DECISION SUPPORT SYSTEMS

Exploring the role of DECISION SUPPORT SYSTEMS for differential diagnosis in out of hours and primary care in Scotland

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Aims:
This project aimed to identify the needs of out of hours and primary care clinicians and the public with regard to DDDSS, and to assess the strengths and weaknesses of commercially available systems.

Methods

Rapid Review
A rapid review of the published literature was conducted. MEDLINE, Embase and CINAHL were searched between 1990 and March 2018. Single author (AF) screening against eligibility criteria, with a second author (CM) assisting with full-text screening resulted in 15 eligible articles. Data were extracted and subject to thematic analysis (1).

Market Research
Commercially available DDDSS were identified through online searches, industry contacts and the professional literature. To qualify as a DDDSS, it was agreed that a system must be capable of generating a dynamic differential diagnosis based on entered clinical findings. Companies who produced a DDDSS were contacted and provided with a questionnaire designed to gather information on their systems. Some systems were also trialled.

Focus Groups
Qualitative focus groups were conducted with clinicians and the public to explore their needs in relation to DDDSS. Focus groups were audio-recorded, transcribed verbatim and subject to a thematic analysis (1). 13 advanced nurse practitioners, 7 GPs, 2 AHP advanced practitioners and 7 members of the public took part (n=29).

Results

Figure 1: PRISMA Flow Diagram
Six themes were identified by the thematic analysis:

Table 1: Characteristics of commercially available DDDSS

<table>
<thead>
<tr>
<th>DDDSS</th>
<th>Language</th>
<th>Access</th>
<th>Features</th>
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<tbody>
<tr>
<td>Isabel</td>
<td>English</td>
<td>Online</td>
<td>- Dynamic differential diagnosis</td>
</tr>
<tr>
<td>VisualDx</td>
<td>English</td>
<td>Offline</td>
<td>- Natural language processing</td>
</tr>
<tr>
<td>PEPIID</td>
<td>English</td>
<td>Online</td>
<td>- Offline access</td>
</tr>
<tr>
<td>DXplain</td>
<td>English</td>
<td>Online</td>
<td>- Vast image libraries and tailored questions</td>
</tr>
</tbody>
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Conclusions:

There are only a small number of DDDSS available, each with their own strengths and weaknesses. The majority of the available research is on one system (Isabel), and only a small number of studies were undertaken in a clinical setting. More research is needed into how other systems perform, and how systems are applied in clinical practice. Clinicians want a system that is easy, fast, reliable, accurate, and links to trusted evidence. Of particular interest to nurses would be the potential for this technology to support new and trainee advanced nurse practitioners in out of hours and primary care.

Visit the websites of the included DDDSS for more information:

Isabel: www.isabelhealthcare.com
VisualDx: www.visualdx.com

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VisualDx: www.visualdx.com

References: