



## Basic training in cardiovascular anesthesia: wouldn't it be the time for a unified program in Brazil?

Dear Editor,

In the past years, significant advances have been attained in the treatment of patients with severe cardiovascular diseases in different areas of cardiology, such as cardiovascular surgery and interventionist procedures in the cath-lab.

The current medical residency programs in anesthesiology in Brazil (Ministry of Education and Culture – MEC and/or Brazilian Society of Anesthesiology – SBA) are founded on general training of residents for a period of three years in different medical specialties in which anesthesiologists work. The current model does not provide enough time, and often does not allow in-depth teaching and practice in certain increasingly more specific and complex areas, which are essential to perioperative decision-making, such as cardiovascular anesthesia. Thus, many recently trained anesthesiologists eventually are additionally trained by more experienced anesthesiologists who have already been working with heart surgery for years, or they seek improvement in one of few hospitals to be able to practice more safely.

It is currently very common to observe anesthesiologists who work almost exclusively with cardiovascular surgery, explaining the increasing demand for pursuing improvement to fit job market requirements.

The American Society of Cardiovascular Anesthesiologists (SCA) has implemented for many years a fellowship program for anesthesiologists to complement learning and expand the number of professionals with skills to work in the cardiovascular area. The members believe that excellence in clinical care, education, and research in Cardiothoracic Anesthesia is better attained through “standard training” in the subspecialty. Adult Cardiothoracic Anesthesia (ACTA) has been a medical subspecialty since 2006 in the United States, and training program requirements are mostly controlled by the Accreditation Council for Graduate Medical Education (ACGME).<sup>1</sup>

The European Association of Cardiovascular and Thoracic Anesthesiology (EACTA) has been concerned for some time with the quality of training of its trainees. EACTA recently published a new model of a basic curriculum for cardiovascular and thoracic anesthesia, aimed at more uniform teaching and skill development of professionals.<sup>2</sup>

Moreover, advances in intraoperative monitoring, such as Transesophageal Echocardiography (TEE) has led many anesthesiologists to pursue learning on how to use TEE appropriately. The objective of a recent publication was to standardize the management of intraoperative echocardiography for anesthesiologists according to the SBA and the Department of Cardiovascular Imaging (DIC) of the Brazilian Society of Cardiology.<sup>3</sup>

There are currently few specific programs offering training in cardiovascular anesthesia in Brazil. Among them, the program of the Centro de Estudos da Clínica de Anestesia São Paulo has been a forerunner training course in cardiovascular anesthesia in which recently graduated anesthesiologists accompany professionals with long time experience

in cardiovascular anesthesia procedures. The program has undergone several reformulations throughout the years, and in 2018, after a judicious assessment by EACTA, it was certified as the first and only center for basic training in cardiovascular and thoracic anesthesia outside the European continent, and whose Hospital Base is the Instituto Dante Pazzanese de Cardiologia. This brought key results to the program, such as exchange with other centers of excellence abroad, in addition to participation in major multicenter studies. We can also include the complementation program specialized in Surgical Intensive Care and Anesthesiology of Universidade de São Paulo (USP) – São Paulo and, recently, the specialization course in Cardiovascular Anesthesia of the Instituto Nacional de Cardiologia (INC) – Rio de Janeiro. However, the programs offered are frequently not uniform and do not drive toward the same basic training of anesthesiologists who seek improvement.

In 2007, the estimated number of cardiac surgeries performed in Brazil in the unified health system (SUS) alone was approximately 350 heart surgeries/1,000,000 inhabitants/year (including defibrillator and pacemaker implants).<sup>4</sup> A growing number of these procedures may lead to an estimated 350,000 in 2021, beside the increase in the number of complex procedures, such as percutaneous aortic valve implants. To date, over 2,500 patients are estimated to have been submitted to this kind of procedure in our country and this number may reach up to 12,000 a year.<sup>5</sup> It is important to underscore that not only major centers but also several inner cities have the potential to perform such surgeries; therefore, the need to build skills in anesthesiologists in the area is increasingly more evident and growing.

Another point is the growing interest in learning and using perioperative transesophageal echocardiography as an additional monitoring method by anesthesiologists. It is very important we contemplate this topic for teaching on how to use TEE by the anesthesiologist also be uniform, and in compliance with the Brazilian Society of Cardiology. EACTA, for example, requires that fellows trained at their credentialed training centers include a course with theory and practice in TEE in the basic program, that allows trainees to acquire the required knowledge to pass certification tests.<sup>2</sup>

Based on this scenario, we believe that more comprehensive and longer skill-building of anesthesiologists that will work in cardiovascular surgery is increasingly more necessary. The basic program in cardiovascular anesthesia with standardized teaching, already employed in other countries, is an alternative that can be appropriate for Brazil according to our needs.

### Financial support

This study was supported entirely by department funds.


### Conflicts of interest

The authors declare no conflicts of interest.

### Acknowledgments

The authors thank all the other individuals who helped and provided contributions to the study.

## References

1. Capdeville M, Hargrave J, Patel PA, et al. Contemporary challenges for fellowship training in adult cardiothoracic anesthesiology: perspectives from program directors around the United States. *J Cardiothorac Vasc Anesth.* 2020;34:2047–59.
  2. Erdoes G, Vuylsteke A, Schreiber JU, et al. European Association of Cardiothoracic Anesthesiology (EACTA) Cardiothoracic and Vascular Anesthesia Fellowship Curriculum: First Edition. *J Cardiothorac Vasc Anesth.* 2020;34:1132–41.
  3. Salgado-Filho MF, Morhy SS, Vasconcelos HD, et al. Consenso sobre Ecocardiografia Transesofágica Perioperatória da Sociedade Brasileira de Anestesiologia e do Departamento de Imagem Cardiovascular da Sociedade Brasileira de Cardiologia. *Rev Bras Anesthesiol.* 2018;68:1–32.
  4. Gomes WJ, J Mendonça JT, Domingo, Braile D. Resultados em cirurgia cardiovascular oportunidade para rediscutir o atendimento médico e cardiológico no sistema público de saúde do país. *Rev Bras Cir Cardiovasc.* 2007;22:III–VI.
  5. Lopes MAC, Nascimento BR, Oliveira GMM. Tratamento da Estenose Aórtica do Idoso no Brasil: Até quando podemos esperar? *Arq Bras Cardiol.* 2020;114:313–8.
- Caetano Nigro Neto <sup>a,\*</sup>, Eric Benedet Lineburger<sup>b</sup>, Vinicius Tadeu dos Santos Nascimento<sup>a</sup>, Marcello Fonseca Salgado-Filho<sup>c,d</sup>
- <sup>a</sup> Instituto Dante Pazzanese de Cardiologia, São Paulo, SP, Brazil  
<sup>b</sup> Hospital São Jose, Criciúma, SC, Brazil  
<sup>c</sup> Universidade Federal Fluminense, Niterói, RJ, Brazil  
<sup>d</sup> Santa Casa de Misericórdia, Juiz de Fora, MG, Brazil
- \* Corresponding author.  
 E-mail: [caenigro@uol.com.br](mailto:caenigro@uol.com.br) (C. Nigro Neto).
- Received 12 October 2020; accepted 14 November 2020
- <https://doi.org/10.1016/j.bjane.2020.11.003>  
 0104-0014/ © 2021 Published by Elsevier Editora Ltda. on behalf of Sociedade Brasileira de Anestesiologia. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Mobile camera as an aid to minimize drug errors



Dear Editor,

Human errors are the most common cause of drug errors.<sup>1</sup> The National Coordinating Council for Medication Error Reporting and Prevention defines medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer.<sup>2</sup> Product labeling is one of the several factors that may contribute to such events. A drug label carries information about its composition, recommended mode, and route of administration, manufacturing and expiry date. To

avoid the errors in drug administration, it is strongly recommended that the label on any drug or ampoule or syringe should be carefully read and checked with a second person before a drug is drawn up or injected. Similar packaging and presentation of drugs should also be avoided wherever possible.<sup>3</sup>

Standard specifications exist for labels for small-volume (100 mL or less) parenteral drug containers. The standard provides recommendations for the color, size, design, general properties and typographical characteristics of the labels. It also states that the font size should be as large as possible to aid readers. A size of 9 points, as measured in 'Times New Roman', not narrowed, with a space between lines of at least 3 mm, is the minimum for the packet leaflet. User testing, meant to test the readability of a specimen



**Figure 1** A, Image of ampoule taken while keeping at convenient distance; B, Zoomed mobile image of the same ampoule; C, Ampoule's label as visible through a magnifying glass.