



ARTICLE OF THE MONTH

Perceived Benefits and Barriers to a Career in Neuroanesthesiology: A Pilot Survey of Anesthesiology Clinicians

Rajan S, Theard MA, Easdown J, Goyal K, Pasternak JJ

J Neurosurg Anesthesiol. 2019 Nov 6. doi: 10.1097/ANA.0000000000000655. [Epub ahead of print]

Welcome to the March 2020 Article of the Month. This month's article focuses on perceived barriers towards Neuroanesthesiology subspecialty training among anesthesiology residents. Some of these include assumptions that a unique skill set is not acquired in this fellowship, and future limited job opportunities.

Dr. Rajan has been practicing neuroanesthesiology for about 15 years. Her experience includes working in India at Apollo hospitals as well as in the USA at the Cleveland Clinic. Recently, she moved to Allegheny Health Network in Pittsburgh, Pennsylvania and functions as the vice chair for education and associate director for neuroanesthesiology.

She has been actively involved with both research and education in neuroanesthesiology. On the research front, she has several publications on awake craniotomy, dexmedetomidine, multimodal analgesia for spine surgery, etc. On the education front, she has been active in the area of creating online learning management systems for resident education and online interactive quizzing.

She is a board member at the Society for Neuroanesthesiology and Critical Care where she chairs the trainee engagement committee, whose vision is opening minds to neuroanesthesia. She is part of the team that publishes quizzes, creates podcasts, etc., at SNACC. She is also an active member of the Society for Education in Anesthesia. In addition, she is a council member for the International Council on Perioperative Neuroscience Training (ICPNT) which hopes to unify and standardize neuroanesthesia fellowships worldwide. She is the editor of two problem-based anesthesiology books and has authored several book chapters.

As always, readers are welcome to join us for further discussion and feedback on the [Twitter](#) feed or on [Facebook](#).

~ Shilpa Rao MD, Oana Maties, MD; Nina Schloemerkerper, MD and Amie Hoefnagel, MD

Commentary

By Shobana Rajan, MD

Major advances are taking place in the field of neurosurgical anesthesiology and neurosciences, yet the number of anesthesiology residents who choose to pursue a fellowship and ultimately a career in neuroanesthesia is low. Efforts to identify and eliminate perceived barriers to neuroanesthesiology fellowship training will be key to ensuring the continued growth of this subspecialty. The authors of this article are members of the special interest group in neuroanesthesia education which gave origin to SNACC's trainee engagement committee.

This pilot survey was created by the authors in consultation with the SNACC leadership to assess attitudes about neuroanesthesiology fellowship training. It was circulated to attending anesthesiologists, fellows and anesthesiology trainees. The survey was conducted using Survey Monkey (www.surveymonkey.com) via SNACC's private account.

The survey questions pertained to the following issues;

1. Should neuroanesthesia fellowship be accredited?
2. If accredited should neuroanesthesia fellowships allow for both accredited and non-accredited paths?
3. Would an exam at the completion of the fellowship make neuroanesthesia more appealing?
4. Would accreditation increase the chances of a trainee applying for a fellowship in neuroanesthesia?
5. What are the factors which increase interest in neuroanesthesia subspecialty training? (research opportunities, neurocritical care experience, neuromonitoring experience, fellowship advertising on SNACC's website, and increase resident engagement with the SNACC to increase awareness about this specialty).
6. What is the primary reason for low number of applications for neuroanesthesia fellowships? (residency training is adequate without having to spend an extra year for a fellowship, limited job opportunities in private practice, current lack of accreditation, lack of a unique skill set related to neuroanesthesia).
7. What is your current opinion whether fellowship training is necessary to conduct neuroanesthesia? (it is required only for complex neurosurgical cases, it is not necessary even for complex cases, it is beneficial but not mandatory)
8. What role can SNACC play to increase interest in neuroanesthesia among trainees?

A total of 463 responses were received of which 309 (67%), 30 (6%), 116 (25%), and 8 (2%) identified themselves as attendings, fellows, residents, and "other," respectively. Amongst fellows, the most common reason for the choice of fellowship was interest in that subspecialty. The most common career path after fellowship was clinical practice in academia. Amongst residents, the most common fellowship of interest was cardiac anesthesia (40%), with only 10% of resident respondents intending to complete a fellowship in neuroanesthesiology. The most common reason that residents were planning to pursue a specific fellowship was their interest in that subspecialty. Other reasons included the acquisition of a specific skill set, increased opportunities in academia and private practice, and increased income potential.

Overall, 64% of attendings, 56% of fellows and 55% of residents favored accreditation of neuroanesthesiology fellowships. In total, 51% of attendings favored an examination at the end of fellowship training, whereas fellows

and residents were less supportive of an examination. Thirty six percent of residents believed that accreditation would make them more likely to consider completing a neuroanesthesiology fellowship. Collectively 47% believed that accreditation would increase interest in neuroanesthesiology fellowship training, either somewhat or a lot. Increased exposure to neurocritical care was the most common factor considered likely to increase interest in neuroanesthesiology fellowship training.

Barriers to neuroanesthesiology fellowship training included perceptions that it does not provide a unique skill set, that residency provides adequate training to manage neurosurgical cases, and that neuroanesthesiology training is not very marketable in private practice. Trainees felt that increased trainee involvement in the SNACC would help.

The International Council on Perioperative Neuroscience Training (ICPNT), a SNACC-sponsored council established to supervise activities that promote high-quality subspecialty education in perioperative neuroscience, has already begun accrediting neurosurgical fellowship training programs at an international level.

Taking proactive steps toward making education more interactive and interesting appear to be important in improving interest in neuroanesthesiology fellowship training. Approximately half (51%) of trainee respondents would choose a fellowship based on a desire to acquire a specific skill set. In an effort to raise the profile of neuroanesthesiology to potential fellowship applicants, fellowship programs should, therefore, highlight the unique skills acquired during neuroanesthesiology fellowship training. Increased familiarity with neurological monitoring modalities, management of the injured brain, management of surgical positions generally not encountered elsewhere in anesthesia practice, and management of neurosurgical emergencies may be viewed as important and unique skill sets acquired during neuroanesthesiology fellowship training. In addition, broadening the scope of perioperative neuroscience to include neural mechanisms of anesthetic drug action and management of neurological disease in patients having non-neurological surgery may also serve to increase interest in neuroanesthesiology subspecialty training.

The authors hope that the findings of their survey can be used to guide future neuroanesthesiology fellowship curricular guidelines and raise the profile of neuroanesthesiology subspecialty training to increase resident interest and engagement in this subspecialty of anesthesiology.

References:

1. Ghaly RF. Do neurosurgeons need neuroanesthesiologists? Should every neurosurgical case be done by a neuroanesthesiologist? *Surg Neurol Int.* 2014;5:76.
2. Ferrario L, Andrew KW. Standardized accreditation of neuro- anesthesiology fellowship programs worldwide: the International Council on Perioperative Neuroscience Training (ICPNT). *J Neurosurg Anesthesiol.* 2019;31:267–269.