

# Editorial Commentary: Go Ahead and Repair My Rotator Cuff. I Dare You



Jourdan M. Cancienne, M.D.

---

**Abstract:** A national database in the United States was used to identify increasing age, male sex, smoking, obesity, hyperlipidemia, and vitamin D deficiency as significant independent patient-specific risk factors for rotator cuff repair failure requiring revision repair. Understanding risks for repair failure can help counsel patients, inform treatment strategies, and consider treatment alternatives for patients with symptomatic rotator cuff tears.

---

See related article on page 2380

Despite an abundance of fixation strategies, endless anchor options, and the recent addition of biologic soups to enhance healing, rotator cuff repair failure remains a significant challenge to even the most skilled arthroscopists. While tear size, fatty infiltration, and chronicity have all been reported as independent risk factors for retear following repair, less research has been published on a population level describing patient-specific risk factors for retear.<sup>1-6</sup> In the article “The Effect of Patient Characteristics and Comorbidities on the Rate of Revision Rotator Cuff Repair,” O’Donnell, Fu, White, Taylor, Dines, Dines, Warren, and Gulotta use a national database to select independent risk factors for rotator cuff repair failure requiring revision rotator cuff repair.<sup>7</sup> Of the factors studied, older age, male sex, smoking, obesity, hyperlipidemia, and vitamin D deficiency were all associated with a greater incidence of revision rotator cuff repair.

The current investigation adds to an increasing body of evidence that seeks to identify patient-specific risk factors for repair failure by using the PearlDiver patient records database.<sup>6,8,9</sup> Since it first became available in 2007, the PearlDiver patient records database continues to produce clinically important epidemiologic and population-level data. As someone who has used PearlDiver to publish multiple articles in this *Journal*,

I certainly understand the challenges, limitations, and criticisms of using this database to study rotator cuff repair outcomes.<sup>10-12</sup> For instance, the only clinically significant noninfectious outcome that can be reliably identified is revision surgery on the ipsilateral shoulder. While this identifies an important targeted outcome, as mentioned in the article, there are likely many more patients who experienced a retear, or less-than-favorable outcome, and either did not undergo more surgery or, more likely, went on to reverse shoulder arthroplasty. Thus, although clinically relevant, this outcome measure is far from complete.

However, within what is the central theme of nearly every PearlDiver manuscript limitations section is the study’s adaptable strength. Database studies allow us to answer questions and identify associations that were previously too difficult, too time intensive, and too costly for even the largest multicenter clinical studies. When well-designed and statistically refined, these studies can reveal trends and risks factors that aren’t extractable in smaller institutional studies. Furthermore, the ability to control for and isolate such risk factors is critical when applying these results in risk stratification and counseling patients on expected outcomes, risks of revision surgery, and alternative procedures such as reverse arthroplasty.

With increasing clinical and outcomes data showing durable and long-lasting improvement in younger patients treated with reverse shoulder arthroplasty for rotator cuff dysfunction, and the still-guarded outcomes of biologics in solving patients with poor healing capacity, orthopaedic surgeons are perhaps on the verge of increasingly being confronted with a challenging clinical scenario.<sup>13-15</sup> That is, considering a

---

New Orleans, Louisiana

The author reports that he has no conflicts of interest in the authorship and publication of this article. Full ICMJE author disclosure forms are available for this article online, as [supplementary material](#).

© 2020 by the Arthroscopy Association of North America  
0749-8063/201112/\$36.00

<https://doi.org/10.1016/j.arthro.2020.06.029>

more reliable alternative that doesn't rely on tendon-to-bone healing in patient with a repairable, but unlikely healable, rotator cuff tear. There is still an immense amount of clinical and outcomes focused research that needs to be conducted to better predict which patient will benefit from each procedure for a given rotator cuff tear. However, I am hopeful that the past decade of population-level database research, such as this, will contribute to and usher in an era of machine-learning modeling to determine which preoperative variables are predictive of the desired clinical outcome.

## References

1. Jeong HY, Kim HJ, Jeon YS, Rhee YG. Factors predictive of healing in large rotator cuff tears: Is it possible to predict retear preoperatively? *Am J Sports Med* 2018;46:1693-1700.
2. Kim Y-K, Jung K-H, Kim J-W, Kim U-S, Hwang D-H. Factors affecting rotator cuff integrity after arthroscopic repair for medium-sized or larger cuff tears: A retrospective cohort study. *J Shoulder Elbow Surg* 2018;27:1012-1020.
3. Lee YS, Jeong JY, Park C-D, Kang SG, Yoo JC. Evaluation of the risk factors for a rotator cuff retear after repair surgery. *Am J Sports Med* 2017;45:1755-1761.
4. Kim I-B, Kim M-W. Risk factors for retear after arthroscopic repair of full-thickness rotator cuff tears using the suture bridge technique: Classification system. *Arthroscopy* 2016;32:2191-2200.
5. Diebold G, Lam P, Walton J, Murrell GAC. Relationship between age and rotator cuff retear: A study of 1,600 consecutive rotator cuff repairs. *J Bone Joint Surg Am* 2017;99:1198-1205.
6. Cancienne JM, Brockmeier SF, Rodeo SA, Young C, Werner BC. Early postoperative fluoroquinolone use is associated with an increased revision rate after arthroscopic rotator cuff repair. *Knee Surg Sport Traumatol Arthrosc* 2017;25(7).
7. Donnell EA, Fu MC, White AE, et al. The effect of patient characteristics and comorbidities on the rate of revision rotator cuff repair. *Arthroscopy* 2020;36:2380-2388.
8. Kew ME, Cancienne JM, Christensen JE, Werner BC. The timing of corticosteroid injections after arthroscopic shoulder procedures affects postoperative infection risk. *Am J Sports Med* 2019;47:915-921.
9. Cancienne JM, Brockmeier SF, Rodeo SA, Werner BC. Perioperative serum lipid status and statin use affect the revision surgery rate after arthroscopic rotator cuff repair. *Am J Sports Med* 2017;45.
10. Steiner SRH, Cancienne JM, Werner BC. Narcotics and knee arthroscopy: Trends in use and factors associated with prolonged use and postoperative complications. *Arthroscopy* 2018;34:1931-1939.
11. Cancienne JM, Gwathmey FW, Werner BC. Intraoperative corticosteroid injection at the time of knee arthroscopy is associated with increased postoperative infection rates in a large Medicare population. *Arthroscopy* 2016;32(1).
12. Cancienne JM, Gwathmey FW, Werner BC. Intraoperative corticosteroid injection at the time of knee arthroscopy is associated with increased postoperative infection rates in a large Medicare population. *Arthroscopy* 2016;32:90-95.
13. Mirzayan R, Weber AE, Petrigliano FA, Chahla J. Rationale for biologic augmentation of rotator cuff repairs. *J Am Acad Orthop Surg* 2019;27:468-478.
14. Ernstbrunner L, Andronic O, Grubhofer F, Camenzind RS, Wieser K, Gerber C. Long-term results of reverse total shoulder arthroplasty for rotator cuff dysfunction: A systematic review of longitudinal outcomes. *J Shoulder Elbow Surg* 2019;28:774-781.
15. Chelli M, Lo Cunsolo L, Gauci M-O, et al. Reverse shoulder arthroplasty in patients aged 65 years or younger: A systematic review of the literature. *JSES Open Access* 2019;3:162-167.