3. Decision support services development
   − Labprompt – automated case specific clinical chemistry result interpretation
   − Doseprompt – protocol-based, case specific dose calculation
Expected results:

– Instant access of medical knowledge
– Structured knowledge representation
– Automated decision support elements
– Case specific advice
– Integration with clinical work-flow

<table>
<thead>
<tr>
<th>Resources</th>
<th>Own</th>
<th>Governmental</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>122.000</td>
<td>233.000</td>
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</table>

Table 1 total cost of implementation in Euro

Duration: 30 months

<table>
<thead>
<tr>
<th>Implementation Phase</th>
<th>Duration in weeks</th>
<th>Workload in Man Months</th>
<th>Period</th>
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<tr>
<td>Project planning</td>
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<td>25</td>
<td>01.01.2002 – 05.27.2002</td>
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<td>30</td>
<td>05.28.2002 – 10.28. 2002</td>
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<td>System testing</td>
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<td>15</td>
<td>02.03. 2004 – 06.30. 2004</td>
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Table 2 Project implementation schedule