Clinical Monograph

arthrosurface®

Comparison of Primary Stemless vs. Stemmed Shoulder Arthroplasty

Results from the 2014 Australian Shoulder Arthroplasty Registry

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HemiCAP®

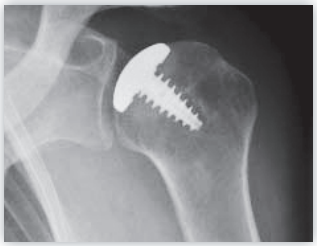
Introduction:

Stemmed shoulder replacement has been the standard of care in modern shoulder arthroplasty. Ample reports indicate that total shoulder replacement provides better pain relief and functional outcomes when compared to stemmed hemi arthroplasty (1-9). However, longer life expectancy, early joint deterioration in younger patients and increased functional demands on the implants cautions against the use of stemmed arthroplasty as a primary indication. When combined with the invasiveness of the procedure, poor bone preservation, and the technical challenges of restoring joint height, version, angle and volume, the argument against stemmed arthroplasty, especially in patients under 65 years old becomes quite evident.

In the 2014 Australian Joint Registry Report (10), Stemless Inlay Resurfacing (HemiCAP®, Arthrosurface, Franklin, MA) demonstrated the lowest revision rate among all shoulder implant classes: 0.5 revisions per 100 observed implant years. Joint preservation is of particular interest for patients under the age of 65 years: Following treatment with primary arthroplasty for OA, Stemmed Total Shoulder Replacement (TSR), Stemmed Hemi Shoulder Replacement, and Hemi Onlay Resurfacing all showed a 5 - 6 times higher revision rate than HemiCAP Inlay Resurfacing (Figure 1-4). Reverse Total Shoulder Arthroplasty showed a revision rate that was on average 3 times higher than HemiCAP.

Revision Rate (RR)

The Australian Joint Registry Revision Rate is based on 100 observed implant years. (Example: 100 patients with 1 year followup, or 10 patients with 10 years follow-up)



Stemless HemiCAP®

The trend for an increased revision rate in younger patients also becomes evident, when analyzing age group differences within each arthroplasty class: Stemmed TSR in patients over 75 yrs reported a revision rate of 1.70. The rate increased by 46% when compared to patients under the age of 65 years and 74% for patients under the age of 55 years (RR 2.48; RR> 55 years: 2.95).

Primary Stemmed Hemi Shoulder Replacement for OA (age >75 years) reported a revision rate of 1.75 and the rate increased by 50% when compared to patients under the age of 65 years and to 103% in patients under the age of 55 years (RR 2.63; RR >55 years: 3.29).

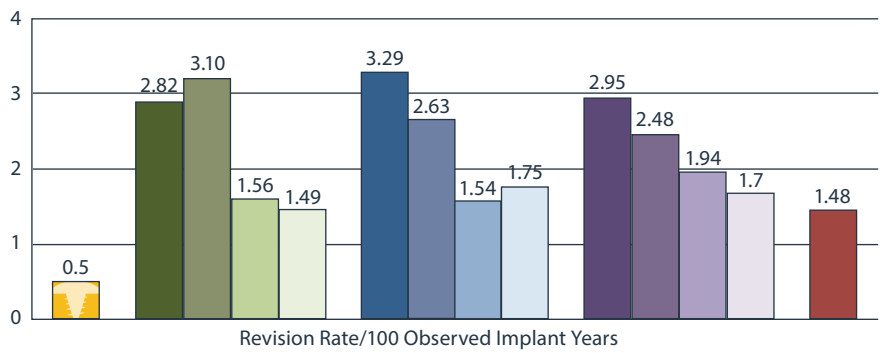
Primary Hemi Onlay Resurfacing for OA (age >75 years) reported a revision rate of 1.49. The rate increased 108% when compared to patients under the age of 65 years and 90% respectively for patients under the age of 55 years (RR 3.10; RR > 55 years: 2.82).

Traditional shoulder replacement procedures have shown a substantial increase in revision rates when used in younger patients. Combined with the technical advantages of stemless inlay resurfacing including the anatomic placement and bone preservation, the HemiCAP® implant proves to be an excellent choice as a new primary arthroplasty solution in the shoulder, particularly for younger patients under the age of 65 years.

Nomenclature:

Monograph	Registry	Implant Example
Stemless Inlay Resurfacing	Primary Partial Resurfacing Shoulder Replacement	HemiCAP
Hemi Onlay Resurfacing	Hemi Resurfacing Shoulder Replacement	Copeland etc.
Stemmed Hemi Shoulder Replacement	Stemmed Hemi Shoulder Replacement	Stemmed Global Advantage etc.
Stemmed Total Shoulder Replacement	Total Conventional Shoulder Replacement	Bigliani/Flatow etc.

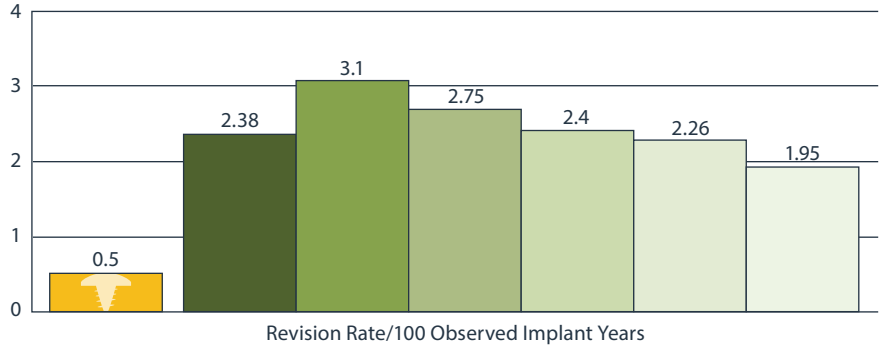
Revision Rate Comparison: Stemless Inlay HemiCAP® vs. Conventional Shoulder Arthroplasty Implants by Age



- HemiCAP® Stemless Inlay Resurfacing **All Ages**
- Hemi Onlay Resurfacing **<55 yrs**
- Hemi Onlay Resurfacing **55-64 yrs**
- Hemi Onlay Resurfacing **65-74 yrs**
- Hemi Onlay Resurfacing **>75 yrs**
- Stemmed Hemi Arthroplasty **<55 yrs**
- Stemmed Hemi Arthroplasty **55-64 yrs**
- Stemmed Hemi Arthroplasty **65-74 yrs**
- Stemmed Hemi Arthroplasty **>75 yrs**
- Stemmed Total Shoulder Replacement **<55 yrs**
- Stemmed Total Shoulder Replacement **55-64 yrs**
- Stemmed Total Shoulder Replacement **65-74 yrs**
- Stemmed Total Shoulder Replacement **>75 yrs**
- Reverse Total Shoulder Replacement **All ages**

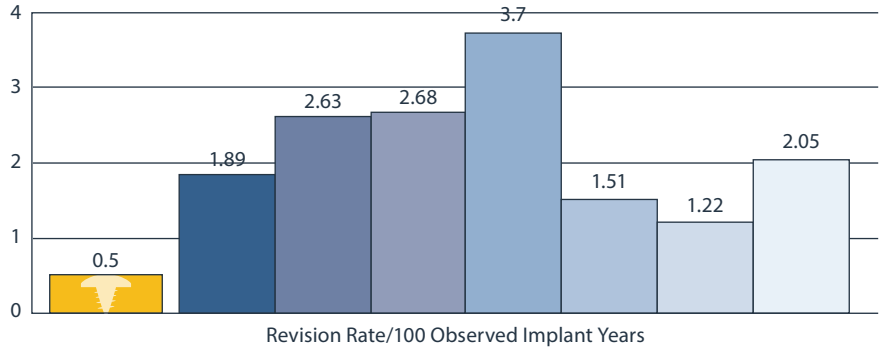
Clinical Monograph

Revision Rate Comparison: Stemless Inlay HemiCAP® vs. Hemi Onlay Resurfacing



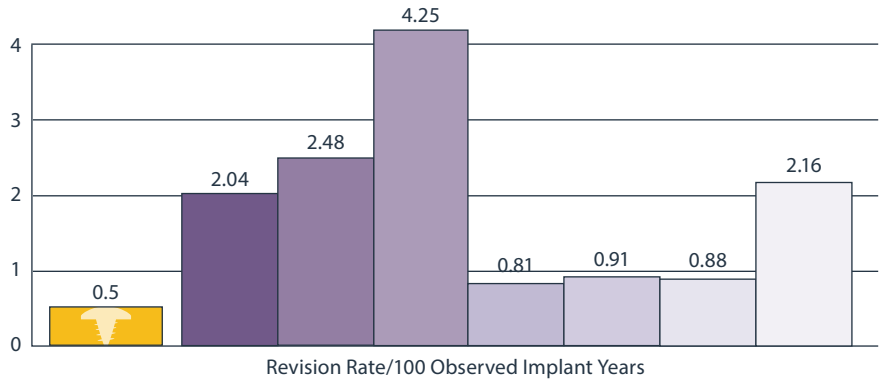
- HemiCAP® Stemless Inlay Resurfacing **All Ages**
- All Hemi Onlay Resurfacing **All Ages**
- All Hemi Onlay Resurfacing **<65 yrs**
- Aequalis / Tornier **All Ages**
- Copeland / Biomet **All Ages**
- Global CAP / Depuy **All Ages**
- SMR / Lima **All Ages**

Revision Rate Comparison: Stemless Inlay HemiCAP® vs. Stemmed Hemi Shoulder Arthroplasty



- HemiCAP® Stemless Inlay Resurfacing **All Ages**
- All Stemmed Hemi Shoulder Replacement **All Ages**
- All Stemmed Hemi Shoulder Replacement **<65 yrs**
- SMR / Lima **All Ages**
- Global Advantage Fx / Depuy **All Ages**
- Global Advantage / Depuy **All Ages**
- Aequalis / Tornier **All Ages**
- Bigliani/Flatow / Zimmer **All Ages**

Revision Rate Comparison: Stemless Inlay HemiCAP® vs. Stemmed Total Shoulder Replacement



- HemiCAP® Stemless Inlay Resurfacing **All Ages**
- All Stemmed Total Shoulder Replacement **All Ages**
- All Stemmed Total Shoulder Replacement **<65 yrs**
- SMR / Lima **All Ages**
- Aequalis / Tornier **All Ages**
- Global AP / Depuy **All Ages**
- Global Advantage / Depuy **All Ages**
- Bigliani/Flatow / Zimmer **All Ages**

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For additional product information, including indications, contraindications, warnings, precautions and potential adverse effects, please visit www.arthrosurface.com. The HemiCAP® family of devices is cleared by FDA

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