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INS 2017 Aims To Offer Sneak Peek Into Future Neuromodulation Trends

by

As scientific and industry experts prepare to gather in Edinburgh, Scotland, later this month for the 13th International Neuromodulation Society Congress, *Medtech Insight* spoke to Timothy Deer, INS president and a pain-management specialist, about what's ahead in neuromodulation and what to expect at the meeting.

Neuromodulation is entering a golden age, with more progress made over the last couple of years than there has been in the past 40 years. Further growth in this field will be driven by expanding global access to neuromodulation technologies and by continued R&D advances, as well as increased understanding of how neuromodulation can treat different disease states and patients.

That's the view of Timothy Deer, president of the International Neuromodulation Society (INS), which will be holding its biennial congress in Edinburgh, Scotland, on May 27-June 1. The meeting will bring together experts from around the world to discuss key trends, best practices and emerging technologies.

The INS congress will have a dedicated Innovations Day to showcase a select number of companies in the early stages of developing technologies in brain, vagus nerve, peripheral nerve and spinal cord stimulation. It's "an opportunity to see into the future of neuromodulation and get an idea of what we're going to see in 5-10 years' time," Deer said in an interview with *Medtech Insight*.

The list of companies that will be spotlighted include GiMer Medical from Taiwan; Bluewind Medical from Israel; several from different European countries like G-Therapeutics (Switzerland), NeuroNano (Sweden), Mainstay Medical (Ireland), BioInduction (UK); and several firms from North America, including MicroTransponder (US) and Helius Medical Technologies (Canada).

This international mix of innovators reflects the increasing globalization of the INS and of neuromodulation as a field, Deer believes. "[The INS] has had new chapters form in Columbia and in India in the last year or so; we've also seen advances in the Middle East," he said, adding that China - where INS has had a chapter for eight years already - and India are particularly important markets for neuromodulation due to their large populations.

The discussions during the main scientific sessions will also highlight the expansion of neuromodulation into different fields of therapy and research. Brain-computer interfaces – miniature devices that allow the brain and computer to communicate with each other and change the way the brain functions – will be one of the key themes at the congress. We're in the early phases of understanding how brain-computer interfaces can be best applied to create a therapeutic change in the nervous system, for example, to help with stroke victims, but, Deer said, "this is an area that will be huge for our patients in the next decade."

Discussion around spinal cord stimulation (SCS) will look at how this key modality of neuromodulation could be used to treat paralysis, another area of rapid growth, according to Deer. SCS technologies currently account for the biggest segment in the market for pain management devices and discussions on SCS for pain will be of particular interest to Deer, who practices from his West Virginia-based pain management clinic and is considered a key opinion leader on the subject.

The congress will look at new developments in SCS and pain management made in the past two years, driven by an increased interest in neuromodulation as a solution to the global opioid crisis. "There's been a lot of work done on new wave forms, new spinal cord targets, new software. There's also work on feedback loops, getting feedback on what the electrical current is doing to the spinal cord and how it is responding to the treatment. Using machine-learning, almost like artificial intelligence, the devices would then be able to change the way in which it delivers current based on that based on these feedback loops," Deer explained. "There's a lot of research on this area being done in Australia currently, but studies in the US have begun to see how these feedback loops could change the overall treatment outcome."

The INS president also believes that as more evidence emerges highlighting the potential of neuromodulation to treat an ever-widening variety of diseases, like obesity, heart failure and gastrointestinal disease, this will bring about a paradigm shift in health care. "Now we're trying to treat diseases that would typically be treated with medication or surgery with electricity applied to the nervous system. A lot of these things are changing the way medicine is delivered."

From the editors of Clinica