Introduction
There is evidence that electronic clinical decision support systems can positively impact healthcare providers’ performance.1 While clinical decision support systems have many benefits for healthcare professionals, providing these tools does not guarantee uptake.

Objectives
These are:
1. to identify a list of the barriers and facilitators to GPs adopting clinical decision support systems
2. to provide a model to help explain the relationship between these factors

Method
We completed two separate searches of the PubMed, CINAHL Plus and Scopus databases. The first was to identify the literature on GPs adopting clinical decision support systems, the second to identify theories to influence GPs’ practice.

Results and discussion
The searches yielded 341 results. After removing duplicates, a screening of the article titles and an abstract review against the objectives of this paper, 12 papers remained. We identified three additional papers in the reference lists, bringing the total to 15.

We identified 23 barriers and 22 facilitators to GPs adopting clinical decision support systems.

Many models explain the acceptance and use of clinical decision support systems, originating from theoretical insights used in psychology, sociology and information systems. It is suggested that the most sensitive model is the unified theory of acceptance and use of technology (UTAUT).1

The unified theory of acceptance and use of technology
The UTAUT synthesises eight behavioural models/theories, pulling together their significant elements. The UTAUT comprises four main determinants of behavioural intentions and use behaviour.

These are: perceived usefulness (performance expectancy); perceived ease of use (effort expectancy); social influence; and the perception that organisational and technical support exists (facilitating conditions). In addition, the UTAUT proposes four moderating variables – age, gender, experience and voluntariness of use. The moderating variables are suggested to influence the relationships between the four constructs and intended use.

The identified barriers and facilitators were mapped to the UTAUT.

UTAUT constructs/ moderating variable

<table>
<thead>
<tr>
<th>Mapped facilitators</th>
<th>Mapped barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance expectancy</td>
<td>Agreement with recommendations, Improved knowledge/professional development, Usefulness in consultation, Assist decision making, Better quality of care, Patient point-of-care information, Facilitates patient discussion, Embedded patient education, Increased alerts/awareness, Time saver</td>
</tr>
<tr>
<td>Social influence</td>
<td>Nothing identified in the literature</td>
</tr>
<tr>
<td>Facilitating conditions</td>
<td>Fit within current workflow, Training provision, Based on practice needs</td>
</tr>
<tr>
<td>Gender</td>
<td>Nothing identified in the literature</td>
</tr>
<tr>
<td>Age</td>
<td>Nothing identified in the literature</td>
</tr>
<tr>
<td>Experience</td>
<td>Nothing identified in the literature</td>
</tr>
<tr>
<td>Voluntariness of use</td>
<td>Commitment to use</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Acceptance, Openness to clinical decision support systems, External rewards/reporting, Involvement in design and development, Ability to make modifications, Trust in knowledge base, Developed by a trusted source</td>
</tr>
</tbody>
</table>

Threat to decision-making and patient relationship
Threat to doctor/patient relationship
Performance expectancy
External rewards/reporting
Effort expectancy
Voluntariness of use
Social influence
Trust in knowledge base
Age
Involvement
Facilitating conditions
Use behaviour
Behavioral intentions
Moderating variables
Constructs that are considered to have greater influence.

Using electronic clinical decision support systems by GPs – an adapted version of the ‘unified theory of acceptance and use of technology’

Figure 1

References


Conclusions
It has been suggested that the UTAUT is a sensitive model to predict the use of clinical decision support systems. We have recommended additions to the UTAUT based on the literature.