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Official Newsletter of CANM

CANM
CANADIAN ASSOCIATION OF NEUROPHYSIOLOGICAL MONITORING

Contents

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Message from the President

It has been almost 15 years since the Institute of Medicine released their landmark report *To Err is Human* declaring that patient safety within the health care system was in crisis. The report called for reform to the health care system so that preventable medical harm could be avoided. Notably, the report specifically highlighted that avoidable delay in treatment or delay in responding to an abnormal test[1] contributed to medical error that resulted in preventable harm to patients. As IONM professionals we have a duty to participate fully as members of the interdisciplinary health care team and ensure that timely interventions to abnormal neurophysiological signals are undertaken in order to avoid adverse surgical outcomes.

Patient outcomes are what really matter and CANM has an opportunity to create a role for the IONM professional in Canada that places patient care foremost. By ensuring that IONM professionals are highly trained, educated, experienced, and credentialed, CANM will advocate for an IONM system in Canada that provides optimal patient safety and best practices in patient-centered IONM care. With the backing of its membership and other healthcare providers, CANM is moving forward with a system that will recognize IONM professionals in Canada as self-regulating independent practitioners. By elevating the standards for practice of IONM, patients will be afforded with a system that negates the need for "interpreter" oversight (be that from a PhD, neurologist, or any other professional) and will be provided with true real-time interpretation of neurophysiological signals by the IONM professional present in the operating room.

There has been much debate over whether the interpretation of IONM signals constitutes the "practice of medicine" although no matter which side of the argument one falls, there can be no debate over the fact that neurophysiological signal abnormalities require prompt recognition and immediate interventional actions in order to avoid harm to the patient. This is a situation where mere minutes can mean the difference between restored intact function and a catastrophic injury for the patient. For that reason alone, patient-centred IONM care is best provided by the person most intimately involved with the procedure and the incoming stream of data from not only the IONM machine, but also from the anesthesia and surgical teams. This person is best positioned to assimilate all of the available information and make the most comprehensive interpretation of the signal changes in a very expedient fashion. Avoidance of delay in recognition and reaction is of paramount importance to both the patient and the surgical team and precious moments are wasted in an oversight model while awaiting the arrival of the "interpreter" and in the time taken to bring that person up-to-speed with the events. Those minutes could lead to the point of no return and result in avoidable harm being inflicted on the patient because immediate interventional actions were not enacted or enacted too late. By its inherent nature and design, an oversight model of IONM does not necessarily place the needs and safety of the patient first, and therefore, one must consider the motivations of those advocating for its use.

Some models of oversight suggest that the "interpreter" be present in the operating room during critical periods of surgery to avoid those unnecessary delays. However, with the complexity of cases now being monitored, alerts can happen at any moment and it would be impossible to predict "critical" moments of a case in order to have the "interpreter"

present for those moments only. This results in the necessity of the "interpreter" being present for the entire surgery and creates an unnecessary duplication of IONM care within the operating room.

Furthermore, an oversight model posits that multiple surgeries can be overseen simultaneously. However, if the "interpreter" is required to attend one surgical suite, by necessity they are unable to attend should a situation arise in another suite during the same time period. This places patients at risk for subpar monitoring due to unavailability of IONM interpretation, and subsequently at increased risk for delayed interventions and adverse outcomes. The independent practitioner model advocated by CANM falls within the traditions of patient care where there is an established relationship between the patient and the IONM professional and a duty to act in the patient's best interest by their very presence within the operating environment. The person in the room throughout the surgery is thus responsible for ensuring that abnormal signals are recognized promptly and communicated to the surgical team so that timely interventions can be set in motion. Moreover, IONM professionals have a moral and ethical duty to the patients to seek consult with another professional if they encounter a situation where they require assistance, in order to provide appropriate care.

In Canada, since the ultimate responsibility for the patient lies with the operating surgeon, the IONM professional must provide clear and concise information regarding the patient's neurological status throughout so that the surgeon can make appropriate context-driven decisions related to the surgical course of action in the best interest of the patient. In this model of IONM, the medical decisions are left to the surgeon, effectively eliminating the "practice of medicine" argument in Canada and making interpretations from an overseer unnecessary

CANM recognizes that the ability to interpret neurophysiological signals takes specialized knowledge. That knowledge, however, is not something that is uniquely present in "interpretation" overseers. Oftentimes, PhDs or neurologists who are charged with overseeing IONM have no specialized training in IONM at all. What has been found to be more important for patient outcomes is the experience level of the person providing the IONM interpretation. A large multi-centre survey found that teams with the least experience in monitoring had a neurologic deficit rate more than twice as high as the group with the most monitoring experience.[2] The IONM system CANM is advising for Canadian patients will be predicated on elevating both the educational standards and the training and experience level of IONM professionals resulting in persons who are exceedingly well qualified to provide real-time interpretation of neurophysiological signals autonomously.

In order for the independent IONM practitioner system to function effectively, CANM is charged with responsibility to develop IONM professionals with the required knowledge, competency, and experience to be able to provide proper interpretation of signals, in real-time. The CANM-Michener post-graduate certificate program in IONM, clinical internship, and CANM accreditation exam will provide the foundation to develop efficacious IONM professionals and an emphasis will be placed on continuous learning and training through CANM initiatives such as CANM*talks* and our annual scientific meeting. Moving forward, CANM will eventually transition the certificate program into a MSc in IONM, as master's level education is synonymous with many other allied health professions who function as independent practitioners including audiology, PT, OT. CANMs goal is to not only increase the availability of IONM services to patients in Canada, but also to ensure that IONM care is provided in a system that is centered on patient safety and avoidance of preventable harm. The model that will best fit the needs of Canadian patients will be one where the interpretation of neurophysiological signals is performed in real-time by the person present in the operating room, allowing for prompt recognition, communication, and intervention.

If this discussion has spurred interest in you, I encourage you to register for the inaugural CANM*talks* where David Houlden, PhD will delve into the issue of "who should interpret IONM" further.

References

1. Kohn LT, Corrigan JM, Donaldson M, eds. To Err Is Human: Building a Safer Health System. Washington, DC: Institute of Medicine; 1999.
2. Nuwer MR, Dawson EG, Carlson LG, et al. Somatosensory evoked potential spinal cord monitoring reduces neurologic deficits after scoliosis surgery: results of a large multicenter survey. Electroencephalography and Clinical Neurophysiology 1995;96:6–11.

Laura M. Holmes, BScH SSP, CNIM
President, CANM
The Hospital for Sick Children
Toronto, Ontario

7TH ANNUAL CANM IOM Symposium

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Please join us for the 7th Annual CANM IOM symposium. This year's meeting will be held in Toronto, Ontario from September 19–20 at the Pantages Skyline Hotel. This modern, boutique-style hotel is located at the heart of downtown Toronto and is steps away from the city's art, culture and entertainment scene. A block of specially discounted rooms at the Pantages Hotel has been reserved for symposium attendees.

Our past symposiums have earned a reputation for being a high quality educational event and we endeavor to continue this tradition in 2014. The 7th Annual CANM IOM symposium will once again provide a unique and interactive learning experience with case studies, internationally recognized speakers and updates on the CANM Education Program. In this assembly of the Canadian and international IOM community your participation is greatly valued.

Please visit our website (www.canm.ca) for further symposium details. Early Bird Registration and the Symposium Program will soon be posted.

I'm looking forward to seeing some new and familiar faces once again.
See you in Toronto!

Nancy Lu, BSc (Hons), CNIM
2014 CANM Symposium Committee
Toronto Western Hospital, University Health Network
Toronto, Ontario

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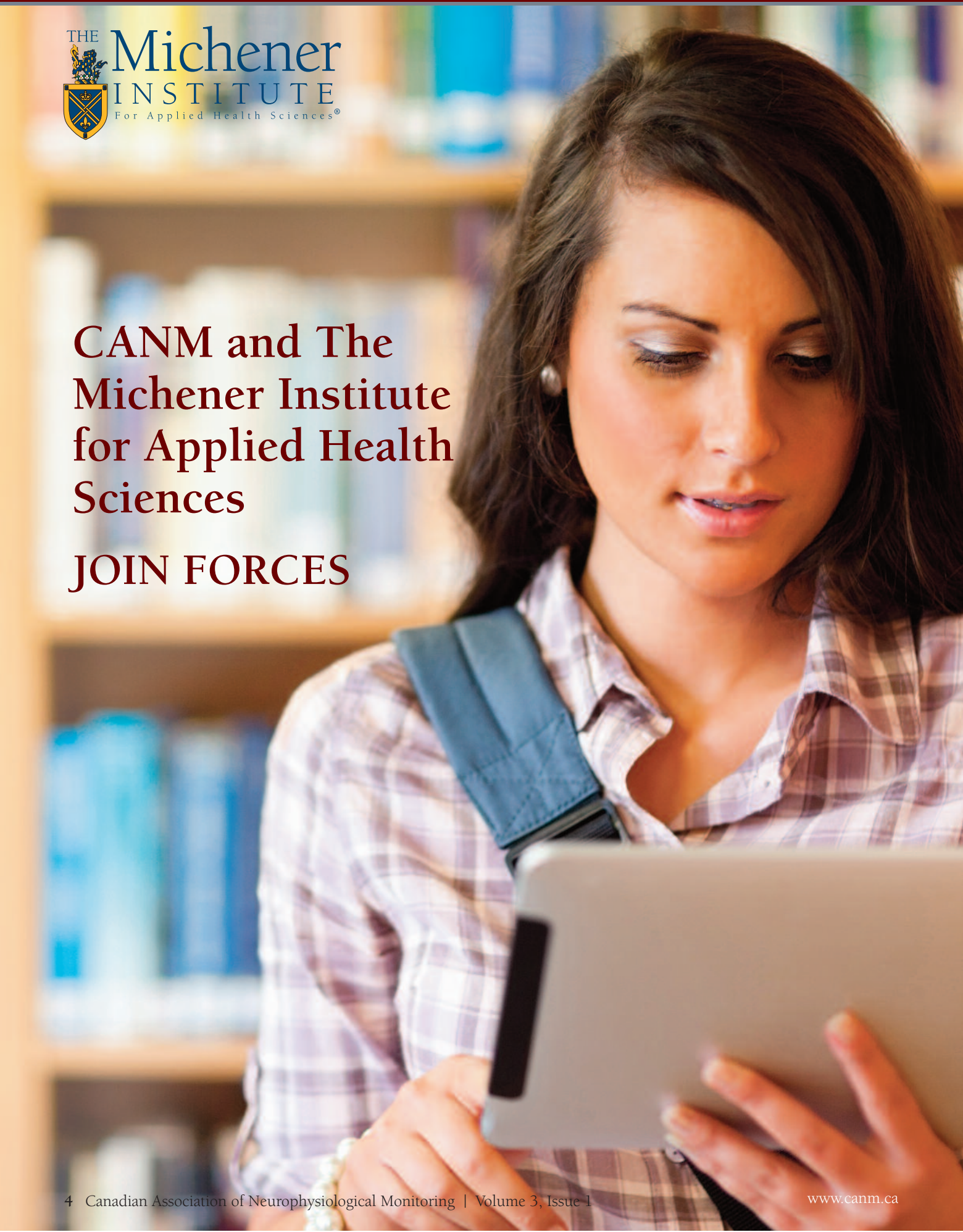

Intraoperative Neurophysiological Monitoring (IONM) has been practiced in Canada for decades, yet a standardized formal education program leading to a professional designation in IONM does not exist in this country. In fact, there is a paucity of formal educational programs in IONM worldwide and few national standards or regulations to govern the profession. As an integral part of a modern health care delivery model, the profession of IONM has a responsibility to elevate its educational core and basic standards of practice to reflect its important role in patient care.

The Canadian Association of Neurophysiological Monitoring (CANM) is the national body representing IONM professionals in Canada. As such, our organization has recognized and embraced the urgent need for both a professional education program and a national accreditation exam leading to eligibility for practice in Canada. CANM began work in 2011 exploring the concept of a national education program to be developed and delivered in partnership with an established Canadian educational institution. An online format was targeted because it holds many advantages including the flexibility to deliver asynchronous content, facilitating accessibility to students working in different time zones.

The time for CANM to step up and take a leadership role in IONM education both in Canada and on the global stage has arrived: CANM entered into an official partnership with the Michener Institute for Applied Health Science in January, 2014. Michener is the only post secondary institution in Canada that is exclusively dedicated to allied health professionals. Our association selected Michener because of their ability to be agile, their expertise in education design, their leadership in simulation and hybrid delivery models and their range of experience with programs such as Cardiovascular Perfusion and the Physician Assistant Programs. The partnership between CANM and Michener is a natural fit and work is well underway on course development for the new certificate program in IONM that we are partnering to create.

The CANM-Michener post-graduate certificate program will consist of 6 courses that will be completed over a 2-year period. The courses will be designed to progress the learner with a science or health-related degree from basic to advanced topics in applied neuroscience and IONM. At the end of the 2-year program, the learner will have the academic foundation to pursue a career in IONM. The certificate program will foster the students' eligibility for a clinical residency program and to write the national accreditation exam which is currently under development by CANM.

Because the course offerings will be online and asynchronous, we anticipate that there will be interest from students from around the world. To our knowledge, the CANM-Michener program will be the first of its kind and represent a truly accessible way for individuals to gain the educational background in IONM that is critical for progression to clinical training. At this stage, the certificate program does not have a clinical component; however, Michener offers opportunities to incorporate sessions in their state-of-the-art simulation center and have experience with a variety of other clinical practice tools to supplement a didactic curriculum. CANM will continue to reassess the addition of clinical components as the program is established. We are thrilled to announce that enrollment for the CANM-Michener Certificate Program in IONM will commence in September, 2014.

It is important to note that introduction of the CANM-Michener program and implementation of the national accreditation exam is a positive go-forward initiative. Any individual currently practicing IONM in a recognized institution in Canada, regardless of their experience or educational background, will be able to continue without hindrance. The CANM education plan aims to improve national standards and ensure that new entrants into the field are highly trained and in a standardized fashion.

It is an exciting time for IONM in Canada and the CANM-Michener Certificate Program launch in September is just the beginning.

Susan Morris, PhD
Chair, CANM Education Committee
IWK Health Center
QEII Health Science Center
Assistant Professor (Surgery), Dalhousie University
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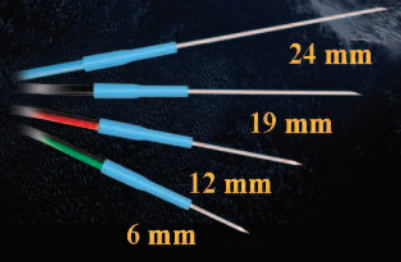

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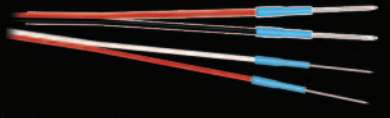

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INTERVIEW WITH Dr. Michael Fehlings

MD PhD FRCSC FACS Neurosurgeon, Senior Scientist and IONM Advocate

Dr. Michael Fehlings is the director of the Spinal Program at Toronto Western Hospital and professor of Neurosurgery at the University of Toronto. His ardent support for IONM is reflected in his clinical and scholarly service dedicated to the repair of spinal cord injury. Since joining Toronto Western Hospital, University Health Network in 1992, Dr. Fehlings has run an active clinical practice in complex spinal surgery. For the past 20 years he has also maintained a successful research lab dedicated to finding novel treatments for brain and spinal cord injury. Dr. Fehlings has published over 450 scientific papers related to spine surgery/spinal cord injury and received multiple prestigious awards including the Queen Elizabeth Diamond Jubilee Award (presented by Prime Minister Stephen Harper in Parliament). Most recently he was appointed vice-chairman of research in the Department of Surgery at the University of Toronto.

As a senior IONM practitioner at Toronto Western Hospital I have been involved in Dr. Fehlings' complex neurosurgical procedures for the past 13 years. In January 2014, I had the absolute pleasure of interviewing this IONM advocate on a number of current issues confronting our community today. He shared his views on remote monitoring, the challenges with launching an IONM program and more.

Aside from a shortage of funding and training, what additional barriers may be responsible for the lack of neuromonitoring facing several Canadian hospitals today?

MF: One barrier is the lack of acceptance. Some surgeons have difficulty recognizing that IONM can be a useful adjunct to their surgeries. While IONM is routinely performed in spinal deformity cases it is less accepted for other types of surgeries. The fact is that IONM is still not utilized in every hospital in Toronto and to rectify that what is needed is a surgeon champion. Evidence for IONM in spine surgery was shown in a 2010 study published in *SPINE*.[1]

Unfortunately, push back from surgeons continues and it seems that the most common argument against IONM is "There is nothing I can do after a change happens?" Many surgeons claim there are no established protocols for them to execute once they are notified of a loss in the patient's neurophysiological recordings. At TWH (Toronto Western Hospital), and other hospitals, there are protocols we carry out although these procedures have yet to be published.

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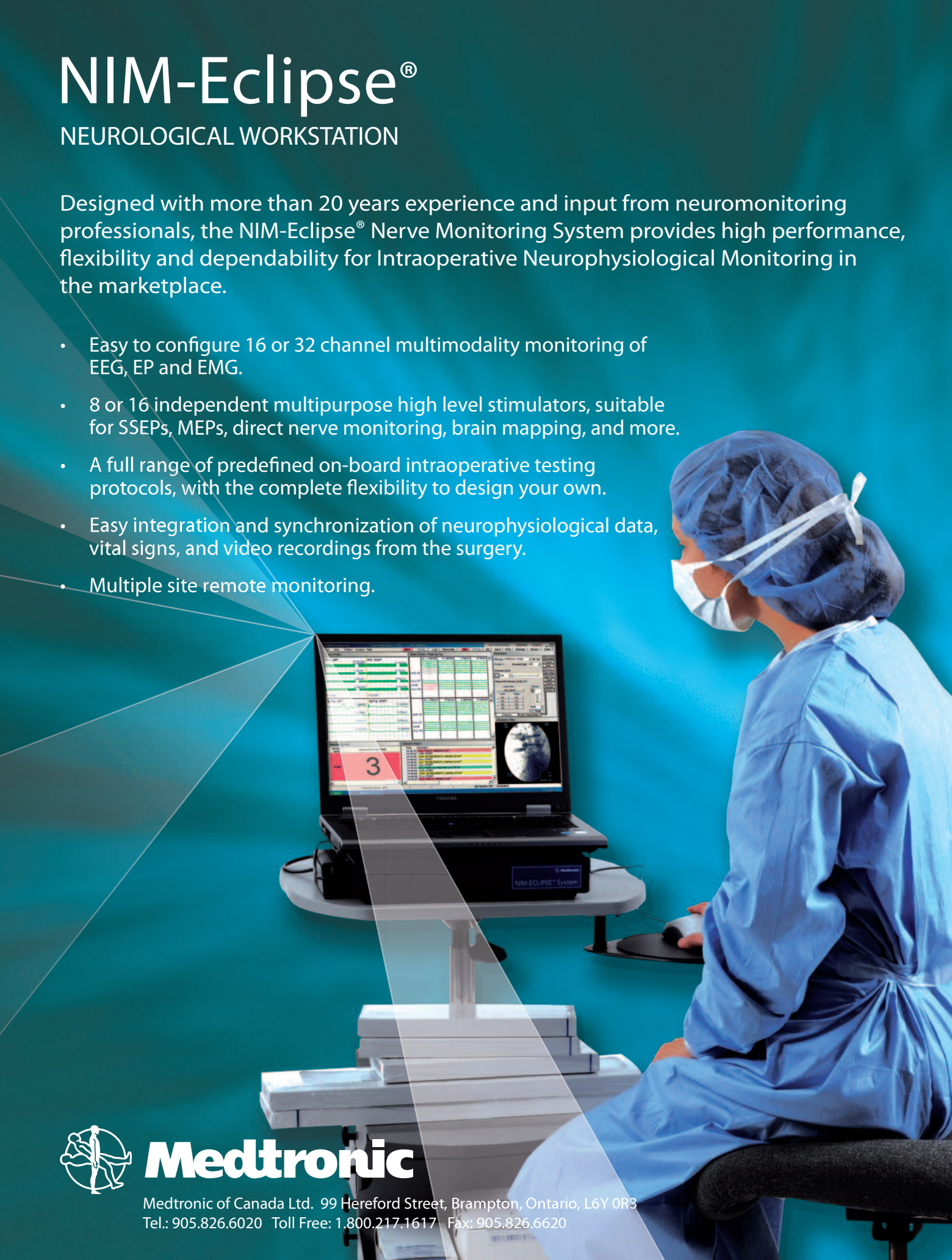

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There has been considerable debate within the IONM community regarding the practice of "Remote Monitoring." Some have expressed apprehension with a practice that allocates oversight of neuromonitoring to an individual who is not physically in the operating room. Do you share in these concerns?
MF: I am not a fan of the practice of remote monitoring. I believe that for an effective team environment it is really important to have direct communication with the IONM practitioner. I would imagine that it could be problematic for the individual supervising the neuromonitoring to communicate with the surgeon if he or she is not physically in the room. This of course may prove to be a more serious issue in complex cases.

You are an avid supporter of IONM and successfully procured the resources to maintain an IONM program at Toronto Western Hospital. What recommendations do you have for staff and physicians at other Canadian health care institutions who are struggling to introduce IONM into their hospital?
MF: My advice for those struggling to implement IONM into their institution is to visit a health care institution that has an established IONM Program. TWH was one of the earliest institutions to introduce an IONM program in Toronto and we continually welcome visitors from around the world who are looking to develop a neuromonitoring program in their hospital. Furthermore, I believe that surgeons who are interested in bringing IONM into their hospital must get their hospital administrators on board. They must emphasize the cost effectiveness of having neuromonitoring for their surgeries. A single patient who suffers a serious intraoperative spinal cord injury can cost the health care system an excess of 1 million dollars in long-term care.

As a professor of neurosurgery at the University of Toronto, do you believe that physicians currently enrolled in Canadian neurosurgical residency programs are receiving sufficient education in IONM?
MF: In the Neurosurgical Residency program at the University of Toronto, residents are exposed to IONM at several Toronto hospitals including TWH, SickKids, and Sunnybrook Hospital. The University of Toronto does provide residents with education in IONM. I would like to note that there are many additional opportunities to educate our neurosurgical residents across Canada. I would encourage the use of podcast or a lecture series to instruct residents on the benefits of multimodality IONM monitoring in complex spine surgery and skull base surgery. I believe that our surgical residents will benefit from this type of enhanced learning format.

Will the neurosurgeons of tomorrow be graduating with more knowledge in neuromonitoring than their predecessors?
MF: They are certainly more aware and experienced with IONM because we are using it more frequently in many of our neurosurgical procedures today.

Thank you Dr. Fehlings for your time!
This interview was edited for length.

Gina Bastaldo, BSc (Hons), CNIM
CANM Communications Director
Editor-In-Chief Canadian IOM News
Toronto Western Hospital, University Health Network
Toronto, Ontario

1. Fehlings MG, Brodke, DS, Norvell, DC, and Dettori JR. The evidence for intraoperative neurophysiological monitoring in spine surgery: Does it make a difference? Spine 2010;35(9 Suppl):S37–S46. doi:10.1097/BRS.0b013e3181d8338e.

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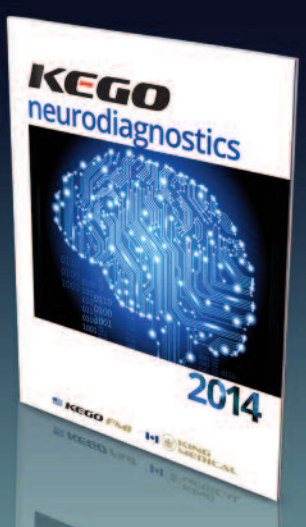

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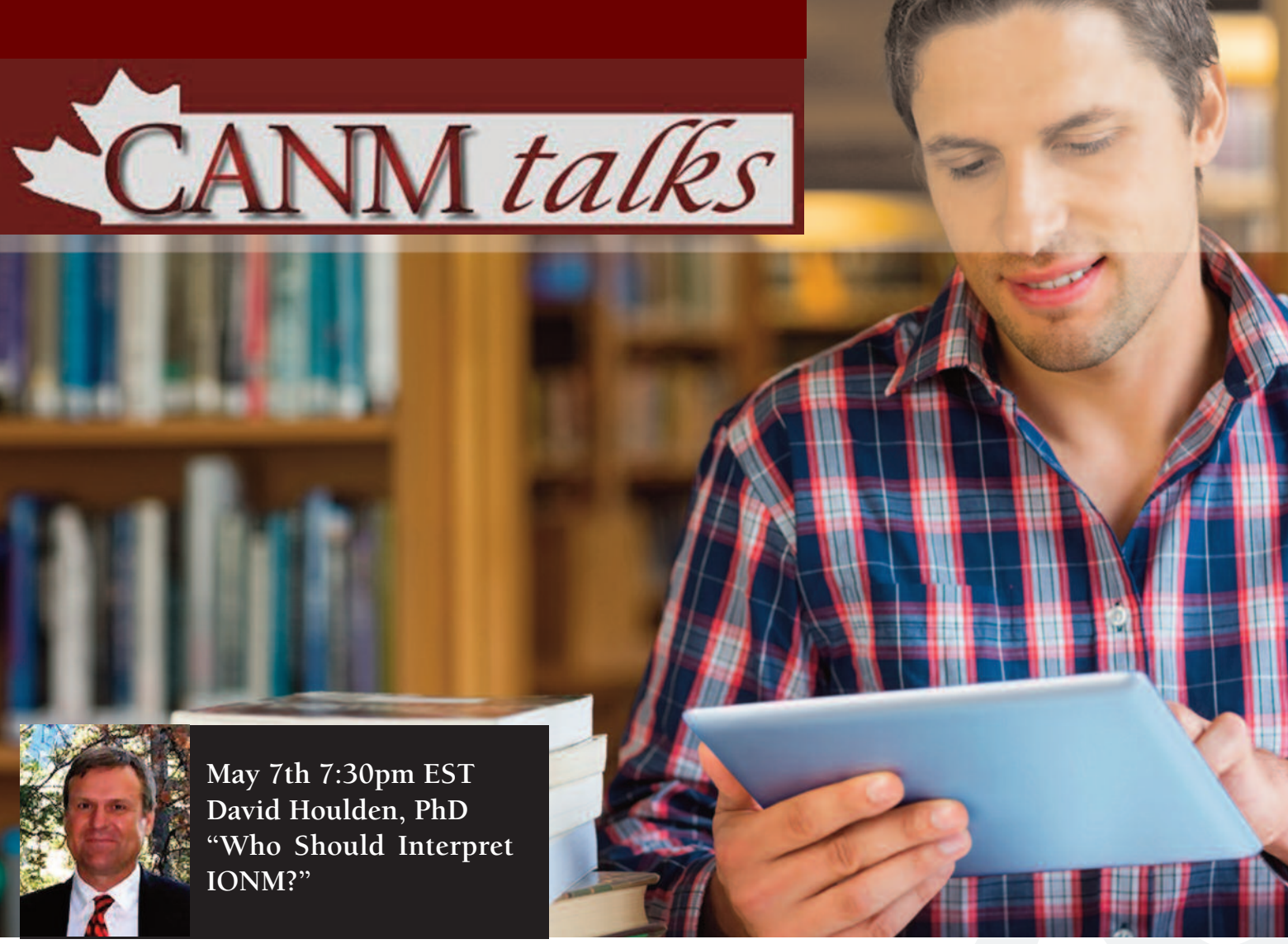
CANM *talks*



May 7th 7:30pm EST
David Houlden, PhD
"Who Should Interpret IONM?"

As part of our continuing effort to advance the field of intraoperative neurophysiological monitoring, CANM is introducing a webinar series, "CANM *talks*", that will focus on a broad scope of topics relevant to our community. This interactive, online experience is designed to gather IONM experts and health care professionals from every discipline who seek to expand their knowledge of IONM. Each CANM *talks* webinar will be delivered as a concise presentation followed by an in-depth discussion period involving all attendees.

CANM's educational initiatives are a continuous work in progress, therefore our webinar series will commence as a pilot project, designed to be pliable and adjusted as required. Your feedback and suggestions will be instrumental in shaping its future development.

The inaugural CANM *talks* will be launched in spring 2014 and we are honoured to have Dr. David Houlden as our first presenter. Registration will be limited to 20 participants with priority access assigned to CANM Members. During the pilot phase, access to CANM *talks* will be complimentary for all attendees (members and non-members).

For upcoming information on CANM *talks* please visit our website at www.canm.ca or email talks@canm.ca.

CANM is passionate about fostering the development of IONM through education and we look forward to introducing CANM *talks* as a means to fulfill this mission and better serve our community. Bringing together IONM experts and healthcare professionals to share ideas in this interactive media platform inspires CANM and we hope it will inspire you!

Sincerely,
Gina Bastaldo, BSc (Hons), CNIM
CANM Communications Director
Editor-In-Chief *Canadian IOM News*
Toronto Western Hospital, University Health Network
Toronto, Ontario

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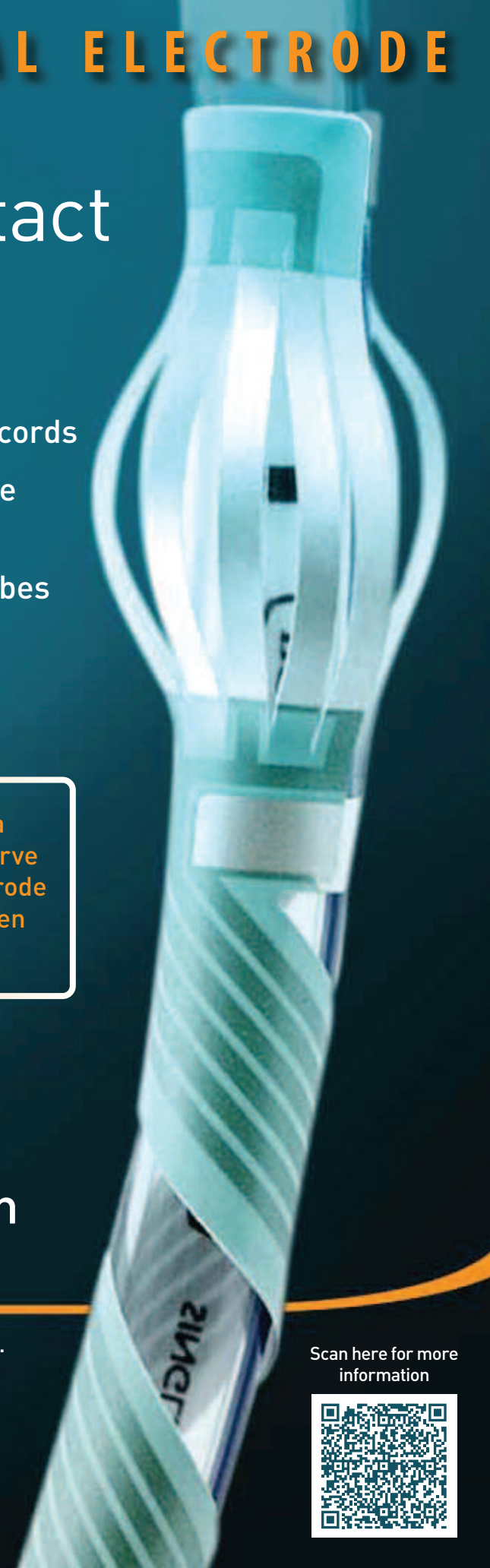

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