The Use and Usability of EPR systems in Oncology

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MIE 2012, Pisa : 28th August 2012
Introduction

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- **Peter Bath**: Reader in Health Informatics, Information School, University of Sheffield
Most ‘primary’ patient records in the UK NHS are still held in paper format.

Although EPR systems have developed over recent years, many processes are still built on paper-based information flows.
This Research

- This research seeks to assess the use and usability of electronic patient record (EPR) systems in cancer treatment services.

- It is part of a wider programme of research concerned with development and validation of a conceptual model for comprehensive, integrated, customised electronic patient record systems for oncology (‘CICERO’)\(^1\)

Research Setting

- Specialist oncology centre providing non-surgical cancer treatment services to circa 2.2m population
- 7,500 new patients each year (chemotherapy and/or radiotherapy)
- 860 staff, 50 consultant oncologists
- Clinics in multiple locations throughout NW England and Isle of Man
**Research Framework**

- **CICERO**: a framework to support research into specialist electronic patient record (EPR) systems for cancer treatment services

### CICERO v1: Comprehensive, Integrated, Customised Electronic Records for Oncology

<table>
<thead>
<tr>
<th>Secure Web Portal</th>
<th>Single Sign On</th>
<th>Patient Administration System</th>
<th>Clinical Context Mgt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Chemo Scheduling</td>
<td>Therapies</td>
</tr>
<tr>
<td>Socio-technical considerations</td>
<td></td>
<td>Organisational Culture</td>
<td>Governance &amp; Risk</td>
</tr>
</tbody>
</table>

### Electronic Document & Records Management System (EDRMS) – Patient Casefiles

- Picture Archiving and Communication System
- Radiology Information System
- Radiotherapy Record & Verify
- Radiotherapy Planning
Research Approach

- Purpose of study: to establish the views of the different staff groups about the use of paper medical notes, EPR systems and the potential impact of fully electronic patient records.

- Data gathered using online questionnaire for staff at CCC.

<table>
<thead>
<tr>
<th>Staff Group</th>
<th>Total Staff (n)</th>
<th>Eligible for Survey (n)</th>
<th>Responses Received (n)</th>
<th>Response Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>59</td>
<td>59</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>Nursing</td>
<td>243</td>
<td>179</td>
<td>22</td>
<td>12</td>
</tr>
<tr>
<td>Radiographers</td>
<td>191</td>
<td>180</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Allied Health Professionals</td>
<td>22</td>
<td>22</td>
<td>8</td>
<td>36</td>
</tr>
<tr>
<td>Administration</td>
<td>252</td>
<td>139</td>
<td>52</td>
<td>37</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>34</td>
<td>18</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Physicists</td>
<td>33</td>
<td>20</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Senior Management</td>
<td>29</td>
<td>10</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>863</strong></td>
<td><strong>627</strong></td>
<td><strong>130</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>
Research Findings
Tasks supported by EPRs

- 86% (n=112) of participants reported using the Trust’s EPR systems
- 98% of EPR users indicated the type of tasks that they undertake
- The highest frequency daily task supported by the electronic patient record system was tracking the paper-based patient record (n=48; 43%)
Research Findings
Tasks supported by EPRs

- Other, relatively high frequency daily tasks relate to order communications and results reporting for pathology (25%), recording contacts with patients (21%) and tracking the status of a patient in relation to their planned clinical pathway (20%)

- Entering clinical information into the EPR and performing some clinically focussed tasks such as prescribing chemotherapy had relatively low (electronic) activity levels at the time of the survey (May 2011)
Research Findings
Reported uses of EPRs

“I try to avoid using the EPR system if at all possible; it takes too much time and wastes valuable clinic time; it is not best use of my expertise to make me slowly type in patients numbers”

“I use the EPR to check clinic appointments, to plan my work, to find patient details and phone numbers, radiotherapy schedules and diary to plan when I'm seeing patients and keep track of their treatment. I read last letters etc. when calling patients to save getting the [paper-based] notes”
Research Findings
Usability of EPR systems

- 20 questions to obtain feedback on usability, using a 5-point Likert scale. 93 EPR users completed this section of the questionnaire.

- 74% of these respondents either agreed or strongly agreed that the systems were easy to use. Similarly, just under 74% of users agreed that they could complete their work effectively using the systems.

- Over half of respondents (55%) agreed or strongly agreed that they could complete their work quickly using the systems, with 62% agreeing they could complete their work efficiently.
Research Findings
Usability of EPR systems

- 84% of respondents agreed or strongly agreed that they felt comfortable using the systems, and 81% agreed that it was easy to learn to use the systems.

- The majority of respondents indicated that information provided with the systems (e.g. training manuals, users guides) was clear (72%), it was easy to find information on the system (75%) and it was easy to understand (70%).
Research Findings
Usability of EPR systems

- 68% felt that the information provided by the system was helpful in enabling them to complete tasks and 65% stated that the organisation of information on screens was clear. Over half of the participants responded that the user interface was pleasant and they enjoyed using it.

- However, less than half (44%) of respondents agreed that the systems had all the functionality and capabilities that they expected.
Conclusion

- It is interesting to note that the task most frequently supported by the EPR system is the tracking of the paper-based medical notes.

- This preliminary analysis indicates that EPR use is more of a problem than usability, in that, from the end user’s perspective, the systems appear to work reasonably well for the tasks that they were designed to support, but they do not appear to offer the necessary range of functionality to support all tasks required of them.

- The survey highlights the need for further progress in implementing effective IT systems to support day-to-day clinical practice in cancer treatment services.
Next Steps

○ Further analyses of quantitative and qualitative data obtained from the patient records survey

○ Continue data gathering with clinicians at the primary research site to establish their perspectives and system requirements – qualitative study using semi-structured interviews

○ Refine and extend conceptual model (CICERO)
Thank you for listening

Any questions?