FALL 2012

CANADIAN IOM NEWS

Official Newsletter of CANM

CANM
CANADIAN ASSOCIATION OF NEUROPHYSIOLOGICAL MONITORING

Contents

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Message from the President

It was 1998 when a group of neuromonitorists gathered at Sunnybrook Health Sciences Centre, in Toronto, Ontario, for intraoperative neurophysiological monitoring (IOM) rounds. Over the next few years, we began to develop the idea of hosting a national educational symposium (inaugural CANM symposium in 2008) and a national organization (the Canadian Association of Neurophysiological Monitoring [CANM] – incorporated in 2011). From the beginning, CANM has been an inclusive organization, welcoming input from all who wish to improve IOM in Canada. I have had the honour of guiding the process from 1998, but my tenure as founding president is coming to an end this September. I would like to thank all who have participated in the process, especially the CANM executive (Jonathan Norton, Gina Bastaldo, Laura Holmes, and Charles Dong), for being a reliable and inspirational source of leadership.

As the 5th Annual CANM Symposium approaches (in Vancouver, British Columbia, September 28–29, 2012), I would like to thank those individuals involved in the planning process. CANM has a history of providing high-quality IOM education in an informal, interactive setting, and the Vancouver meeting is shaping up to be one of the best. The cross-country case reports have been the highlight of past meetings, and plenty of time has been set aside at this year's symposium to continue this unique and informative tradition.

CANM provides leadership in IOM education. Indeed, this is the main reason we exist. We are currently in the process of establishing a formal education program in association with a recognized educational institution. The CANM Education Committee is composed of experienced neuromonitorists who have the best interest of patients at heart. They have been working diligently on preparing an educational module that will be available to the 2012 symposium attendees (and others) to take online. I would like to thank those of you on the Education Committee (Laura Holmes, Jonathan Norton, Charles Dong, Gina Bastaldo, Sam Strantzas, Roger Sarjeant, and Susan Morris) for taking on this daunting task. I am sure you will leave a legacy of educational excellence and will lay the groundwork for an IOM educational program that is second to none.

As neuromonitorists, we say "ouch" for the patients when they can't, thereby preventing or reducing harm caused by surgery. We also assist surgeons to identify and assess neural structures so that unwanted damage may be avoided altogether. In this way, we increase the quality of health care by providing safe, timely, and effective services. Over my career in IOM, the discussion has shifted from, "Is IOM useful?" to, "How can we make IOM even more effective?" Accordingly, IOM services are in demand across Canada, and hospitals are creating new programs. Nevertheless, there is room for more growth of services. CANM has established itself as the united voice for the profession of IOM in Canada, but much work still needs to be done. The future of CANM and neuromonitoring in Canada looks very bright. I encourage you to join CANM and enjoy the ride.

D. A. Houlden

David Houlden, PhD
Founding President, CANM

Letter from the Editor

CANM is proud to present the second issue of our official e-newsletter connecting IOM practitioners from coast to coast. This publication offers our community a multimedia platform that echoes the vibrant and dynamic dialogue made famous at our annual symposia.

In this issue, you will find the latest information on the 2012 symposium as well as important details concerning the controversial decision made by the Ontario provincial government to eliminate IOM billing codes. In addition, we are extremely excited to introduce an in-depth review of Aage Møller's popular book *Intraoperative Neurophysiological Monitoring*, 3rd Edition. These articles serve as a preview of the themes we intend to explore in upcoming issues. Topics such as CANM updates, advancements in IOM, and education will continue to be at the forefront of our e-newsletter.

It goes without saying that this publication would not be possible without the remarkable efforts of our contributing authors: Charles Dong, David Houlden, Laura Holmes, Marshall Wilkinson, Nancy Lu, Jonathan Norton, and Roger Sarjeant. These individuals demonstrate the dedication that is so prominent within our community, and we invite others to share their views/knowledge in IOM by writing for our e-newsletter. CANM is currently looking to expand our list of contributing authors. If you are a health care professional interested in participating in *Canadian IOM News* or if you have an idea for an article, we invite you to contact us at info@canm.ca.

Gina Bastaldo, BSc (Hons), CNIM
Communications Director, CANM
Editor-in-Chief, *Canadian IOM News*

CANM New Members Since April 2012

New Full Members
Diane Bouchard
Srinivas Bulusu
Allison Cooper
Samantha Robertson
Marshall Wilkinson

New Associate Member
Ekaterina Potapova

5th Annual CANM IOM Symposium

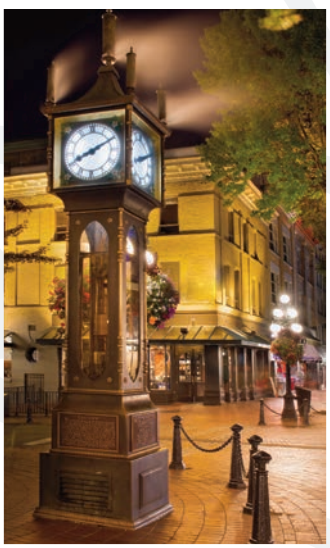
VANCOUVER, BRITISH COLUMBIA | SEPTEMBER 28–29, 2012

I am extremely excited that the 5th CANM Symposium, in Vancouver, is fast approaching. The Symposium Organizing Committee and the CANM Executive Board are working vigorously to ensure that this event provides you with a comprehensive and enjoyable learning experience. At this meeting, Dr. David MacDonald, the keynote speaker, will discuss *MEP alarm criteria*, which is one of the most controversial topics of this important modality. He will also share his valuable experiences on cortical mapping for brain tumour surgery. In addition to our keynote speaker, we have Canadian and internationally acclaimed surgeons who will lecture on neural, spinal, and cardiovascular surgeries and enlighten us on how monitoring can help achieve optimal surgical results. Needless to say, our intraoperative neurophysiology experts will bring their extensive knowledge to this meeting and speak on the application of monitoring techniques during high-risk surgical procedures.

I am also pleased to announce that this year's symposium program has been approved by the University of British Columbia Division of Continuing Professional Development for 10.75 Section 1 CME credits as defined by the Maintenance of Certification program of the Royal College of Physicians and Surgeons of Canada. Those who plan to collect these credits will have an opportunity to fill out an evaluation form and drop it in a designated box outside the conference room at the end of the meeting.

I would like to remind you to please check the CANM website at www.canm.ca for symposium updates. I look forward to seeing you in beautiful Vancouver.

Charles Dong, PhD
Director, CANM
CANM IOM Symposium Committee



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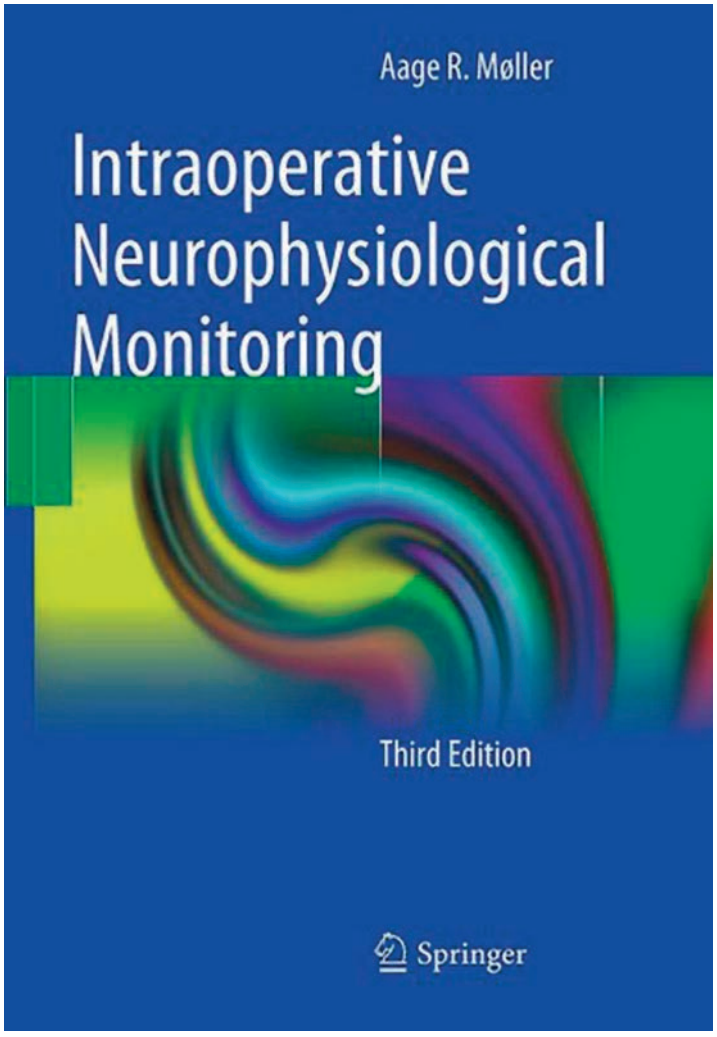
Book Review

AAGE MOLLER'S *INTRAOPERATIVE NEUROPHYSIOLOGICAL MONITORING*



Aage R. Møller, DMedSci
Springer, 2010
ISBN: 978-1441974358
Hardcover, 666 pages

When I entered the field of intraoperative neuromonitoring, my "go-to" text was Aage Møller's *Evoked Potentials in Intraoperative Monitoring* (1988). Now, there are considerably more reference options available for both the student and veteran of intraoperative neuromonitoring. Møller's latest work, *Intraoperative Neurophysiological Monitoring*, 3rd Edition, confirms his relevance and stature as one of the pioneering experts in our rapidly growing discipline.

This text is a balanced, well-referenced approach to a complex discipline. The first section outlines some basic concepts and mentions some of the newer techniques that have become part of the neuromonitoring domain, such as deep brain stimulation. Møller highlights the deserved distinction between the clinical neurophysiology laboratory and neurophysiology in the operating room. He also advocates for the role of research in the operating room and the contributions that the intraoperative neurophysiologist can make in this regard. Examples are provided of how this research has influenced both surgical practice as well as our understanding of the human nervous system.

There is reasonable flow in this text, and concepts are often reintroduced along the way to emphasize points of note. Møller offers good descriptions of near- and far-field recordings and their applications. A good example demonstrates how understanding the generation of the compound nerve action potential is critical to interpreting changes in this waveform and the clinical significance. His emphasis on first principles is consistently well translated into practical applications. Møller includes the necessary review of the anatomy and physiology of sensory and motor systems as well as peripheral nerves. These discussions integrate the use of somatosensory evoked potentials (SEPs) for evaluating these systems, as well as the strengths and shortfalls. For many, sensory and motor system anatomy may seem tedious, but Møller makes some excellent points that were either new to me or long forgotten. The review of spinal cord physiology and how transient SEP changes can be explained was something this reader will not forget. Møller's strengths

in auditory physiology are evident through his descriptions of techniques and interpretations for monitoring the auditory pathways as well as other cranial nerves.

The discussions of motor system anatomy and the monitoring of motor pathways are given appropriate critical consideration. Topics include myogenic motor evoked potentials (MEPs), D waves, spinal cord stimulation, F waves, and H reflex. Møller is justifiably critical of the current status for warning criteria of myogenic MEP. While I cannot disagree with him on this, I am not convinced that D wave recording, which he seems to favour, represents a better option. Møller does not address why D wave monitoring is not more widely adopted in the field.

Technical topics (e.g., electrical interference, filtering, sampling, etc.) are saved for the last chapters of the text. Here, concepts raised in previous chapters are integrated into the discussion, which helps reinforce the importance of these required, but more arcane topics. Of course, relevant discussions of anaesthesia, communication, and quality control are addressed. However, Møller really hits the mark by providing excellent practical suggestions for noise localization using regular monitoring equipment and some wire.

Møller's book reflects a new direction for practitioners of nervous system monitoring. Because of the increasingly pivotal role the discipline is having in surgical guidance (deep brain stimulation, peripheral nerve surgery, auditory prostheses), he suggests the field be referred to as intraoperative neurophysiology rather than intraoperative neuromonitoring. He makes a good point. With this book, Møller continues his tradition as being the definitive reference and leader in the field of intraoperative neurophysiology.

Marshall Wilkinson, BSc (Hons), MSc, PhD
Section of Neurosurgery, Health Sciences Centre
Winnipeg, Manitoba

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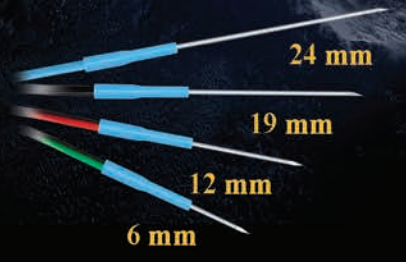

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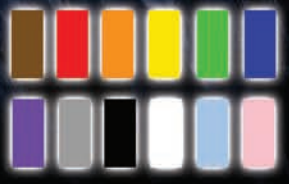

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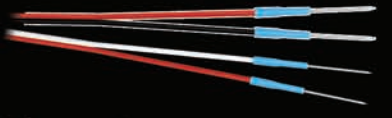

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Elimination of IOM Billing Codes in Ontario

In Canada, our publically funded healthcare system is under the provisions of the Canada Health Act. Adapted in 1984, this federal piece of legislation ensures that the provinces/territories pay for medically necessary care delivered in hospitals or by physicians. Over the years, there has been growing variation across the provinces/territories in which medical services are publically funded.

Codes Eliminated
E381: Intraoperative electrophysiological monitoring of neural structures – add $179.30
E806: Intraoperative monitoring of cranial nerves (remote from skull base) – add $125.00

In May 2012, the premier of Ontario, Dalton McGuinty, announced that his government would be imposing a 2-year compensation freeze on the province's physicians as well as eliminating or reducing payment on several previously funded medical services in Ontario. These cost-saving measures were implemented by cutting and lowering several hundred fee codes in the Schedule of Benefits for Physician Services. **Among the 13 fee codes that were completely eliminated were the two billing codes for IOM.** Effective April 1, 2012, Ontario physicians can no longer receive direct compensation for the utilization of IOM. Payment for surgical procedures will now be deemed to include IOM services, if rendered. The Ministry of Health and Long-Term Care (MOHLTC) has said that the deletion of these two fees will save approximately $600,000 per year.

According to information obtained from the Health Data Branch of MOHLTC, for the 2010 fiscal year, E381 was billed a total of 4,396 times and E806 a total of 2,688 times, by a variety of disciplines (Figures 1 and 2). As these are both add-on surgical billing codes, it will be interesting to see what the future impact will be on the use of IOM services in operating rooms across Ontario. Thus far, IOM practitioners across Ontario have not noticed a decline in requests for IOM. However, it should be noted that some of the above billings are for IOM services performed by the surgeon without use of an IOM practitioner.

Will the elimination of these codes impact patient care?

Laura M. Holmes, BScH, CNIM
Secretary-Treasurer, CANM

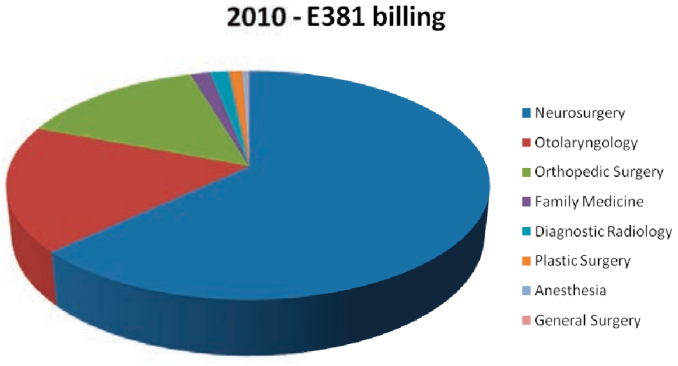

Figure 1. E381 code billings by various disciplines.

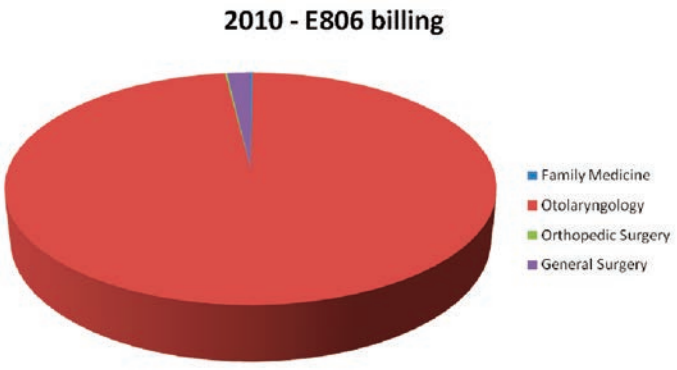

Figure 2. E806 code billings by various disciplines.

Did You Know…?

DOCUMENTATION OF INTRAOPERATIVE NEUROPHYSIOLOGICAL MONITORING

Documentation of IOM during surgical procedures is required by Canadian hospitals to ensure accurate patient health care records. It is universally accepted that the following data should be included:

- Date
- Patient's full name
- Patient's medical record number
- Surgical procedure
- Neurophysiological modalities used
- Patient's neurophysiological recordings at start of case (i.e., baseline)
- IOM findings (i.e., stimulation to identify cranial nerves)
- Relevant IOM changes that may result in neurological deficits

The minimum information above provides a foundation for all IOM documentation; however, variations exist between hospitals as to what additional content should be included.

Do you include the following supplementary information in your IOM records?

- Start and end times of the surgical procedure
- Names of all of the IOM technologists monitoring the case, along with their time in and out of the operating room
- Type of IOM machine (model) used to monitor the patient
- Type of electrodes used (i.e., needle versus surface), and how many were used in total
- List of electrode montages
- Electrode placement
- Type of stimulators used, and whether they were monopolar or bipolar
- Parameter settings (i.e., what was the stimulator current?)
- Printout of the patient's neurophysiological recordings
- Patient's preoperative neurological deficits
- Anaesthesia vital signs (i.e., blood pressure, concentration of inhalational gases, etc.)
- Stage of the surgical procedure at which the intraoperative change occurred
- Grade of changes (i.e., no significant change, >50% change, etc.)
- Spinal levels operated on and monitored
- In cerebrovascular cases, temporary and permanent clamp times as well as their placement
- What was discussed/communicated to surgeon, anaesthetist, and other operating room staff
- Whether or not the patient's neurophysiological responses improved by the end of the case

Presently, at each Canadian hospital the IOM technologists, together with hospital administration, develop their individual documentation practices. **It is widely acknowledged that variations exist between hospitals in regards to IOM charting; but until the IOM community in Canada has an open dialogue on documentation, we will never know what these variations are.** Sharing our documentation practices would benefit the field of IOM as it might lead to improvements in how we document. In addition, this open forum would allow us to ask the critical questions: Should Canadian standards in documentation be established? If yes, should CANM be the governing body that determines those standards?

Nancy Lu, BSc (Hons), CNIM
Toronto Western Hospital, University Health Network
Toronto, Ontario

Quick Poll

Do you believe your IOM documentation practices need improvement?

a. Significant changes are required.
b. Moderate adjustments are necessary.
c. I am not sure if modifications are needed.
d. No amendments are required. I am satisfied with my current documentation practices.

Take the Quick Poll & View Results

Results from the Spring Issue's Quick Poll

If the demand for neurophysiological monitoring exceeds the available staff/equipment, who decides which surgical cases receive monitoring at your institution?

a.	Chief of neurosurgery/surgical services	5%
b.	Head of neurophysiological monitoring department	21%
c.	Institution/hospital administration	0%
d.	**Consensus between conflicting surgeons**	**37%**
e.	Collaboration between two or more of the above	32%
f.	Other	5%

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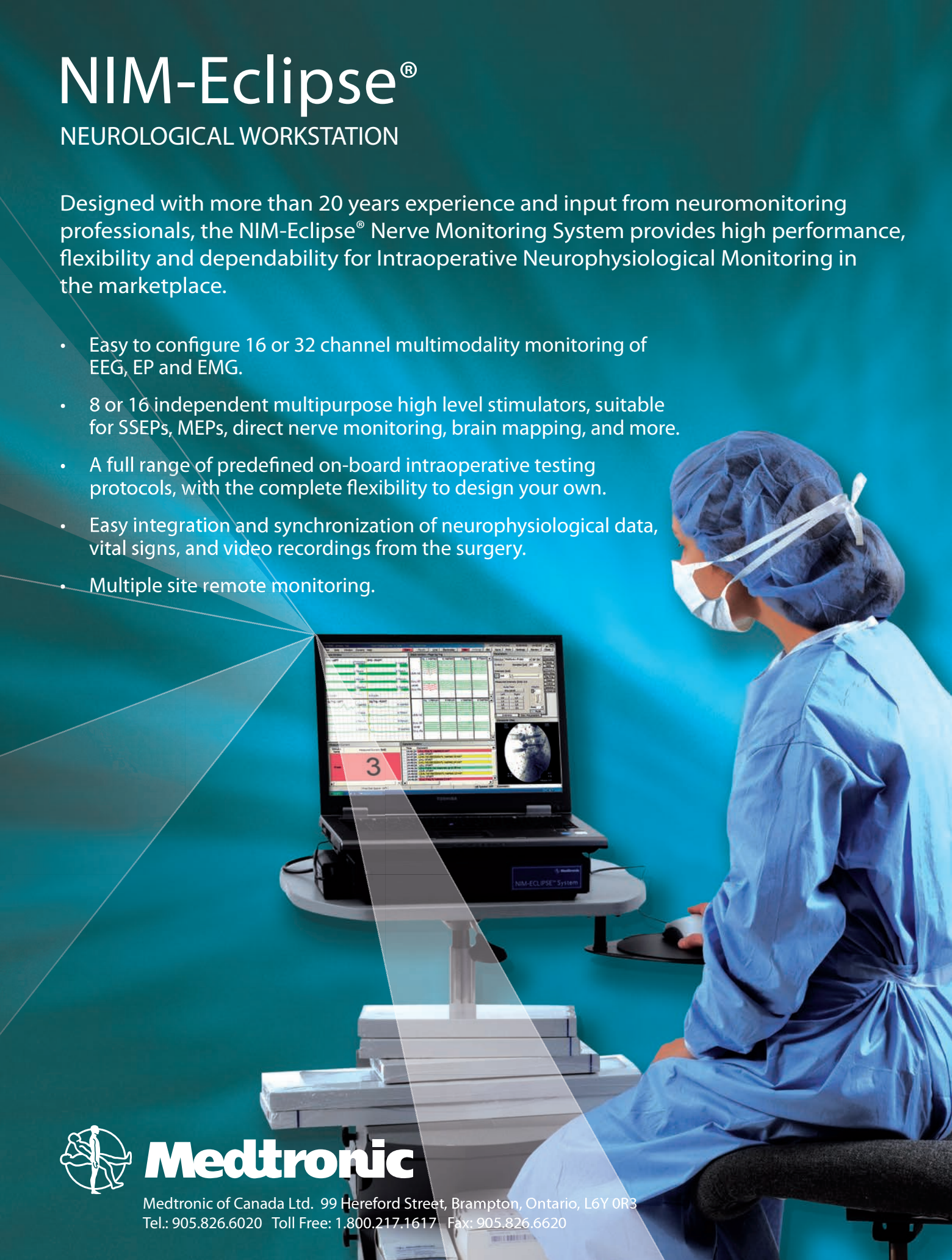

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