Panoramic X-Ray Positioning

Image quality depends on positioning!

GENERAL RULES
Those areas of the object which are located too near to the tube are broadened and blurred, and those parts which are located outside the image layer, i.e. too far from the tube, are narrowed and also blurred, but less unsharp.

Errors are usually apparent in the frontal area, where the image layer is thinner than laterally and the positioning is critical.
## Mid-Sagittal Shifting

<table>
<thead>
<tr>
<th>Good Pan</th>
<th>The jaw is centered. Both sides have an equal distance to the focus.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient shifted right (laser left of middle)</td>
<td>The jaw is located too much to the right. The left teeth are partially outside the image layer, too near the focus.</td>
</tr>
<tr>
<td>Patient shifted left (laser right of middle)</td>
<td>The jaw is located too much to the left. The right teeth are partially outside the image layer, too near the focus.</td>
</tr>
</tbody>
</table>

In clinical practice, it is difficult to differentiate rotation errors from errors in midline shift.
## Panoramix X-Ray Positioning Errors

### Canine (Focus) Shifting

<table>
<thead>
<tr>
<th><strong>Good Pan</strong></th>
<th><strong>Patient shifted back</strong> (laser towards front)</th>
<th><strong>Patient shifted forward</strong> (laser dorsal of canine)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>The jaw is centered. Frontal and molar teeth are sized realistic. TM joints complete. Density is equally distributed.</strong></td>
<td><strong>The frontal area is unsharp, the anterior teeth appear broadened and blurred. The most dorsal part of the TM joints are not within the image. The central area of the film has less density than the rest of the image.</strong></td>
<td><strong>The anterior teeth appear blurred and narrowed (&quot;mouse teeth&quot;). The TM joints are imaged in a more lateral projection and more centrally than on the correct image. The cervical spine is largely within the image on both sides.</strong></td>
</tr>
</tbody>
</table>
**Panoramix X-Ray positioning errors**

**Vertical Rotation**

<table>
<thead>
<tr>
<th>Good Pan</th>
<th>The jaw is centered. Width of TM bones are equal. Distances from midplane are similar</th>
</tr>
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<tbody>
<tr>
<td>![Good Pan Image]</td>
<td></td>
</tr>
</tbody>
</table>

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<tr>
<th>Patient rotated right (left ear more visible)</th>
<th>The jaw is rotated to the right. There is an angular displacement between the midsagittal plane of the jaw and the midplane of the image layer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Patient rotated right Image]</td>
<td></td>
</tr>
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<table>
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<tr>
<th>Patient rotated left (right ear more visible)</th>
<th>The jaw is rotated to the left. There is an angular displacement between the midsagittal plane of the jaw and the midplane of the image layer.</th>
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<tbody>
<tr>
<td>![Patient rotated left Image]</td>
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In clinical practice, it is difficult to differentiate rotation errors from errors in midline shift.
## Tilting

<table>
<thead>
<tr>
<th>Good Pan</th>
<th>Patient tilted down (orbiter too low)</th>
<th>Patient rotated left (orbiter too high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The jaw is centered. Width of TM bones are equal. Distances from midplane are similar.</td>
<td>The occlusal plane is curved downwards. The anterior teeth appear unsharp. The cervical spine is superimposed on the left condylar neck. The central area of the film has less density than the rest of the film.</td>
<td>The hard palate is superimposed on the anterior maxillary teeth roots, which are unsharp. The maxillary area appears less dense than on the correct image.</td>
</tr>
</tbody>
</table>