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## The Emerging Trends in Knee Replacement Surgery

Announcer:

Welcome to ReachMD.

This medical industry feature, titled "The Emerging Trends in Knee Replacement Surgery," is sponsored by DePuy Synthes, a Johnson & Johnson Company, driven by a commitment to improving patient outcomes and evolving to meet the next frontier of modern knee replacement surgery.

Here's your host, Dr. Matt Birnholz.

Dr. Birnholz:

In these unprecedented times following the emergence of COVID-19, the heavy burden of knee osteoarthritis has increased for patients around the world as uncertainties persist on how to adapt clinical practices around this new normal. That's why on today's program we'll explore the latest trends and advancements in total knee replacement surgery and how we can best apply them in this next frontier of the orthopaedic field.

This is ReachMD. I'm Dr. Matt Birnholz. Joining me in this discussion is Dr. Thomas Parker Vail, who's the Chair of Orthopaedic Surgery at UCSF Health, and Mr. Rajit Kamal, who's the vice-president and global knee franchise leader at DePuy Synthes.

Dr. Vail, Mr. Kamal, welcome to you both.

Dr. Vail:

Thank you, happy to be here.

Mr. Kamal:

It's a pleasure to be here, Matt. Thank you.

Dr. Birnholz:

Before we dive in today, I want to take a moment and acknowledge the different and unexpected world we currently live in, particularly in regards to COVID-19. Now, while we know the immediate impact COVID-19 has had on health care, it's interesting to see how it's impacted surgeries, like knee replacement, further down the line. So, with that being said, Rajit, can you just start us off and tell us more about this phenomenon?

Mr. Kamal:

One of the biggest changes we are seeing post COVID is acceleration of shift towards outpatient center. What we're also seeing is adoption and emergence of technologies that are enabling this transition.

Dr. Birnholz:

That's interesting, Rajit. And if we continue to zero in on this acceleration toward outpatient care—Dr. Vail, let me turn to you—can you elaborate on this based on your experiences with patients?

Dr. Vail:

When the pandemic hit, we were asked to stop doing elective surgery, and then when it became safe to resume, we were expected to come back very quickly. Well, as many surgeons out there listening probably know, we're seeing a rise in ambulatory surgery with the resumption of clinical care in hip and knee arthroplasty.

In addition to considering the optimal technology, as surgeons, we're also now considering the optimal setting for each individual patient,

keeping in mind that the smaller the disruption to normal life the better the outcome we can expect for our patients and the quicker the recovery. This applies to the episode of care, including the preparation, the setting for surgery and the subsequent care.

Dr. Birnholz:

Well, it also seems like there is a need for new and unique technology to spur this acceleration forward within the orthopaedic landscape, which does bring us to the ATTUNE® Knee as one of our subjects of focus. So, Dr. Vail, can you give us a preface on this type of technology and the role it plays?

Dr. Vail:

The ATTUNE® system is designed in a way to enhance the patient experience, to give them more rapid return to normal lives by facilitating rapid recovery time. Features such as the articulation between the femur and the patella provide a more natural articulation and return to function. Additionally, I mentioned the instrumentation, the INTUITION™ instrumentation, single-use, allows you to apply this in the ambulatory setting and use the type of technology that allows balancing of soft tissues and precise control of the implant position and fit for each patient even in that setting. So, this combination of tools and assets allows us as orthopaedic surgeons to meet the goals and the challenges that this transition to the outpatient setting has required.

Dr. Birnholz:

Thanks for that, Dr. Vail. Now, Rajit, coming back to you, what has your experience with the ATTUNE® Knee system been like?

Mr. Kamal:

You know, in my 10 years of working with ATTUNE-designing surgeons, like Dr. Vail, and orthopaedic experts, we have seen how the ATTUNE® Knee system is a platform for continued innovation, but more importantly, it lends itself very well to enabling technologies to digital technologies. We now have over 9 years of clinical history, over a million implantations of ATTUNE® in 51 markets around the world, and we have comprehensive and very good data.

Dr. Birnholz:

Dr. Vail, I'm interested to know, how are emerging technologies helping shape new approaches to knee replacement surgery? What are you seeing? =

Dr. Vail:

Surgeons expect and patients expect more information at the point of care when they are making decisions, allowing choices that impact outcome based upon data. The ATTUNE® Knee system is a great example of interfacing that technology given that the system was developed in collaboration with orthopaedic surgeons from around the world who are on the frontlines and have that one-to-one touchpoint with patients, both in making decisions about surgery and caring for them after surgery, and determining which designs will functionally work for them best.

Dr. Birnholz:

And, Rajit, how about you? What are you seeing across the digital health landscape?

Mr. Kamal:

We think orthopaedic surgery will see a significant transformation mainly in 2 areas. One is how care gets delivered. We will see technology being adopted across the care continuum. The second thing is where care gets delivered that will enable the site of care to shift from inpatient to surgeon's office, to home, to retail, so those 2 will be the fundamental changes that will happen. What COVID has done is it has forced orthopaedic surgeons to cross the chasm, the classic innovation crossing the chasm, and we are seeing that. For knee replacement surgery, the most elective of all orthopaedic surgery, it really provides sort of opportunity for adoption of technology. Surgeons have all the time to engage patients preoperatively, postoperatively, plan their surgery, and then use technology to execute that and create an individualized, personalized treatment plan. I expect technologies like care navigation to become a lot more relevant now. That enables the surgeons to engage the patients remotely, even monitor them remotely as well.

Dr. Birnholz:

Thank you. Dr. Vail, have you seen this with digital tools as well?

Dr. Vail:

Yes. In my experience, coupling digital care navigation tools with a trusted, advanced knee device, such as ATTUNE®, that supports these tools has the potential to really propel knee surgery forward. In essence, every interaction with a patient, every decision in surgery can be measured and used to inform both realtime and future directions through advanced analytics. In this way I think that digital tools can really revolutionize our decision-making, our processes and our outcomes.

Dr. Birnholz:

That's an interesting note. Why don't we then turn back to the ATTUNE® Knee and get a better sense of how that and other systems contribute to this era of digital care navigation. Rajit, what are your thoughts on this?

Mr. Kamal:

We are actively working on a digital surgery platform—the brand name is Velys Digital Surgery—and the goal there is to collect data end to end across the care continuum from preoperative to surgical planning to intraoperative and post-op, to not only drive better insights for better clinical outcomes or to optimize cost but also to enhance the experience of patients, surgeons, and healthcare professionals as they go through the knee replacement journey. That is the promise of Velys Digital Surgery, and we think Velys, combined with ATTUNE®, will be a very differentiated value proposition in the marketplace.

Dr. Birnholz:

And, Dr. Vail, staying with the ATTUNE® Knee, I want to focus on how its features address longstanding challenges in total knee replacement surgery as well as the kinds of patients it's suitable for. What can you tell us about that?

Dr. Vail:

Yes, I often get asked by my patients, "Will I be getting a customized implant?" But they are not really quite sure what that means or what they're asking for, but they want something that meets their personal needs.

I see this concept of personalizing care well demonstrated in the design of the ATTUNE® Knee system. What the surgeon has to offer, whether it's mobile-bearing, fixed-bearing, different sizes, for different techniques like the balanced gap or measured resection, so there's a high degree of variability that the surgeon can apply to address a patient's specific needs in the operating room and their experience after surgery.

Dr. Birnholz:

Those are great points, Dr. Vail, thank you. For those just tuning in, you're listening to ReachMD. I'm Dr. Matt Birnholz, and joining me today to talk about emerging trends in knee replacement surgery are Dr. Thomas Parker Vail from UCSF Health and Mr. Rajit Kamal from DePuy Synthes.

So, Rajit, when it comes to deploying digital tools in orthopaedic surgery, are there any guardrails or best practices to keep in mind?

Mr. Kamal:

Absolutely. The first thing is, anything that you develop should seamlessly integrate with the surgeon's workflow. The second thing I would say is a lot of these technologies connect to a hospital's EMR system, IT system. They handle patient health information, so they need to be compliant with privacy and secure the guidelines depending upon which part of the world you are in because some of the guidelines differ by country to country.

Additionally, as you know, orthopaedic patient demographic tends to be older, and we need to ensure that these technologies are easy to use, because that will be a significant driver of adoption of these technologies.

Dr. Birnholz:

Excellent. Great insights there, Rajit. Now, before we close, I'd like to talk a little more about creating a personalized experience for patients, which you both touched on. Dr. Vail, can you tell us how priority outcomes may shift based on patient demographics?

Dr. Vail:

Traditionally, the average age of the patient having a total knee in the United States has been 67 years of age. Now, the average may not be changing, but what we're seeing is a wider breadth, more young people. In fact, there's been an 18% increase in total knees among those patients age 55 to 64, so much younger than the average. The expectations of all patients, but especially this younger population, are very high. They want to be very active in their lives. We're seeing patients coming back to their daily, active life more quickly after surgery. Post COVID-19 we're seeing the same phenomena in a really accelerated way with more people having high expectations, returning to their doctors post-COVID for care and ready to initiate this care, bringing those high expectations with them. They want to get back to work, they want to be doing the things that they love, so we are obligated, and we want to address those needs. It's really been the patients that have driven advancement in knee replacement technology, and I think the ATTUNE® system has responded very well to those demands.

Dr. Birnholz:

And it sounds like a lot of this starts and ends with having more open dialogues with patients. Is that right, Dr. Vail?

Dr. Vail:

Yes, there's no question. As I alluded to earlier, patients want to know more about their technology and specifically how the technology meets their personal needs. Patients are just as interested in that information as the physicians and surgeons who are implanting the

devices, so talking to patients about their concerns, lifestyles, limitations, specific goals can help determine the right fit for them in terms of options, approach, and surgical technique.

Dr. Birnholz:

Thanks, Dr. Vail. Rajit, anything to add before we close?

Mr. Kamal:

Look, I completely agree with Dr. Vail. At DePuy Synthes, we look at patient's journey holistically so that we continue to develop technologies that integrate with and complement our implant system but also improve experience for both patients and the surgeons.

Dr. Birnholz:

That's a great way to cap our discussion today as we come back to one of the biggest takeaways, that technology advances have the potential to—and from what you've both told us, already are—transforming total knee replacement surgery. But that does bring us to the end of today's program, so I very much want to thank Rajit Kamal and Dr. Thomas Parker Vail for joining us and for sharing your valuable insights into current and emerging trends in knee replacement surgery. It was great speaking with you both today. Thanks so much.

Dr. Birnholz:

Thank you. It was a pleasure.

Mr. Kamal:

Thank you.

Announcer:

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