

22 Nov 2021 | Interviews

Exec Chat: Medtronic's Linnea Burman Targets 'Consensus-Driven Care' Using AI, Robotics In Spine Care

by [Marion Webb](#)

Linnea Burman, the general manager of enabling technologies for cranial and spinal technologies at Medtronic, talked to *Medtech Insight* about plans for the Mazor spinal robotic system, the incoming new president of the division, and other new developments.

The last few weeks brought some early holiday cheer for [Medtronic plc](#)'s Cranial and Spinal Technologies division with the launch of the Mazor X robotic-guided spine system in Canada, Mazor's 50,000-use case-milestone, and the anniversary of its [Medicrea International](#) acquisition.

On 15 November, Medtronic announced the appointment of Harry "Skip" Kiil to become president of Cranial and Spinal Technologies, starting 4 January, 2022. Kiil joins Medtronic from [Smith & Nephew plc](#) where he was president of the global orthopedics business and responsible for the company's reconstructive arthroplasty, robotics, trauma and extremities businesses. He also formerly served in executive positions at [NuVasive, Inc.](#) and [Stryker Corporation](#).

"We are really excited to welcome Skip to the Medtronic family and have him take the helm of CST. His orthopedic experience, also his deep experience building global businesses, will all add to where we're going in cranial and spinal technology," Linnea Burman, Medtronic's general manager of enabling technologies for cranial and spinal technologies, told *Medtech Insight*. ([Also see "Medtronic Expands Spine Surgery Portfolio By Acquiring Medicrea"](#) - Medtech Insight, 15 Jul, 2020.)

) Burman said momentum continues to grow around the Mazor platform, which recently celebrated an important milestone with 50,000 use cases. Medtronic acquired the robotic system from Israeli-based [MAZOR Robotics Ltd.](#) in a \$1.7b deal in 2018.



LINNEA BURMAN, VP AND GM OF ENABLING TECHNOLOGIES WITHIN THE CRANIAL AND SPINAL TECHNOLOGIES BUSINESS, MEDTRONIC Source: Medtronic

The companies co-developed the platform, which now incorporates computerized surgical planning, 3-D assessment of spine technology, robotic guidance and live navigation feedback. The Mazor is commercially available in several regions, including the US, Canada, Japan and Europe.

Last November, Medtronic completed the buyout of France-based Medicea, which seeks to transform spinal surgery through AI, predictive modeling and patient specific implants, furthering Medtronic's expansion into artificial intelligence, machine learning and predictive analytics.

The medtech giant has been undergoing major restructuring since Geoff Martha took the helm in April 20, 2020. Kiil is among several recent executive appointments which Martha is quoted as saying, "bring outside-in thinking, new skills and capabilities, and diverse perspectives to our already talented leadership team – and will continue to power Medtronic's transformation." (Also see "[Medtronic Looks Beyond The World Of Doctors And Devices In New Approach To Markets](#)" - Medtech Insight, 12 Jul, 2021.)

A year after Martha said he is "putting the tech in Medtech" by "leveraging the latest advances in cutting-edge technology to transform health care, including manufacturing processes, robotics, data, machine learning, and artificial intelligence. (Also see "[Q&A: Medtronic CEO Discusses Challenges Of Taking Helm During COVID-19, Exciting Innovations, More](#)" - Medtech Insight, 9 Mar, 2021.)

The company is also taking steps to "[refresh](#)" its brand, and outlined its environmental, social and governance (ESG) and inclusion, diversity and equity strategies, which transcend into all of its operations.

Q **Medtech Insight:** With Harry "Skip" Kiil's appointment to head the Medtronic's cranial and spinal technologies operation starting in January, what are your expectations?

A Linnea Burman: I don't expect that we'll see a change in strategy. The cranial and

spinal technology strategy at Medtronic has been building for a number of years and with a few key acquisitions has only gotten stronger and sharper. I expect that Skip will bring in his experience and probably help us see how unique this portfolio is in a whole new way coming from the outside, but I think that our strategy has deep roots, and he will just help us get farther down the road.

Q Would you mind providing some more insight on the strategy for the spinal and cranial technologies division?

A Burman: For many years we've recognized that Medtronic has a number of unique assets across their broader ecosystem, and over the years, we've been working on bringing them closer and closer together. Formerly that was under the umbrella of the restorative therapies group. But in the past 18 months, since Geoff Martha has taken over as CEO of Medtronic, he has continued to help us transform and position ourselves for the future and that future involves putting the "tech in medtech" and being a medtech leader. To continue the evolution of our surgical synergy opportunity, bringing our ecosystem together, we are taking advantage of the new operating model where we were able to bring cranial and spinal technologies together in one organization.

Q What has the acquisition of Medicea allowed your division to do?

A Burman: The acquisition of Medicea was important for a couple of reasons. One is we believe that data and AI will play a role in the transformation of spine care. We are already helping surgeons plan cases and then ensuring that they're executing a procedure to that plan. But we'd like to build on that by surrounding the entire process with data and helping physicians learn over time and move toward consensus-driven care. We believe that's important, because we see a lot of variability in spine surgery today, and an opportunity to improve that through the combination of data. The Medicea acquisition was brought into the cranial and spinal technologies organization and has formed a business unit within CST called Intelligent Data Solutions or IDS. By placing it in a business, we are able to really focus on a unique business model that's different from spinal implants or enabling

technologies and help grow our capabilities around managing a business that's based on data and AI, while we also apply it to the ecosystem and combine it with our other procedural solutions.

Q How has Mazor affected the overall strategy of the division?

A Burman: It plays an important role in transforming spine care. We see a great opportunity to use all the elements of the ecosystem to take a highly complex procedures and then move toward consensus-driven care and ultimately drive better patient outcomes. A robotic guidance system can create better and predictable patient outcomes – this was really the motivation to acquire Mazor. Those outcomes can be achieved in spine surgery when they are both planned, and then precisely executed to that plan.

The Mazor X Stealth Edition [cleared by the US Food and Drug Administration in 2018] has planning software and it allows the physicians to use the robotic-guidance system to not only plan that complex procedure, but then in the operating room, the robotic arm follows that pre-plan trajectory and allows the surgeon to execute their plan with the precision of robotic guidance. And then we use our navigation technology to close the loop on the plan and provide real-time visualization. That's been the strategy that we've been pursuing and we continue to build on that as we innovate on the Mazor platform.

NASS 2020: Neurosurgeons Discuss New Technologies For Spine Surgery – Robotics, Navigation, 3D Printing, AR

By [Marion Webb](#)

09 Oct 2020 In a panel discussion, neurosurgeons forecast a bright future for robotics spine surgery and a wish list for technological improvements. [Read the full article here](#)

Q How will you continue to innovate on the Mazor?

A Burman: We are adding capabilities to the robot so it will eventually cover more and more of the procedure and move beyond trajectory guidance and cover many more of

the steps and ultimately the procedure will become much more automated than it is today. Today we think about the robot as a physician-guidance tool, and in the future, the robot will be capable of performing the procedure in a more automated fashion.

Q What sets Mazor apart from competitive systems?

A Burman: Our robotics solution is going beyond individual pedicle trajectory guidance to spine construct design. Construct design involves placing the screws, rods and cages so that they are one unit, optimized and customized for the patient to achieve an alignment target. We do this by providing comprehensive 3D planning with best-in-class surgical execution. We are still in the early phase of construct design, but after 50,000 cases and surgeons utilizing it to the fullest, we are starting to see great results. At the same time, we are putting a significant effort into integrating robotics with other enabling technologies in areas like data science and visualization, solutions that may foster surgeon consensus on how to treat patients across all of the variables associated with spine surgery, resulting in procedures that are more efficient and reproducible. ([Also see "AAOS 2021: A Closer Look At Think Surgical's Active, Open-Implant Orthopedic Robot And What's Ahead" - Medtech Insight, 27 Sep, 2021.](#))

Q Can you provide an update on the cranial business?

A Burman: We offer the Stealth Autoguide [cranial robotic guidance] system, which is an attachment that we offer today with our Stealth station navigation system that helps with biopsy procedures as well as epilepsy procedures. We continue to invest in visualization technology for Stealth station navigation systems. We continue to invest in our CSF [cerebrospinal fluid] Management portfolio and look forward to a product launch in that category in the next six months or so.

Q What is your business doing to address health equity?

A Burman: We are inspired by the work Medtronic is doing to close the gaps on health equity. Several Medtronic businesses have taken on programs with equity goals and

we are actively learning from their experiences. We're also leveraging parts of our new culture. We think we are in a great position to partner with health systems in order to be able to advance our collective work. Some of the examples for cranial and spinal technologies you've already seen through the acquisition of Mazor as well as the acquisition of Medicea. We see both of those elements as critical components of where we want to go.