Standard stems legacy

Shoulder arthroplasty has become an impactful procedure in managing severe shoulder pathologies. Implant design, materials and instrumentation have enhanced over the past five decades. We have seen shifts in complications with hemi, total and reverse shoulder arthroplasty over the years as well. What has been fairly consistent is low post-operative complications with traditional length humeral stems.\textsuperscript{1,2}

150,000 projected shoulder replacement surgeries in the U.S. during 2019\textsuperscript{3}

Current U.S. landscape

<table>
<thead>
<tr>
<th>Year</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Biomet Mini</td>
</tr>
<tr>
<td>2007</td>
<td>Wright Tornier Ascend</td>
</tr>
<tr>
<td>2008</td>
<td>Wright Tornier Ascend</td>
</tr>
<tr>
<td>2009</td>
<td>Wright Tornier Ascend</td>
</tr>
<tr>
<td>2010</td>
<td>ReUnion TSA</td>
</tr>
<tr>
<td>2011</td>
<td>ReUnion TSA</td>
</tr>
<tr>
<td>2012</td>
<td>ReUnion TSA</td>
</tr>
</tbody>
</table>
The need for **short stems**

Since 2006, many humeral stems have entered the market. With varying lengths, geometries and coatings, the perceived benefit has driven the market to adopt a newer stem design.

Each year, with more patients struggling with severe shoulder pain and arthritis in the US, the question arises as to which treatment option is appropriate for their condition.\(^4\)

**Bone preservation • Simplicity of the procedure • Potential of revision surgery**
Unforeseen issues in comparison to **standard stems**

With the addition of these new stems, some systems have unfortunately experienced unforeseen issues inherent with the design of their implants. By trying to preserve bone distally and limit intra-operative challenges, new complications are presenting.

**The issue...**
- Humeral loosening\(^1,4\)
- More proximal bone removed\(^5\)
- Proximal bone resorption\(^6\)
- Cortical thinning\(^6\)
- Calcar osteolysis\(^6\)

**Can be caused by...**
- Higher proximal bulk – less bone preserved in the metaphysis\(^5\)
- Stress shielding\(^6\)
- No bony apposition\(^1,5\)
How did **SOMA** find the ideal length?

We turned to science to design the ideal length stem. The geometry of the intramedullary canal and its relationship to the length and diameter of the humeral bone was analyzed using **SOMA**.

**SOMA**

The Stryker Orthopaedics Modeling and Analytics (SOMA) technology, is Stryker’s proprietary database of 3D CTA Scans and software. Today, over 19,500 bones from all ethnicities are in the SOMA database, allowing for the design of a better fitting implant.

1. SOMA analyzed the shape and size of 272 humeri.
2. A minimum point of 67.5mm from the resection plane is noted as what is needed to begin achieving proper stem alignment.
3. The distal alignment point is 16mm beyond the transition point intended to optimize initial implant stability.
4. The effective minimum length of ReUnion S is 83.5mm. By using SOMA, ReUnion S is the ideal length stem.
Implanting confidently with **ReUnion S**

The ReUnion S stem is designed to be the ideal length stem, optimizing bone preservation, alignment, and stability.\(^7\)

**1 Bone preservation**

Bone preservation: Reduced stem length was determined through our SOMA analysis; identifying a humeral transition point and alignment length. By keeping the wedge shape proximal body, soft tissue management preference is that of the user, not limited by the stem design.\(^7\)

**2 Alignment**

With the transition point identified, our target alignment zone was identified to avoid varus/valgus placement of the stem.\(^5,7\)

**3 Stability**

The S stem is designed to retain the alignment and stability benefits of a longer humeral stem prosthesis. The enhanced medial sweep of the stem avoids distal engagement while the alignment focused length and incremental distal sizing options prevent canal migration.\(^7\)
References


3. SmartTrak 2019 US Shoulder Market Data


7. RU-WP-3: Analysis of humeral morphology as it relates to stem length.
ReUnion® Platform
Implanting with confidence.

Trauma & Extremities

A surgeon must always rely on his or her own professional clinical judgment when deciding whether to use a particular product when treating a particular patient. Stryker does not dispense medical advice and recommends that surgeons be trained in the use of any particular product before using it in surgery. The information presented is intended to demonstrate the breadth of Stryker product offerings. A surgeon must always refer to the package insert, product label and/or instructions for use before using any Stryker product. Products may not be available in all markets because product availability is subject to the regulatory and/or medical practices in individual markets. Please contact your Stryker representative if you have questions about the availability of Stryker products in your area.

Stryker Corporation or its divisions or other corporate affiliated entities own, use or have applied for the following trademarks or service marks: ReUnion, SOMA, Stryker. All other trademarks are trademarks of their respective owners or holders.

Content ID: RU-BR-2, 05-2019
Copyright © 2019 Stryker