

## Accepted Manuscript

Title: Accuracy of Patient-Specific Guided Implantation of the Glenoid Component in Reversed Shoulder Arthroplasty

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PII: S1877-0568(18)30067-7  
DOI: <https://doi.org/doi:10.1016/j.otsr.2018.01.010>  
Reference: OTSR 1966

To appear in:

Received date: 5-11-2016  
Accepted date: 19-1-2018

Please cite this article as: Verborgt O, Hachem AI, Eid K, Vuylsteke Kd, Ferrand M, Hardy P, Accuracy of Patient-Specific Guided Implantation of the Glenoid Component in Reversed Shoulder Arthroplasty, *Orthopaedics and Traumatology: Surgery and Research* (2018), <https://doi.org/10.1016/j.otsr.2018.01.010>

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**ORIGINAL ARTICLE****Accuracy of Patient-Specific Guided Implantation of the Glenoid Component in Reversed Shoulder Arthroplasty**

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**Abstract:**

**Background:** The aim of this study was to assess the accuracy of patientspecific guided glenoid component implantation in reverse shoulder arthroplasty

**Materials and methods:** 32 reverse shoulder arthroplasties were done using pre-operative 3D planning and 4 patient-specific guides to prepare the glenoid and position the glenoid component. Baseplate version, inclination and entry point as well as angulation of the screws were compared to the pre-operative plan measured on CT by independent observers.

**Results:** The mean deviation in baseplate version from the preoperative plan was  $4.4^\circ + 3.1^\circ$  (range,  $0.3^\circ$ - $13.7^\circ$ ), in baseplate inclination  $5.0^\circ + 4.2^\circ$  (range,  $0.1^\circ$  to  $14.5^\circ$ ) and in baseplate entry point  $2.4\text{mm} + 1.4\text{mm}$  (range,  $0.4^\circ$  to  $6.3^\circ$ ). The average screw superior-inferior angulation deviation for the superior screw was  $2.8^\circ + 2.6^\circ$  (range,  $0.0^\circ - 10.1^\circ$ ) and  $2.8 + 2.6^\circ$  in the anteroposterior plane (range,  $0.1^\circ - 11.6^\circ$ ). For the inferior screw the superior-inferior angle deviation was  $5.3^\circ + 3.8^\circ$  (range,  $0.1^\circ$ -  $15.2^\circ$ ); the anteroposterior angle deviation was  $4.1^\circ + 3.1^\circ$  (range,  $0.0^\circ - 9.8^\circ$ ).

**Conclusions:** Patient-specific instrumentation (PSI) for the glenoid component in reverse shoulder arthroplasty allows the shoulder surgeon to accurately execute the pre-operative 3D plan.

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