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AAOS 2022 Roundup: Stryker, Zimmer Biomet, J&J's DePuy Synthes, Canary Medical

by Marion Webb

In this first of two roundups, *Medtech Insight* highlights new product launches and technologies showcased at the annual AAOS conference by three major orthopedics players and medical data company Canary Medical.

This year's annual American Academy of Orthopedic Surgeons (AAOS) meeting drew more than 30,000 attendees to McCormick Place in Chicago, setting the stage for mega players and smaller innovators alike to showcase their latest technologies and product launches.

Medtech Insight had its ear close the ground. This article rounds up the top tweets from the exhibit hall where we met with representatives and leaders from *Stryker Corporation*, *Zimmer Biomet Holdings, Inc.*, *DePuy Synthes* and Canary Medical to learn about new product launches and company plans.

Stryker

Stryker launched its next-generation Insignia Hip Stem for total hip and hemiarthroplasty procedures. Insignia uses the new Total Hip 4.1 software, which allows surgeons to use data from a 3D CT-based plan to capture each patient's unique anatomy. It offers three different tooth geometries along with a unique size-specific collar lengths and a range of femoral offsets.

Stryker launches Insignia Hip Stem #AAOS2022 compatible with

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> *Mako. Uses total Hip 4.1 software, allows surgeons to use data from 3D CT-based plan, delivers patient-specific fit, function and flexibility. #orthopedics #ortho #hip*
>
> *— Marion Webb (@medtechMarion) March 24, 2022*

Wells Fargo's Larry Biegelsen wrote in his 24 March analyst note that Stryker expects Insignia to be "a major part of their hip business and drive adoption of the Mako [robotic] application as Insignia fills a gap in Stryker's hip portfolio within the important and fast-growing direct anterior approach segment."

Katherine Truppi, vice president and general manager at Stryker's hips division, told *Medtech Insight* to support the launch, Stryker developed medical education programming to educate surgeons on Insignia, including programs related to the direct anterior approach and Insignia's compatibility with the Mako platform.

Stryker evaluated data from over 1,300 computed tomography scans and designed a device that effectively recreates patient biomechanics for total hip replacement procedures.

BTIG analyst Ryan Zimmerman wrote in his 28 March "takeaways from the AAOS" conference, Stryker's management has seen a rapid uptick in the first quarter of 2022 in joint replacement at ambulatory surgical centers (ASC). (Also see "*Orthopedic Roundup Q4: S&N, Stryker, J&J, Zimmer Biomet See Pandemic-Related Sales Impact*" - Medtech Insight, 18 Feb, 2021.)

James Hept, senior marketing director at Stryker's ASC business, told *Medtech Insight* that Stryker's ASC "takes a very consultative approach" to understand what companies are looking for and is "fortunate to have the breadth and depth" to customize and maximize solutions.

AAOS 2021: Digital Tools In Surgical Ecosystem, Software-Enabled Tech, Robots, Wearables, Sensors

By Marion Webb

09 Sep 2021
At the live AAOS conference, exhibitors, including major orthopedics players, demoed digital innovations, software-enabled technologies, robotics and smart implants that are expected to create efficiencies in the surgical continuum and provide data to improve outcomes.

Read the full article here

Stryker launched the Q Guidance spinal robotics navigation and planning tool. Pending regulatory approvals, the company expects to launch Q Guidance mid-fiscal year in spine with a cranial application to follow, Zimmerman wrote.

> *#The Mako robotic system has done very well in the ambulatory care setting.# James Hept, sen marketing director Stryker ASC business pic.twitter.com/Ed0GATt9en*
>
> *— Marion Webb (@medtechMarion) March 24, 2022*

Zimmerman said Stryker believes that the system's camera is four times faster than Medtronic's device and 16 times faster than Excelsius from *Globus Medical Inc.*

"We believe the Q Guidance, when combined with the Airo platform is a precursor to spinal robotics for Stryker which will combine with a robotic arm either through Mako or Carden Robotics [acquired by Stryker in October 2019]," Zimmerman wrote.

Zimmer Biomet

As in the previous year, Zimmer Biomet showcased the evolution of its digital ecosystem.

At AAOS 2022, Robert Kraal, Zimmer Biomet's vice president of Connected Health, presented the latest addition to its ZBEdge suite of integrated technologies called WalkAI. (Also see "*IPM 2022: Abbott, iRhythm, Novocure, Zimmer Biomet*" - Medtech Insight, 11 Jan, 2022.)

WalkAI uses algorithms to identify patients who are predicted to have a lower gait speed 90 days after hip or knee surgery. The daily prediction is compared to anonymized, real-world data from an extensive ZBEdge database to identify when a patient's recovery may not be on track based on predicted low speed.

WalkAI integrates with the mymobility Care Management Platform, which collects patients' gait data through their iPhones. WalkAI has been rolled out globally to a select group of mymobility users and will be widely available as part of ZBEdge by the end of March.

> *ZB demoes WalkAI uses gait data from mymobility app from iphone to assess patients post-surgery day 15-40 to predict gait speed at day 90 #AAOS2022 #medtech #sensors #healthcare #orthopedics pic.twitter.com/J7ZJK1I4Il*
>
> *— Marion Webb (@medtechMarion) March 23, 2022*

Zimmer Biomet also showed off its new Optivu Mixed Reality Suite, which was developed in partnership with Microsoft, Zimmerman wrote in his 28 March analyst note.

The OptiVu Mixed Reality system delivers real-time access and support through remote care team collaboration.

> *Getting a demo at ZB's new mixed reality tech used pre-op to help with instrument assembly/planning; intraop for remote consult, etc or learning; but can't yet layer organs on top of patients in surgery; partnership with Microsoft to take tech to next level … #AAOS2022 pic.twitter.com/OcDQk30otf*
>
> *— Marion Webb (@medtechMarion) March 23, 2022*

Liane Teplitsky, president of global robotics and technology and data solutions at Zimmer Biomet, told *Medtech Insight* that the system has various applications, including medical training, pre- peri- and post-operative surgical demo applications, including an instrument assembly application for nursing.

It also has a surgeon demo to educate patients ahead of a procedure and a co-presence application for surgeon-to-surgeon collaboration. Another application in development is an integrated Rosa system application to bring the Rosa robotics platform into the surgeons' field of view.

The company is currently working with Microsoft on hardware and software products, she added.

“Management did not provide commentary on pricing or the business model but noted that the system is commercial today,” Zimmerman wrote.

Jiny Kim, vice president of smart implants at Zimmer Biomet, told *Medtech Insight* said that the company is “really trying to scale the Persona IQ [knee smart implant] for the rest of this year.” (Also see "*Zimmer Biomet, Canary Medical Win FDA De Novo For First Smart Knee Implant*" - Medtech Insight, 30 Aug, 2021.)

Persona IQ, a smart implant developed in partnership with medical data company Canary Medical, combines Zimmer Biomet’s knee implant Persona and Canary’s implantable canturio te tibial extension sensor technology, to measure and determine range of motion, step count, walking speed and other gait metrics.

It works with Zimmer Biomet’s remote care management platform mymobility with Apple Watch and other components of the ZBEdge Connected Intelligence Suite.

Orthopedic surgeons Peter Sculco and Fred Cushner of New York City-based Hospital for Special Surgery, performed the first knee replacement with the implant last October.

Cushner said in a press release that the smart knee uses the same material and technology found in implanted cardiac devices such as pacemakers. It collects data every day during the first year following surgery, giving objective, accurate information on how the knee is functioning. He added that the battery that powers the device was made to last at least 10 years.

On the Persona IQ/mymobility interface, Zimmer Biomet is in ongoing conversations with the US Food and Drug Administration in an effort to generate data to prove clinical relevance with hopes to show better patient outcomes, Zimmerman wrote.

Zimmer Biomet said it has “1000s of patients” enrolled in the mymobility platform.

Canary Medical

Canary Medical CEO Bill Hunter told *Medtech Insight* he is excited about the preliminary data currently generated by Canary’s te tibial extension in Persona IQ.

> *Part 1 … Canary Medical CEO Bill Hunter says prelim data on ZB Persona IQ implant w sensor tech suggests algorithm show differen on recovery path as early as 5-6 days. Plans: Eval data to develop digital diagnostic w FDA clear; in 21/2 years put sensors in all ZB implants; pic.twitter.com/VDlW1nBrn8*
>
> *— Marion Webb (@medtechMarion) March 23, 2022*

"Hopefully in two, three years from now, the data that we know about how you're recovering from surgery may inform who gets surgery, may inform how your surgery is done," he said.

The company collects millions of data points from the smart implants which are needed to train the algorithms that will then provide the insights to inform decisions.

"Right now, we're developing the algorithms to look at the difference between the normal and abnormal … so once the algorithm has proven the ability to differentiate between a normal patient and a patient who has an infection [giving an example], then you now have a digital diagnostic," he explained. "You take that data, you submit it to the FDA, and it becomes a diagnostic."

He expects that the first FDA 510(k) submission could happen in 2023, noting that each indication will require a separate submission.

Sensor technology has seen significant improvements in the last five years with more battery power and sensors becoming smaller. Hunter expects that "over the next two-and-a-half years" sensors may also be placed in implants for the hips, knees and shoulders.

"Everybody thinks of us as an orthopedics company," Hunter said. But Canary has plans to apply its sensor technology much more broadly.

This year, Canary will likely announce a partnership with a spinal company to integrate sensors during spinal fusion surgery; into silicone breast implants to detect possible scaring, encapsulation, or leakage; and the brain to provide critical information such as risk of rebleeding after surgery for a ruptured brain aneurysm.

Johnson & Johnson Medtech DePuy Synthes

DePuy Synthes launched its Attune Cementless Fixed Bearing Knee construct with the Affixium 3DP Technology, which is its next-generation 3D-printed cementless knee designed for the growing population of active patients for whom biological fixation helps to better meet the demands for an active lifestyle, the company said. (Also see "*AAOS Exec Chat: An Insider Look Into DePuy Synthes' Anterior Approach* " - Medtech Insight, 20 Mar, 2019.)

> ***DePuy Synthes launches Attune Cementless Fixed Bearing Knee w Affixium 3DP tech and Attune Stabilized Knee System. Will be launched at multiple US sites next month. #AAOS2022 #medtech pic.twitter.com/bIMNfubPGb***
>
> ***— Marion Webb (@medtechMarion) March 24, 2022***

The 3D printing technology creates a three-dimensional lattice structure, which generates a similar porosity to natural bone for advanced biological fixation and helps enhance initial implant stability.

"Cementless fixation is growing quickly, and this is a phenomenal opportunity for advancing patient care," said orthopedic surgeon Ryan Nunley.

The company also demoed its recently acquired Cuptimize hip-spine analysis, a software that allows hip surgeons to understand when a patient has a problem, determine cup placement to mitigate risk and have clear indications of when to use dual mobility implants. Cuptimize analysis enhances Velys hip navigation's surgical planning capabilities.

> ***"This is an enhancement tool for customers that already have Velys … and those who have issues with spinal pelvic tilt … or have an opportunity to produce better patient outcomes as a result of not having this software." Keith Palmer, WW VP hip reconstruction. #AAOS2022 #hip pic.twitter.com/51cFlnnFm8***

> *— Marion Webb (@medtechMarion) March 24, 2022*

Abnormal pelvic tilt is present in about 20% of patients who require total hip arthroplasty, and the analysis tool allows surgeons to optimize cup positioning, which may help reduce risk of dislocation related to pelvic tilt, DePuy said.