Collecting Long-Term (5 to 10 Years) Patient-Reported Outcome Measures May Be Unnecessary for Total Hip Arthroplasties

Pedro Javier Rullan, Ignacio Pasqualini, Jianhua Shen[1], Manoshi Bhowmik-Stoker[2], Emily Hampp[3], Robert M Molloy, Viktor Erik Krebs, Matthew Edward Deren[4], Nicolas Santiago Piuzzi

[1]Stryker Orthopaedics, [2]Stryker Orthopaedic, [3]Stryker, [4]Cleveland Clinic

INTRODUCTION: The clinical relevance ratio (CRR) was developed to account for the loss of follow up in clinical studies reporting patient-reported outcomes measures (PROMs). However, no study has tested its use with original outcome data for total hip arthroplasties (THA). Therefore, this study aimed to 1) determine the proportion of patients that had a clinically significant improvement in PROMs at each follow-up visit following THA; and 2) calculate the CRR over time for PROMs following THA.

METHODS:
Eight independent studies reporting PROMs at baseline to 10 years for 2,540 patients who underwent primary THA in Europe, or the United States were aggregated. In total, 2,653 THAs performed from 1996 to 2021 were included (**Table 1**). A distribution-based minimal clinically important difference (MCID) threshold was used to determine which patients had a clinically significant improvement in PROMs. The CRR was calculated by dividing the number of cases that met the MCID threshold by the number of cases at the beginning of the study. The maximum follow-up time was 10 years.

RESULTS:
The proportion of THA patients that had a clinically significant improvement in PROMs at each follow-up visit is summarized separately for US and EU studies (**Tables 2-3**). For US studies, MCID attainment was higher for Harris Hip Score (HHS), Physical Composite Score (PCS), and European Quality of Life-5 Dimensions Questionnaire subscale for Time Trade-Off (EQ5DTTO) compared to other PROMs (**Table 2**). For EU studies, MCID attainment was greatest for HHS and Oxford Hip Score (OHS; **Table 3**). General health PROMs for EQ5D-Visual Analog Scale (VAS) and Mental Composite Score (MCS), as well as the Lower Extremity Activity Scale (LEAS), had the lowest percentages of score improvements. Overall, most improvements in PROM scores stabilized 1 year postoperatively (**Figure 1**). However, while the proportion of cases with clinically significant improvements in PROM scores for THA was stable after a short period of fluctuations at early follow-up visits, the CRR decreased remarkably over time (**Figure 2).** The tipping point where the CRR began decreasing for THA studies was mainly at the 1-year follow-up timepoint.

DISCUSSION AND CONCLUSION:
The clinical relevance ratio for PROMs decreases significantly after short-term follow-up periods for THA patients. Long-term PROM collection at 5 to 10 years and analysis may be unnecessary following THA. Arthroplasty surgeons should focus on 1-year PROMs to assess clinically significant improvements after THA.
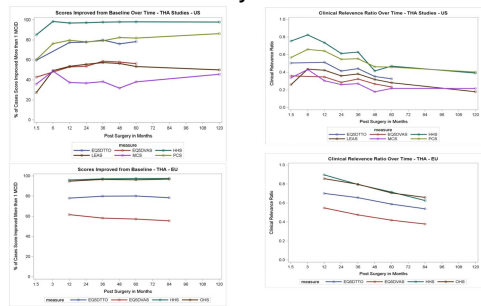

Scores Improved from Baseline Over Time - THA Studies - US

Clinical Relevance Ratio Over Time - THA Studies - US

Scores Improved from Baseline - THA - EU

Clinical Relevance Ratio Over Time - THA - EU

Table 1. Demographic characteristics of the study cohorts

Table 2. PROM Data for the U.S. THA Studies

Table 3. PROM Data for the E.U. THA Studies