Training and Regulating Clinical Scientists in Canada: Online Training for Intraoperative Neuromonitoring?*

In recent years both the Congress of the Canadian Neurological Sciences Federation and the Canadian Spine Society have held symposia and workshops on IONM (intraoperative neuromonitoring), indicating a demand from surgeons for increased knowledge of these techniques which is still relatively early in the development cycle in Canada. Paediatric spine deformity surgeons were instrumental in this development in Canada,[1] and other spine surgeons soon took up the mantle of IONM champions.[2] As surgeons have discovered its benefits they have demanded that their hospitals provide the resources to operate a IONM programme. The application of existing clinical neurophysiological techniques, and the development of new ones to protect neural function and identify neural tissue during surgical procedures is a skilled task.[3,4]

In this issue, Wilkinson et al. (2018, pp. 259–61), on behalf of the Canadian Association of Neurophysiological Monitoring (CANM) introduce a training scheme for IONM in Canada, along with a proposed regulatory system. CANM has already started online training (Wilkinson et al., 2018). The authors draw a comparison with the situation in the United States, a common practice when looking at healthcare systems. In the United States, IONM is either performed by an in-house team based in a hospital/academic centre or contracted out to a company. A technologist may be sent to a hospital for a surgical case, bringing their own equipment and consumables. At a remote site a clinical neurophysiologist (MD with or without specialist training and certification in IONM) will interpret the data, along with a number of other cases simultaneously.[5] The technologist may have many years training, or just a few weeks of "in-house" training. There are numerous anecdotes of mistakes occurring in this type of setup.[6] However, it is against this backdrop of the much more developed situation in the United States that the proposal from CANM should be viewed. In particular, CANM believes very strongly that the individual in the room should be the person performing the interpretation. This situation seems ideal (the US medicare systems reimburses more for in-room interpretation than remote), but there remains controversy as to who should be interpreting (in the room or elsewhere) in Canada[7-9] and especially if it should be a "professional" (by which I mean a PhD or MD)[10] some of which is discussed in the current paper. Clearly, whether a person enters training with a BSc or a PhD will greatly impact the training they require. Although criticised by Wilkinson and Kaufmann,[8] and this issue, the survey we conducted[7] indicates a preference amongst surgeons for highly educated professionals. This may be in part because surgeons are uncomfortable interpreting IONM data, and so do not wish to take responsibility for interpretation. If CANM moves ahead with the proposals, they will need to work with our surgical colleagues to ensure that we continue to have their full support.

Provincial regulatory colleges which may regulate the practice and interpretation of IONM will also need to be consulted and there may be legislative changes required.

To ensure world-class IONM Canada will need to have not only online training, but minimum education requirements to start the training and regulatory oversight including a need for ongoing education. Like much of medicine theory and online learning only goes part way, IONM is a practical skill as well, especially as envisioned by CANM, and there will therefore need to be some period of hands-on training (a form of residency) in a more developed plan in the future. As currently proposed CANM will be running all aspects of this process, either directly or because the same committed people will populate all the relevant boards. Indeed, through charging fees it may appear as a money-making scheme. In medicine we see universities across the country providing education and interim assessments of knowledge and the independent Medical Council of Canada providing a general licence which is usually required by provincial regulatory colleges to enable independent practice. Speciality training is overseen by Royal Colleges, who also document and maintain ongoing education. Provincial and national medical associations are independent of the regulatory bodies. All these bodies are independent from each other. The small number of IONM professionals makes organisation of a series of independent bodies difficult.

There are within our hospitals a number of professionals who contribute to healthcare, with varying degrees of regulatory oversight, which may vary with province of practice. Examples of these people may be audiologists, medical physicists, biochemists, clinical engineers. Within each province, and even within Canada the number of practitioners in each field may be small, but the impact on patient care may be huge. I believe that to maintain trust in the medical and paramedical professions we need to be accountable to the public and meet the standards they expect. I expect that the man on the street would expect those professions to be regulated. In some countries this is the case, including in the United Kingdom which now has a well-developed system for training and regulation through a central school; the National School of Healthcare Science (http://www.nshcs.hee.nhs.uk/). This type of approach would generate economies of scale, as well as providing a unified voice and focus for those involved in

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clinical science professions. Once regulations and frameworks are in place it is very difficult to change them.[*] I caution that while, CANM favours one model, other models should be considered, including the possibility of combining healthcare science training across disciplines, where appropriate.

DISCLOSURE

JN is a member of CANM, as well as the CSCN. He is also a member of the American Clinical Neurophysiology Society, American Society for Neurophysiological Monitoring, American Academy of Neurology. He drafted the Alberta regulations around IONM for the technologist college (ACMDTT).

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[*]I helped to develop the Alberta regulations for IONM (www.acmdtt.com).