

# The Use of Constrained Liners and Dual Mobility Articulations in THA Revision Surgery:

## Data from the American Joint Replacement Registry (AJRR)

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### Introduction

The American Joint Replacement Registry (AJRR) is a not-for-profit 501(c)(3) tax-exempt organization for data collection and quality improvement initiatives for total hip and knee replacements. Our goal is to capture 90% of all total joint replacement procedures in the United States.

Dislocation following total hip arthroplasty (THA) remains a common early indication for revision surgery. If the situation dictates or conventional options fail, surgeons may opt for a constrained acetabular liner or dual mobility articulation to achieve stability.

### Materials and Methods

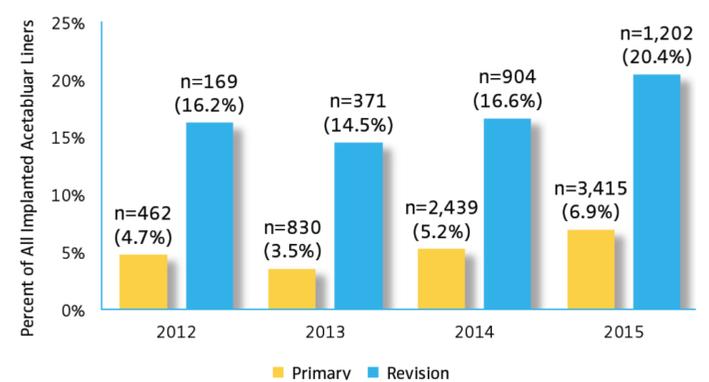
As these acetabular articulations are often used in a setting where instability (or potential instability) exists, the use of these constructs when a revision was done for instability/dislocation was analyzed. As a corollary, how frequently instability/dislocation was the indication for surgery when these constructs were used in a revision THA procedure was also examined.

All 2012-2015 primary and revision THA procedures based on ICD-9/ICD-10 procedure and diagnosis codes were analyzed, along with implant manufacturer description data and relevant attributes.

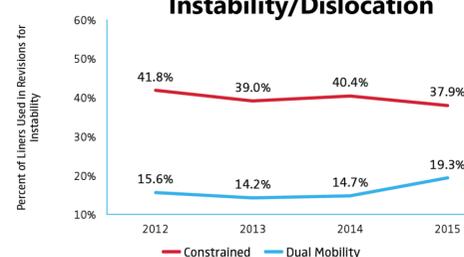
### Results

Dual mobility and constrained liners were used in 20% (1,202/6,043) [Figure 1] and 9% (528/6,043) of all revision THA procedures in 2015 respectively. A total of n=1,013 dislocation-related revisions were identified from AJRR records in 2015. In 2015, dual mobility cups were used in n=159 (19%) and constrained liners in n=312 (38%) of the cases where the revision was due to instability/dislocation [Figure 2]. Conversely, when a dual mobility cup was used in a revision setting, the diagnosis was instability/dislocation only n=159 (23%) of the time. When all constrained liners used in revision THA were analyzed, n=318 (60%) were used for instability/dislocation [Figure 3].

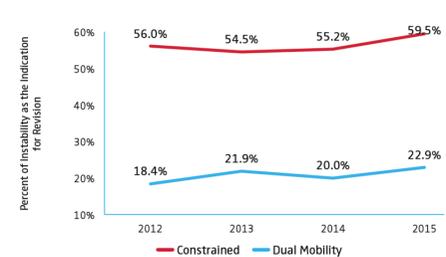
**Figure 1: Frequency and Percentage of Dual Mobility Cups Implanted by Year (N=9,792)**



**Figure 2: Use of Constrained Liners and Dual Mobility Cups for the Surgical Indication of Instability/Dislocation**



**Figure 3: Surgical Indication When Using Dual Mobility or Constrained Liners**



### Discussion

In this AJRR sample, it appears that dual mobility articulation may be chosen for its perceived benefits for a significant majority of primary revision indications beyond instability. However, when constrained liners are used, the majority of the time the revision indication is instability. Presumably, surgeons may make an intraoperative decision to use these devices to achieve a more stable construct even when the underlying diagnosis is not instability.