Computer Psychiatric Interview Productivity and Transcription Load Effects

David C. Hager, M.D.
The University of Texas Health Science Center at Houston, TX

Introduction
Integration of electronic health record (EHR) systems into clinical practice has raised concerns about usability, productivity and clinician burnout\(^1,2\). A branching logic computer psychiatric interview was developed using LimeSurvey to help address these concerns. The goals for this tool are to 1) standardize clinical data acquisition, 2) improve clinician productivity, 3) reduce clinician burnout, and 4) reduce transcription load.

This study tested a hypothesis that this computer interview tool would improve clinician productivity and diminish transcription load.

Methods
At a residential substance use disorder rehabilitation facility, patients for whom psychiatric consultations were requested initially sat for the computer psychiatric interview. Responses were extracted via application programming interface and formatted using Python code, with results copied into the facility’s EHR. Direct clinical evaluation interviews were then conducted, dictated and transcribed.

After obtaining IRB exemption, data from one clinician’s services were collected from six-month periods before and after implementation of the computer interview. Python code was written to extract evaluation and follow-up appointment counts (productivity) from calendar and EHR entries, and evaluation word counts (transcription load) from the EHR. Analysis was performed on 791 appointment entries and 307 evaluation reports.

Results
Results are summarized below in Table 1. Compared to the six months prior to implementation of the computer psychiatric interview, the subsequent six months saw significant reductions in follow-up appointments per week, follow-up to evaluation ratios and transcription load, disproving the null hypothesis. However, an increase in evaluations per week did not reach statistical significance.

Table 1. Appointment counts, ratios and transcription load pre and post computer psychiatric interview

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Pre-computer interview</th>
<th>Post-computer interview</th>
<th>% change</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean follow-ups count / week</td>
<td>11.08</td>
<td>7.5</td>
<td>-32.3</td>
<td>0.000075</td>
</tr>
<tr>
<td>Mean evaluations count / week</td>
<td>5.56</td>
<td>6.46</td>
<td>16.2</td>
<td>0.20</td>
</tr>
<tr>
<td>Follow-up / Evaluation Ratios</td>
<td>2.69</td>
<td>1.52</td>
<td>-43.5</td>
<td>0.0156</td>
</tr>
<tr>
<td>Transcription: mean word count per evaluation</td>
<td>2573.7</td>
<td>2074.4</td>
<td>-19.4</td>
<td>8.67e-18</td>
</tr>
</tbody>
</table>

Conclusion
This pilot project measuring productivity and transcription load effects of a computer psychiatric interview by one clinician at one work site indicates possible benefits for these studied parameters. The reduced follow-up/evaluation appointment ratio suggests more was accomplished in consultative evaluation appointments, diminishing the need for follow-up appointments. Further study of this computer interview with a larger number of clinicians and patients would be appropriate to clarify potential impacts of this tool upon patient flow and productivity.

References