What if all Femoral Neck Fractures in the US were cemented? A population-level costeffectiveness analysis from the American Joint Replacement Registry.

Bryan Donald Springer¹, Antonia F Chen, Ross W Crawford², Robin Blythe, Ayushmita De, Nicholas Graves ¹Orthocarolina, ²Prof Ross Crawford

INTRODUCTION:

Introduction The number of hip fractures in the US continues to increase each year. Evidence suggests that best practice favors cemented femoral fixation when performing hemiarthroplasty (HA) and total hip arthroplasty (THA). Despite this recommendation, over 50% of femoral neck fractures are treated with cementless femoral fixation in the US. This study examines the costs and Quality Adjusted Life Years (QALYs) of cemented and cementless femoral fixation for HA and THA procedures at the population level in the United States utilizing data from the American Joint Replacement Registry.

METHODS:

METHODS: A Markov model was created for Medicare patients aged: 65-74, 75-84 and 85+. We simulated the expected impact on costs and health outcomes over a 5-year period if all patients received the same femoral fixation method for both HAs and THAs based on age. Revision, dislocation, and mortality rates, costing data, and health utilities from registry data and published literature were used to populate the model.We simulated outcome uncertainty with probabilistic sensitivity analysis.

RESULTS: RESULTS: For each age category, cemented femoral stem fixation was the dominant strategy, leading to cost savings and quality of life gains for both HA and THA. By switching entirely to cemented fixation, Medicare can achieve cost savings of \$15,806,734 and 1286 QALYs gained per year. Cemented fixation was cost-effective in 95% and 99% of HA and THA simulations, respectively.

DISCUSSION AND CONCLUSION: CONCLUSIONS: Cementless fixation remains the dominant mode of fixation for FNFs in the United States despite evidence of higher failure risk. This cost-effectiveness study also demonstrates substantial cost saving and improved quality of life with cemented femoral fixation for femoral neck fractures for both HA and THA.

