

Dr. Travis Dekk...: Hello. Welcome to the Arthroscopy Association's Arthroscopy Journal Podcast, welcoming you from the sunny State of California as we are in the midst of our annual meeting. It's been a very special occasion joining with mentors and colleagues, as we've learned so much, and how great it is to be back in person learning from one another. Welcome, everyone. I'm Dr. Travis Dekker from Eglin Air Force Base at the Hospital for Special Surgery and Weill Cornell Medical Center.

I had the privilege to train alongside Dr. Schairer while at the Steadman Clinic in Vail, watching as he grew both in his technical and orthopedic analytical skills. He currently works in the very busy market of New York alongside his mentors at HSS. And while in Vail, Dr. Schairer continued to push the frontier with large database studies, as well as clinical outcome studies. His understanding of how to obtain high-yield information from large databases, that is pertinent to each of our individual practices, is truly astounding. As a result, I'll be focusing on his article within Arthroscopy that helps us clearly identify risk factors for complications in a procedure, that is applicable to most of our practices.

Welcome to the podcast, Dr. Schairer. I'm excited and very eager to learn after reviewing your April 2018 Arthroscopy article entitled, "Risk Factors for Short-term Complications After Rotator Cuff Repair in the United States." Dr. Schairer, congratulations on all of your early career achievements and contributions, and welcome to the podcast.

Dr. Will Schair...: Thanks, Travis. It's been great to have kept in touch, and discuss our tough cases over the past few years in fellowship, and thanks so much for having me here today.

Dr. Travis Dekk...: Will, let's start it out. I've seen you work your magic before in terms of coding, and critically and thoughtfully evaluating for relevant variables as it pertains to patient outcomes through large databases. Can you tell the audience a little bit about your journey into database studies in terms of how you learn to code, what types of variables you can select for, and what the typical downfalls and limitations of these studies are? In addition, what are typical practice-changing takeaways we can make from these types of studies?

Dr. Will Schair...: I had some program experience, engineering courses in college, and then during med school I took a step-out year for a clinical and translational research program. One of my mentors had started looking at these administrative databases as a research tool. Working with a statistician, and my background in programming, I spent some time figuring out how this type of data could be useful. Since then, there's been a massive uptake in the number of studies published using this type of data, and this can have some really useful results if they're done thoughtfully, and you know the limitations of the databases.

Administrative databases were not really designed for research at all; they're really just billing records with diagnosis and procedure codes, and some patient demographics, so they don't have any clinical exams or imaging; and thus, it's

important to really realize it's an imperfect data source that was never intended for clinical research. Additionally, it is really important to think about how to perform these studies and analyze them well because the results can really have a big impact in terms of policymaking, or even with insurance carriers, and how to determine eligibility and approval, for which patients may be appropriate for that procedure or not. And so we really do want to make sure that we are giving accurate results that really could have an impact on our patients, and potentially their access to the care that they need.

Dr. Travis Dekk...: Super interesting that's how you started out, and also understanding... I mean it was amazing to watch you. You're like a wizard going through the codes, and how you were able to select-out certain variables from these coding databases specific for billing. It's interesting, as we make a big push for patient-reported outcomes, and how it affects our patients. I think everybody's trying to do that for the betterment of our patients. As a result, we're hopefully being able to learn some interesting findings from these to help better care for our patients, at the end of the day. As you've gone through this, what is your thought process when reading a study that use this type of data?

Dr. Will Schair...: I go straight to looking at the method section. I think the most important factors for these studies are how patients are selected, and what are the inclusion criteria; and equally important, what are the exclusion criteria. You want to know what database was used, which tells you about the patient population. Is this a single hospital database? Is it an entire state? Is it a small selection of hospitals or a large sample of hospitals around the country? All of those are different databases. That tells you a lot about what the patients are, that are even available in the data, and then how applicable it may be to the general population.

Most important then, is to then look at the actual selection criteria. You can look at the diagnosis and procedure codes, but it's really critical to ensure that there are appropriate exclusion criteria as well. For example, you might have a sudden [inaudible] of DVT after revision totally hip arthroplasty, so you'd select all patients with that procedure code and diagnosis of DVT; but this might give you hundreds of thousands of patients, depending on the database, which sounds great. But then if you don't start excluding, or at least separating the patient's by some diagnosis, such as fracture or instability or infection, then you have this incredibly heterogeneous population, that really decreases the value of any results that you have, and how you might apply those to a clinical practice.

Things have become even more complicated with [inaudible] as there are exponentially more codes to consider. But if the methods done thoughtfully, and thinking the many subgroups of patients, you can create a more homogenous population with some potentially meaningful results.

Dr. Travis Dekk...: I think I find this extremely useful to help us critically evaluate these types of studies. These come across not only just in the journal, but all the journals

within orthopedics, and they have a huge impact on how we form surgeries and how we treat patients clinically. And I think that for us to be able to critically evaluate, in that way that you're just discussing, in a more thoughtful manner, I think for us who are listeners of the podcast, as well as readers of the journal, we'll maybe with a more keen eye be able to decipher how we can have this impact our specialty as a whole.

Now diving into your paper, when I was looking through the results you noted that 83% of patients were considered overweight or obese. Can you comment on those findings as it pertains to this population specifically? And also, did you see a trend in type of rotator cuff repair of arthroscopic versus open as the data became more recent?

Dr. Will Schair...: Yeah. Certainly, over the past few decades, there's been a large increase in the average BMI across the country; and so I think that, at a high level, this was noted in our study and just reflective of what's going on these days. That's where it changed for the more arthroscopic procedures, and less inpatient procedures. This is likely a combination of a few things: probably the increased use of regional anesthesia for better pain control, and patients able to go home, and then more specialized orthoscopic training. Both of these would likely allow surgery as an option for some patients that maybe would not have been good candidates let's say under general anesthesia or with open procedures prior.

Dr. Travis Dekk...: All right. As a part of the findings of any database study, help me make sense of why subacromial decompression was an independent risk factor for hospital readmission.

Dr. Will Schair...: Yeah. I agree this is a perhaps strange finding as an independent risk factor. Unfortunately, finding that answer may be impossible due to the lack of granularity in administrative data, and this is just some of these types of limitations. I would hypothesize that subacromial decompression may mean a longer procedure, which could certainly lead to more swelling and more pain. And longer arthroscopic procedures have been associated with the higher rate of complications, so that might be the link.

Dr. Travis Dekk...: That would make sense. I think that, like you said, this may be just some of the natural limitations of these database studies. But as we look into it further, and although they're extraordinarily low, risk of infection was the number one cause for readmission and reoperation. How has this changed your practice? And are you doing anything differently now to help decrease these risks, even though they're small?

Dr. Will Schair...: This is always a big question in studies like this, or any studies where you have a small or infrequent complication, and what do you do about that, because there's certainly risks of those interventions. So for my practice, I still use standard perioperative antibiotics, and I have not added any adjunct things like [inaudible] powder. I've also mainly stuck with using mini-open subpectoral biceps tendonesis rather than arthroscopic, and that's mainly because, from the

pathology studies that show the inflammatory [inaudible] that can remain in the groove with an arthroscopic approach, but I think it's really a dealer's choice at this point.

Dr. Travis Dekk...: Well, I like your way of thinking and it totally makes sense. Your rationale for that very much makes sense. And it seems, like with all other complication studies, BMI seems to be predictive of failure, or infection with increased risk of complications. You didn't find that in this study specifically. Any thoughts on why that is?

Dr. Will Schair...: I think these differences may lie in the type of database and the patient population, like we talked about earlier. You might do the same study using the same method, using two different databases, and have some different results, and the reason likely is who you're looking at or how the data was collected. So for this, while there was a study that showed obesity being a risk factor, a larger systematic review of six studies had not found that. And given the large number of patients in that study, as well as our own study, I would tend to lean towards believing that obesity is not much of a risk for infection, but it certainly may be linked to other things that are compounded with obesity, like sleep apnea and heart problems that you may see associated with complications and readmissions.

Dr. Travis Dekk...: Well, I think that this is extremely insightful and can definitely help with our practice as we evaluate our patients for risk stratification. But although rare, there's a risk of DVT or PE after rotator cuff repair. Do you anticoagulate your patients after arthroscopic rotator cuff repair?

Dr. Will Schair...: The risk seems to be quite low with upper extremity procedures, so I generally use an 81 milligram aspirin for three weeks once a day as minimal prophylaxis. But I would certainly consider something stronger in anyone with risk factors, or possibly a prolonged procedure.

Dr. Travis Dekk...: Will, this was an awesome review of your article. I think on the bigger picture, and for us as listeners, it provides some great insight on how we can critically evaluate these large database studies as we constantly run into these. It seems like there's a flux, and maybe the pendulum swings back and forth, based off of the number of articles that are produced in these type of database studies. I think either way, it's really critical for us as orthopedic surgeons to be able to evaluate these in a manner that allows us to change not only our practice, but the bigger-picture practice throughout our various societies, and as orthopedic surgeons where we can safely and more effectively treat our patients.

Will, I'm glad that we were able to review your Arthroscopy article from April 2018 entitled, "Short-Term Complications After Rotator Cuff Repair in the United States," and this can currently be accessed at www.arthroscopyjournal.org.

Dr. Will Schair...: Thanks, Travis. That was a great discussion. I appreciate you having me.

Dr. Travis Dekk...: Thank you all for joining us, and have a great evening. And we hope to see you at next year's annual meeting. Thank you.

The views expressed in this podcast do not necessarily represent the views of the Arthroscopy Association or the Arthroscopy Journal, and are not meant to be treatment recommendations for individual patients.

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