



# Colombian Journal of Anesthesiology

## Revista Colombiana de Anestesiología

www.revcolanest.com.co

OPEN

 Wolters Kluwer

### Comprehensive patient-centered perioperative care: another step towards expanding horizons in anesthesiology

### Cuidado peri-operatorio integral centrado en el paciente: un paso más hacia la ampliación de los horizontes de la anestesiología

Jaime Jaramillo Mejía<sup>a,b,c</sup>

<sup>a</sup> Fondo Solidario Para Auxilio en Caso de Demanda (FEPASDE), Bogota, Colombia

<sup>b</sup> Colombian Society of Anaesthesiology and Resuscitation (S.C.A.R.E.), Bogota, Colombia

<sup>c</sup> MEDT SAS – Specialised Pain and Work Clinic, Bogotá, Colombia.

**Keywords:** Anesthesiology, Education, Perioperative Period, Social Responsibility, Competency-Based Education

**Palabras clave:** Anestesiología, Educación, Periodo Perioperatorio, Responsabilidad Social, Educación Basada en Competencias

#### Abstract

We must change the current perioperative care model and expand the horizons of our specialty, as the results are unsatisfactory, health systems are unviable, and an imminent crisis is predicted. Although the contributions made by anesthesiologists have improved the safety of care and have contributed to increase the life expectancy and the quality of life of the population, it is necessary to adopt a comprehensive, patient-centered care model. This involves adapting to new settings of clinical practice, extending anesthesiologist intervention times, and rethinking the professional competencies that must be demonstrated by those who will practice in the near future. Therefore, we must identify our training deficiencies and start working immediately on overcoming them. The objective of this article is to reflect on the problems of the current model, the solutions proposed by the new models and the successes, difficulties, and opportunities that have been observed during its implementation.

#### Resumen

Debemos cambiar el modelo de atención perioperatoria actual y ampliar los horizontes de nuestra especialidad, porque los resultados son insatisfactorios, los sistemas sanitarios son inviables y se predice una crisis inminente. A pesar de que los aportes hechos por los anestesiólogos han mejorado la seguridad de la atención y han contribuido a incrementar la calidad y la duración de la vida de la población, se hace necesario adoptar un modelo integral, centrado en el paciente, que implica adaptarse a nuevos escenarios de práctica clínica, ampliar los tiempos de intervención del anestesiólogo y replantear las competencias profesionales que deben demostrar quienes ejercerán en un futuro próximo. Por ello, debemos identificar nuestras deficiencias formativas y empezar de inmediato a superarlas. El objetivo de este artículo es hacer una reflexión sobre los problemas del modelo actual, las soluciones propuestas por los nuevos modelos y los aciertos, dificultades y oportunidades que se han observado durante su implementación.

How to cite this article: Jaramillo Mejía J. Comprehensive patient-centered perioperative care: another step towards expanding horizons in anesthesiology. Rev Colomb Anesthesiol. 2018;46:240-245.

Read the Spanish version of this article at: <http://links.lww.com/RCA/A55>.

Copyright © 2018 Sociedad Colombiana de Anestesiología y Reanimación (S.C.A.R.E.). Published by Wolters Kluwer. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Correspondence: Cra. 15<sup>a</sup> No. 120-74, Sociedad Colombiana de Anestesiología y Reanimación (S.C.A.R.E.), Bogotá, Colombia. E-mail: [jaimejaramillom@outlook.com](mailto:jaimejaramillom@outlook.com)

Rev Colomb Anesthesiol (2018) 46:3

<http://dx.doi.org/10.1097/CJ9.0000000000000058>

## Introduction

Structural changes must be introduced in the care model currently used with patients requiring surgical treatments.<sup>1-5</sup> Proposed changes include eliminating silos, and focusing on meeting the needs of the patient, the caregivers and the community. The first of these changes requires going back to integrated health systems and adding primary and home care settings to the daily practice of the anesthesiologists.<sup>6-11</sup> The second change requires an expansion of the horizon for assessing the outcomes of perioperative care to consider long-term results.<sup>12-15</sup> Moreover, it means gaining new competencies, in particular non-technical skills<sup>16,17</sup> (assertive communication, teamwork, professional and institutional leadership, and awareness of social conditions), and systematizing the non-declarative knowledge gained so far after a century of practicing the “art of anesthesiology”.<sup>18</sup>

This means that, although many specialties in medicine tend to shrink their field of action, anesthesiology tends toward expansion.<sup>19,20</sup> Predictions regarding the development of traditional medical and surgical specialties in the near term point toward more encapsulated and deeper scientific knowledge limited to certain diseases, focused procedural skills with a high degree of interaction with technology, and concentrated competencies for highly controlled and systematized workplaces designed for the care of selected population groups.<sup>21</sup> In contrast, predictions on the future of anesthesiology point to in-depth knowledge of social sciences, optimization of non-technical competencies and non-declarative knowledge (art), expanded settings for daily practice, longer care time, and a greater number of people and situations needing our services.<sup>22-24</sup> Predictions also tell us that the areas of greatest interest for perioperative medicine in the 21st century will be complex studies with large databases on long-term outcomes, innovations in information technology and telecommunications, and advances in bioethics and health economics.<sup>25,26</sup> This is so as the most significant challenges foreseen will have to do with providing high-quality, timely, and equitable surgical care for the entire population, with increasingly limited access to specialized care and with insufficient resources. The objective of this reflection article is to describe the issues with the current model, analyze proposed solutions and the results observed during their implementation, and to point to the changes that we should begin to implement. After posing a series of questions related to this process and attempting to answer them, the conclusion is that we must ready ourselves immediately to face the changes that will surely come our way over the next decade.

### Why should we expand our horizon?

As health economics analysts tell us that the current landscape is not viable. Global spending in health doubled

over the past 2 decades, reaching 10% of the gross domestic product (GDP) at a global level, ranging between 5% in the poorest countries and 15% in the richest; at least half of health spending goes to surgical care, and 3/4 is concentrated in 10% to 20% of the total population, represented by elderly individuals with multiple comorbidities. In Colombia, health spending in 2003 accounted for 5.9% of the GDP, and the annual per capita spending in health amounted to \$156 USD; in 2012, spending represented an increase of 1% in the GDP (6.9%), but the per capita cost increased by 300% (\$476 USD); these figures are approximately 1/2 of those reported by the United States of America (mean spending amounting to 12% of the GDP and per capita spending amounting to \$1000 USD)<sup>27</sup> where forecasts are that health spending in 2030 will account for 25% to 30% of the GDP and the per capita cost will be \$9000 USD.<sup>28</sup> For this reason, they claim that the financial situation of the social security systems cannot wait the usual 50 years the scientific community has taken to adopt new trends, or the 1 or 2 decades that professionals normally take to assimilate new behaviors.<sup>29</sup> The main arguments to justify the call for an immediate change of model are the growing gap between income and expenses in the health sector, the poor results observed when comparing health services with other service sectors, the dissatisfaction voiced by users and government leaders alike, the open mistrust among the stakeholders in the system, and the recent social and bioethical transformations.<sup>30-33</sup>

### Which way ahead?

The development of perioperative medicine as a care model has resulted in a substantial improvement in the safety<sup>34</sup> and care of surgical patients, the expansion of clinical practice settings, and longer intervention times for the anesthesiologist (Table 1).<sup>35</sup> The fundamental goals of care models, such as the perioperative surgical home (PSH),<sup>36</sup> Integrated Health Care Routes (RIAS in Spanish),<sup>37,38</sup> and Enhanced Recovery After Surgery (ERAS),<sup>39</sup> are to improve individual experience with surgical care and provide comprehensive care to the patients using patient-centered care, objective scales that can help stratify biological risk, and emphasizing focus on care based on patient-related and procedure-related risks. These new patient-centered, comprehensive perioperative care models seek to respond to the concerns of the public and the disapproval of government leaders. They also seek to ensure that our work adds value to the care provided, as a result of less fragmentation, inefficiency, and ineffectiveness, the end of the practice of defensive and reactive medicine, and the promotion of the right incentives for the various stakeholders.<sup>40,41</sup> The ultimate goal is to solve the problems by helping with top-quality decision making.

In the United Kingdom, the Minister of Health received a letter signed by several presidents of professional

**Table 1. Characteristics of the practice of the specialty and the changes that have occurred over time**

| Characteristic     | Designation                |                           |   |   |
|--------------------|----------------------------|---------------------------|---|---|
|                    | Anesthesia                 | Anesthesiology            | Perioperative medicine                  | New care models   |
| Initiation of care | Start of surgery           | Preanesthetic visit       | Preoperative assessment                 | Surgical decision   |
| End of care        | End of surgery             | Discharge from PACU       | Postoperative discharge                 | Complete rehabilitation   |
| Work setting       | Operating room             | Anesthesia office         | Outpatient clinic                       | Primary center, hospital, doctor's office, operating room, home |
|                    |                            | Operating room            | Hospital                                |   |
| Client             | Surgeon                    | Hospital                  | Insurer                                 | Society   |
| Partners           | Surgeon                    | Surgeon, internist, nurse | Multidisciplinary team or professionals | Professional team, patient, family, community                   |
| Commitment         | Analgesia                  | No death                  | Timeliness                              | Outcomes  |
|                    | Amnesia                    | No complications          | Quality                                 | Satisfaction  |
|                    | Neurovegetative protection | Rapid discharge           | Efficacy                                | Quality   |
|                    | Immobility                 | Lower costs               | Equity                                  | Life  |
| Indicators         | Silence                    | Complications             | Costs-results                           | Wellbeing   |
|                    | Rest                       | Costs                     | Return to work                          | Social media  |
|                    | Survival                   | Discharge time            | Waiting time for operating room         | Work  |
| Payment            | Percentage of surgeon fees | Salary own fees           | Salary, fees packages                   | Outcomes-related salary, payment?                               |

Note: Every time horizons are expanded, the designation of the job changes. PACU: Post-anesthesia care unity. Source: Author.

associations and a report signed by the leaders of ERAS, summarizing the results observed up until 2013.<sup>1</sup> This was all that was needed to adopt ERAS care in public hospital, undertake structured training programs for its implementation, and create a national audit system to measure its impact. Government officials accepted the suggestions of the scientific societies and mandated the inclusion of some clinical tools such as preoperative and postoperative assessment protocols focused on high-risk populations, pre-habilitation programs to optimize functional capacity and improve the expected physiological reserve before the upcoming trauma, and the adoption of RIAS to attenuate organ damage caused by surgery and optimize postoperative rehabilitation.<sup>42</sup> Over the past decade, some governments of the old British empire, the “British Commonwealth of Nations,” such as Australia, Canada and New Zealand, and the countries of the Nordic Alliance (Sweden, Norway, Finland, Iceland) followed the example

of the United Kingdom and included the new patient-centered comprehensive perioperative care models as part of their public health strategies designed to impact surgical care outcomes. According to reports from government agencies of those countries and of academic groups that have participated in multicenter studies, results show gradual increases in compliance with process indicators, from 25% to 30% up to 85% to 95%, a mean reduction of 2 to 3 days in length of stay, of 30% to 40% in hospital costs, and of 50% to 75% in non-surgical complications.<sup>43–45</sup>

The same concern exists in the United States of America, although the solution has been slower to come. In 2007, the National Surgical Quality Improvement Program (NSQIP) of the American College of Surgeons, based on data analysis of the process and the results, showed improvement in quality, as well as reduced morbidity, mortality, and costs. Moreover, a retrospective

study carried out by NSQIP the following year concluded that creating a work team for the operating room staff was associated with improved results. In 2008, the National Institute of Medicine proposed a partnership between the public and the private sector with the aim of achieving 3 objectives: improve the experience of care, improve the health of the populations, and reduce per capita healthcare costs. In 2011, the assembly of the American Society of Anesthesiologists gave its approval for the promotion of the PSH perioperative medicine model, which resulted in a large number of publications in the American journals on the application of that model. Today, the health crisis in that country is so serious, that Klein actually compared it to an off-shore oil rig on fire, when there is no time for thinking or making adjustments and the only thing left to do is to jump into the water to save your life.<sup>46</sup>

In Latin America, there is no reliable information to determine with any certainty whether our current situation and our future outlook are similar, but demographic, economic, and epidemiological data show similarity with global trends. In fact, diagnostics regarding the situation of the health sector, carried out by the Colombian government, are consistent with the findings of the UK National Health Institute in the early 21st century, and the solutions set forth in the reform to the national health system, reflected in the most recent decrees passed by this administration, include the adoption of RIAS (Comprehensive Healthcare Pathways), patient-centered care, task forces for the integration of primary care with specialized levels, measurement of process and outcome indicators, and the payment of outcomes-based incentives. Prestigious hospitals in Mexico, Brazil, Argentina, and Colombia have adopted the ERAS care model with small groups of patients and follow-up periods of 6 to 12 months;<sup>47,48</sup> according to initial reports, they had to overcome administrative and cultural hurdles similar to those found in Europe and found the same benefits in terms of shorter lengths of stay and less postoperative complications.

### *Can the new goal be achieved?*

Despite government support, the commitment of the scientific societies and the admonitions of the experts, multiple barriers have come in the way of the implementation of the proposed changes for perioperative medicine models, with all the parties involved in surgical care arguing their own reasons to oppose the new model.<sup>49</sup> Surgeons are suspicious of a multidisciplinary model as they fear losing control over patient management and having to share their fees. Anesthetists see it as an extension of the responsibilities of their regular job, with no clear-cut notion of what they will receive in exchange for playing a non-traditional role. For the entire team, the change means leaving the comfort of the operating theater

as their natural work environment and moving into the patient's own natural environment, that is, the home and the workplace. Payers have been very stringent when it comes to incorporating new codes for authorizing procedures under the comprehensive perioperative care model and outcomes-based incentives, as their usual response to a decision that does not fill their expectations regarding costs is to deny service access. At a managerial and administrative level, hospital directors are also fearful due to the high cost of the technology and the implementation, the lack of leadership and failure to involve physicians, and due also to the responsibility of maintaining process changes throughout time.

However, it has been found that the best way to drive motivation for change is to start implementation and observe the results, and that the resources required to finance change may come from the savings created by the new model.<sup>50</sup>

### **Conclusion**

Contrary to the historical trend of halting innovation implementation until safety and efficacy had been proven, government decision-makers are now open to receive suggestions and act immediately to transform them into regulations and decrees, and administrators are willing to try new models. These points to the criticality of the situation they are facing. Consequently, it is incumbent upon us to begin to gain new knowledge and build the skills required to incorporate comprehensive perioperative care in our daily practice without delay. This is so as we will surely soon be faced with the need to work in new settings in which we will come in as novices, as is the case with primary care in the community and with home care. As anesthetists, we have to reflect on those things we need to change inside ourselves and be honest in identifying our failures and ways to overcome them.

### **Funding**

No funding sources were required for the preparation of this document.

### **Ethical considerations**

No diagnostic or therapeutic interventions were performed and the author did not receive any form of benefit or financial compensation. Consequently, this article may be classified as "not having ethical risk" and does not require informed consent or approval from an institutional ethics committee.

### **Conflict of interest**

The author is a specialized medical advisor for the Fondo Solidario Para Auxilio en Caso de Demandas-FEPASDE,

and an external advisor for the Scientific Subdirection at Sociedad Colombiana de Anestesiología y Reanimación (S.C.A.R.E.).

## References

- National Health Service (UK) Improvement Enhanced recovery partnership programme – fulfilling the potential: a better journey for patients and a better deal for the NHS. 2012; National Health Service (UK) Improvement, Leicester; [Consulted 2017 Nov 29]. Available at: <http://www.qihub.scot.nhs.uk/media/582955/nhs%20improving%20quality%20in%20collaboration%20with%20nhs%20england%20-%20enhanced%20recovery%20care%20pathway%20publication.pdf>.
- Arend J, Tsang-Quinn J, Levine C, et al. The patient centered medical home: history, components, and review of the evidence. *Mt Sinai J Med* 2012;79:433–450.
- Committee on Quality Health Care in America, Institute of Medicine Crossing the quality chasm: a new health system for the 21st century. 2001; National Academy Press, Washington; [Consulted 2017 Nov 29]. Available at: <https://www.nap.edu/catalog/10027/crossing-the-quality-chasm-a-new-health-system-for-the>.
- Jammer IB, Wickboldt N, Sander M, et al. Standards for definitions and use of outcome measures for clinical effectiveness research in perioperative medicine: European Perioperative Clinical Outcome (EPCO) definitions. *Eur J Anaesthesiol* 2014;32:88–105.
- Lee A, Kerridge RK, Chui PT, et al. Perioperative systems as a quality model of perioperative medicine and surgical care. *Health Policy* 2011;102:214–222.
- Vollmer CM, Pratt W, Vanounou T, et al. Quality assessment in high-acuity surgery: volume and mortality are not enough. *Arch Surg* 2007;142:371–380.
- Kehlet H, Mythen M. Why is the surgical high-risk patient still at risk? *Br J Anaesth* 2011;106:289–291.
- Lee CN, Ko CY. Beyond outcomes. The appropriateness of surgical care. *JAMA* 2009;302:1580–1581.
- Williams J. A new road map for healthcare business success. *Healthc Financ Manage* 2011;65:62–69.
- Bohmer RMJ. Fixing health care on the front lines. *Harv Bus Rev* 2010;88:62–69.
- Bohmer RM. The four habits of high-value health care organizations. *N Engl J Med* 2011;365:2045–2047.
- Silber JH, Kennedy SK, Even-Shoshan O, et al. Anesthesiologist direction and patient outcomes. *Anesthesiology* 2000;93:152–163.
- Sessler DI. Long-term consequences of anesthetic management. *Anesthesiology* 2009;111:1–4.
- Heidegger T, Saal D, Nubling M. Patient satisfaction with anaesthesia – Part 1: Satisfaction as part of outcome – and what satisfies patients. *Anaesthesia* 2013;68:1165–1172.
- Smith A. In search of excellence in anesthesiology. *Anesthesiology* 2009;110:4–5.
- Smith AF, Glavin R, Greaves JD. Defining excellence in anaesthesia: the role of personal qualities and practice environment. *Br J Anaesth* 2011;106:38–43.
- Glavin RJ. Excellence in anesthesiology. The role of nontechnical skills. *Anesthesiology* 2009;110:201–203.
- Larsson J. Studying tacit knowledge in anesthesiology. A role for qualitative research. *Anesthesiology* 2009;110:443–444.
- Cannesson M, Ani F, Mythen MM, et al. Anesthesiology and perioperative medicine around the world: different names, same goals. *Br J Anaesth* 2015;114:8–9.
- Bowyer A, Jakobsson J, Ljungqvist O, et al. A review of the scope and measurement of postoperative quality of recovery. *Anaesthesia* 2014;69:1266–1278.
- Weston AD, Hood L. Systems biology, proteomics, and the future of health care: toward predictive, preventative, and personalised medicine. *J Proteome Res* 2004;3:179–196.
- Avidan MS, Evers AS, Longnecker DE, Brown DL, Newman MF, et al. The scope and future of anesthesia practice. In principles and practice of anesthesiology. Anesthesiology McGraw-Hill, New York:2008;12–19.
- Tetzlaff JE. Professionalism in anesthesiology “What Is It?” or “I Know It When I See It”. *Anesthesiology* 2009;110:700–702.
- Lindahl SG. Future anesthesiologist will be as much outside as inside operating theaters. *Acta Anaesthesiol Scand* 2000;44:906–909.
- Prielipp RC, Morell RC, Coursin DB, et al. The future of anesthesiology: should the perioperative surgical home redefine us? *Anesth Analg* 2015;120:1142–1148.
- Rock P. The future of anesthesiology is perioperative medicine. *Anesthesiol Clin* 2000;18:495–513.
- Suzuki E. Atención quirúrgica: un servicio que se subvalora en los sistemas de salud. Datos de libre acceso. Página WEB. [Cited 2017 Dic 19]. Available at: <https://datos.bancomundial.org/>.
- Sisko AM, Truffer CJ, Keehan SP, et al. National health spending projections: the estimated impact of reform through. *Health Aff* 2010;29:1933–1941.
- Lee TH, Cosgrove T. Engaging doctors in the health care revolution. *Harv Bus Rev* 2014;92:104–111.
- Department of Health The NHS quality, innovation, productivity and preventions challenge: an introduction for clinicians. 2010; Department of Health, London; [Consulted 2017 Nov 29]. Available at: [http://webarchive.nationalarchives.gov.uk/20130124054011/http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/@ps/documents/digitalasset/dh\\_113807.pdf](http://webarchive.nationalarchives.gov.uk/20130124054011/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_113807.pdf).
- Findlay G, Goodwin A, Protopappa K, et al. Knowing the risk: a review of the peri-operative care of surgical patients. 2011; National Confidential Enquiry into Patient Outcome and Death, London; [Consulted 2017 Nov 29]. Available at: [http://www.ncepod.org.uk/2011report2/downloads/POC\\_fullreport.pdf](http://www.ncepod.org.uk/2011report2/downloads/POC_fullreport.pdf).
- Kwok AC, Semel ME, Lipsitz SR, et al. The intensity and variation of surgical care at the end of life: a retrospective cohort study. *Lancet* 2011;378:1408–1413. [Consulted 2017 Nov 29]. Available at: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(11\)61268-3/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(11)61268-3/fulltext).
- Williamson C. Towards the emancipation of patients: patients' experiences and the patient movement. E-Book. 2010; Policy Press, Bristol; [Consulted 2017 Nov 29]. Available at: [http://opacperpus.jogjakota.go.id/digilib\\_2015/files/previews/99606d143736b551d5fc77432025467b.pdf](http://opacperpus.jogjakota.go.id/digilib_2015/files/previews/99606d143736b551d5fc77432025467b.pdf).
- Gaba DM. Anaesthesiology as a model for patient safety in health care. *BMJ* 2000;320:785–788.
- Newman MF, Mathew JP, Aronson S. The evolution of anesthesiology and perioperative medicine. *Anesthesiology* 2013;118:1005–1007.
- American Society of Anesthesiologists. Perioperative surgical home. Pagina WEB. [Cited 2017 Nov 29]. Available at: <https://www.asahq.org/ps>.
- Payne PR, Marsh CB. Towards a “4I” approach to personalised healthcare. *Clin Transl Med* 2012;1:14.
- Napolitano LM. Standardization of perioperative management: clinical pathways. *Surg Clin North Am* 2005;85:1321–1327.
- Gustafsson UO, Scott MJ, Schwenk W, et al. Guidelines for perioperative care in elective colonic surgery: enhanced recovery after surgery (ERAS<sup>®</sup>) society recommendations. *World J Surg* 2013;37:259–284.
- Vetter TR, Goeddel LA, Boudreaux AM, et al. The perioperative surgical home: how can it make the case so everyone wins? *BMC Anesthesiol* 2013;13:2–11.
- Fleisher LA. Improving perioperative outcomes: my journey into risk, patient preferences, guidelines, and performance measures: ninth honorary FAER research lecture. *Anesthesiology* 2010;112:794–801.
- Anaesthesia Perioperative Care Network and Surgical Services Taskforce Perioperative Toolkit. 2016; Anaesthesia Perioperative Care Network and Surgical Services Taskforce, Sydney; [Consulted 2017 Nov 29]. Available at: [https://www.aci.health.nsw.gov.au/\\_data/assets/pdf\\_file/0010/342685/The\\_Periooperative\\_Toolkit.pdf](https://www.aci.health.nsw.gov.au/_data/assets/pdf_file/0010/342685/The_Periooperative_Toolkit.pdf).
- Saunders DI, Murray D, Pichel AC, et al. Variations in mortality after emergency laparotomy: the first report of the UK Emergency Laparotomy Network. *Br J Anaesth* 2012;109:368–375.
- Greco M, Capretti G, Beretta L, et al. Enhanced recovery program in colorectal surgery: a meta-analysis of randomized controlled trials. *World J Surg* 2014;38:1531–1541.

45. Kash BA, Zhang Y, Cline KM, et al. The Perioperative Surgical Home (PSH): a comprehensive review of us and non-us studies shows predominantly positive quality and cost outcomes. *Milbank Q* 2014;92:796–821.
46. Warner MA, Apfelbaum JL. The perioperative surgical home: a response to a presumed burning platform or a thoughtful expansion of anesthesiology? *Anesth Analg* 2015;120:1149–1151.
47. Velázquez J, Vargas M. Avances en la implementación del protocolo ERAS/ACERTO en Latinoamérica. [Cited 2017 Dic 19]. Available at: [http://www.utmn.com.ve/pdf/eras\\_acerto\\_latinoamerica.pdf](http://www.utmn.com.ve/pdf/eras_acerto_latinoamerica.pdf).
48. Zarate E. Medicina perioperatoria ¿es hora del cambio? Acercándonos al paciente ERAS en la Clínica Reina Sofía. Conferencia. abril 06 de 2016. [Cited 2017 Dic 19]. Available at: <http://www.anestesiaweb2.com/detalle-video.php?IDVideo=346>.
49. Butterworth JF, Green JA. The anesthesiologist-directed perioperative surgical home: a great idea that will succeed only if it is embraced by hospital administrators and surgeons. *Anesth Analg* 2014;118:896–897.
50. Dexter F, Wachtel RE. Strategies for net cost reductions with the expanded role and expertise of anesthesiologists in the perioperative surgical home. *Anesth Analg* 2014;118:1062–1071.