

## **Background**

There has been a substantial rise in the number of primary total shoulder arthroplasties completed in the United States in the last 5 to 10 years. Additionally cost conscious behavior has come to the forefront in the medical community; especially in the field of orthopaedic surgery. The clinical utility and cost-effectiveness of routine radiographs after primary total shoulder arthroplasty up to a year postoperatively is questionable.

## **Methods**

One hundred sixty consecutive adult patients undergoing uncomplicated primary total shoulder arthroplasty by a single fellowship trained sport medicine and shoulder surgery surgeon from the August 2010 to February 2015 had routine postoperative shoulder radiographs at approximately the 2 week, 2 month, 4 month, and 1 year postoperatively. Images, report, and clinical notes were reviewed to determine if any clinical management change occurred due to radiograph findings. Medicare reimbursement data was obtained from the Department of Health and Human Services Centers for Medicare and Medicaid Services (CMS). The Searchable Medicare Physician Fee Schedule (MPFS) was used to find the amount Medicare reimburses for the CPT code 73030 (X-ray exam of shoulder, 2 views or more) at a national level from 2010-2014. This cost data includes the total cost, professional fee, and technical fee for each study. Amount billed was obtained from the Department of Radiology and included both the amount billed and a separate professional fee

## **Results**

All patients received radiographs on average at  $1.8 \pm 0.2$  weeks,  $6.5 \pm 1.2$  weeks,  $14.9 \pm 2.9$  weeks, and  $46.8 \pm 19.5$  weeks postoperatively. A musculoskeletal radiologist read 100.0%, 96.8%, 95.9%, and 95.2% as normal respectively at each follow up visit. These x-ray results were documented in the note 92.5%, 97.4%, 98.0%, and 92.4% respectively at each follow up visit. There were no significant management changes based on these routine postoperative radiographs using the defined criteria. A total of \$284,281 (\$1776.76 per patient) was billed to patients for postoperative radiographs

## **Conclusions**

Routine postoperative radiography after primary total shoulder arthroplasty is of questionable utility. The significant per-patient expense does not yield clinically significant data that would offset this cost, as almost all postoperative radiographs were normal and none resulted in significant changes in postoperative management. These results suggest that routine radiographs after uncomplicated primary total shoulder arthroplasty may be unnecessary or perhaps the frequency in which these radiographs are obtained is unnecessary, although larger, multicenter studies are necessary to confirm these findings.