Introduction
The purpose of this study was to intra-operatively compare tibial fit of a customized, patient-specific TKA implant to that of off-the-shelf (OTS) TKAs in the same patient.

Methods
• 33 patients undergoing customized TKA surgery were compared to OTS TKAs to assess tibial tray fit intra-operatively.
• After tibial preparation, a series of tibial trials from 3 OTS-TKA designs were fit, while maintaining proper rotational alignment.
• Implant fit (overhang/underhang) for the best-matched trial of each OTS-TKA was recorded in four tibial zones (Figure 1).
• Once all measurements were completed, the customized tibial tray was implanted, and measurements were repeated.

Results
Table 1: Distribution of underhang and overhang between the four groups analyzed

<table>
<thead>
<tr>
<th></th>
<th>OTS 1 (%)</th>
<th>OTS 2 (%)</th>
<th>OTS 3 (%)</th>
<th>Customized (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhang ≥ 3mm</td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>Underhang &gt; 3mm</td>
<td>30</td>
<td>30</td>
<td>39</td>
<td>12</td>
</tr>
</tbody>
</table>

Discussion
Results show that customized TKAs significantly improve tibial fit when compared to OTS TKA. This could play an important role in reducing knee pain and patient dissatisfaction, resulting from overhanging components, soft-tissue impingement as well as implant loosening due to poor tibial bone support and resultant subsidence.