

Creation of the Anesthesia Research Council

Deborah J. Culley, MD,* Max B. Kelz, MD, PhD,† Colleen G. Koch, MD, MS, MBA, FACC,‡
James C. Eisenach, MD,§ Mark D. Neuman, MD,† Elizabeth L. Whitlock, MD, MS,||
Rose Marie Robertson, MD, FAHA,¶ Thomas Cooper, EJD,# and Paul Pomerantz, FACHE**

GLOSSARY

ARC = Anesthesia Research Council; **ARMA** = Association of Research Managers and Administrators; **ASA** = The American Society of Anesthesiologists; **AUA** = Association of University Anesthesiologists; **CEO** = Chief Executive Officer; **COI** = conflicts of interest; **COVID-19** = coronavirus disease 2019; **eSAS** = early-Stage Anesthesia Scholars; **FAER** = Foundation for Anesthesia Education and Research; **FDA** = Food and Drug Administration; **IARS** = International Anesthesia Research Society; **NASEM** = National Academies of Sciences, Engineering, and Medicine; **NIH** = National Institutes of Health; **SAAAPM** = Society of Academic Associations of Anesthesiology & Perioperative Medicine

Would it not be nice if people and organizations could work together to solve the important problems we face today? Easier said than done. This editorial presents a concrete example of how this is happening in our specialty. We are actively working to address the ongoing decline in scientific research in anesthesiology—a decline impacting what was already a specialty toward the bottom of peer-reviewed funding, relative to specialty size.¹ Numerous editorials have been written about the deterioration in fundamental and applied research in anesthesiology over the past 2 decades. The overarching concern is that anesthesiology cannot continue as a viable medical specialty without a vibrant research component that advances science and innovation to improve the care of our patients.

Various suggestions have been made about how to transition to a more progressively research-oriented specialty, but until now no formal action has been taken. The American Society of Anesthesiologists (ASA), International Anesthesia Research Society (IARS),

Association of University Anesthesiologists (AUA), Foundation for Anesthesia Education and Research (FAER), early-Stage Anesthesia Scholars (eSAS), and several other groups have championed the promotion of anesthesiology research, but there has been only modest cooperation and communication among them. As a result, there has been a paucity in unified leadership to speak and advocate for the specialty on the unique challenges related to research in anesthesiology or to more broadly develop paths forward. Addressing this evolving dilemma will require a unified response from the leading societies in our specialty.

Because addressing this ongoing deterioration will require a unified response from the leading societies in our specialty, in 2016, Daniel Cole, MD, then President of the ASA and Alex Evers, MD, then Chair of the IARS Board of Trustees, brought together research and executive leaders from the ASA, AUA, FAER, and the IARS for a 2-day summit to discuss critical areas of research for the future of the specialty. The summit was remarkably successful in establishing a new appreciation among the attendees that these organizations were truly interested in working together for scientific discovery at a time when it was urgently needed. Many ideas were discussed, but it became clear that it would be difficult to achieve concrete consensus recommendations from a single meeting. This summit was fundamentally a success in that it generated the concept of a unified research mission and changed attitudes about working collectively together but was without a tangible result.

Shortly after this summit, Thomas Cooper, EJD, Executive Director of the IARS, and Paul Pomerantz, Chief Executive Officer (CEO) of the ASA, began discussing next steps and identified opportunities to bring the entire specialty together to advance appreciation and support for scientific discovery as an underpinning of the specialty. In 2018, they brought James C. Eisenach, MD, President and CEO of FAER,

From the *Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts; †Department of Anesthesiology and Critical Care, Perelman School of Medicine University of Pennsylvania, Philadelphia, Pennsylvania; ‡Department of Anesthesiology and Critical Care Medicine, John Hopkins Medicine, Baltimore, Maryland; §Department of Anesthesiology, Wake Forest School of Medicine, Winston-Salem, North Carolina; ||Department of Anesthesia and Perioperative Care, University of California, San Francisco, San Francisco, California; ¶American Heart Association, Dallas, Texas; #International Anesthesia Research Society; and **American Society of Anesthesiologists.

Accepted for publication April 28, 2020.

Funding: The Anesthesia Research Council is funded by the American Society of Anesthesiologists, the Foundation for Anesthesia Education and Research, and the International Anesthesia Research Society. They provided meeting and administrative support for the creation of this editorial.

Conflicts of Interest: See Disclosures at the end of the article.

Reprints will not be available from the authors.

Address correspondence to Deborah J. Culley, MD, Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital, 75 Francis St, Boston, MA 02115. Address e-mail to dculley@bwh.harvard.edu.

Copyright © 2020 International Anesthesia Research Society

DOI: 10.1213/ANE.0000000000004976

into these discussions, and together they organized a meeting of executive leaders of each organization (Table 1) during the Annual Meeting of the American Society of Anesthesiologists. There was rapid agreement that the problem was important and that there were many opportunities for collaboration in support, advocacy, and education related to research.

Based on the enthusiasm generated by the 2016 research summit, the leaders established long-term research goals, objectives, and processes designed to generate successful research summits, to advance research activities within the specialty, and to disseminate knowledge among anesthesiologists. The leaders of the 3 organizations tasked Drs Deborah Culley, James Eisenach, and Colleen Koch with moving this effort forward. Through multiple meetings—including a face-to-face meeting in Baltimore, Maryland—in early 2019, they developed a charter for the effort aided by the assistance of Anne-Marie Mazza, Senior

Director, Committee on Science, Technology and Law at the National Academies of Sciences, Engineering, and Medicine (NASEM), who shared how the main science policy operating arm of NASEM, the National Research Council, approaches this process.

The group adopted, with some modifications, the processes used by the National Research Council under the title Anesthesia Research Council (ARC) (processes in Figure 1). The mission is to advance scientific discovery and health care policy through the development and dissemination of research in anesthesiology, perioperative, and pain medicine. The vision of the ARC is to be the go-to resource for state-of-the-art review, synthesis, and future recommendations in Anesthesiology, Perioperative Medicine, Critical Care, and Pain Medicine research. Over the next few months, the administrative structure and processes for ARC were sketched out, and a meeting was organized in the summer of 2019 to gather broader input.

Table 1. Executive Leaders Attending the Inaugural Meeting for the Development of the ARC

Organization	Invited Representatives	Role
IARS	Emery Brown, MD, PhD	Chair-Elect, IARS Board of Trustees
	Thomas Cooper, EJD	Executive Director, IARS
	Keith A. (Tony) Jones, MD	Chair, IARS Research Committee
FAER	Colleen Koch, MD, MS, MBA, FACC	Chair, IARS Board of Trustees
	Daniel L. Cole, MD, FASA	ASA Past President; Member, FAER Board of Directors
	James C. Eisenach, MD	President and CEO, FAER
ASA	Harriet W. Hopf, MD, FASA	Member, FAER Board of Directors
	Paloma Toledo, MD, MPH	Chair, FAER Board of Directors
	Deborah Culley, MD	Chair, ASA Committee on Academic Anesthesiology
	Linda Mason, MD, FASA	President-Elect, ASA
	Mary Dale Peterson, MD, MHA, FASA	First Vice President, ASA
	Paul Pomerantz	CEO, ASA

Abbreviations: ARC, Anesthesia Research Council; ASA, American Society of Anesthesiologists; CEO, Chief Executive Officer; FAER, Foundation for Anesthesia Education and Research; IARS, International Anesthesia Research Society.

Research Topic Selection and Approval Process

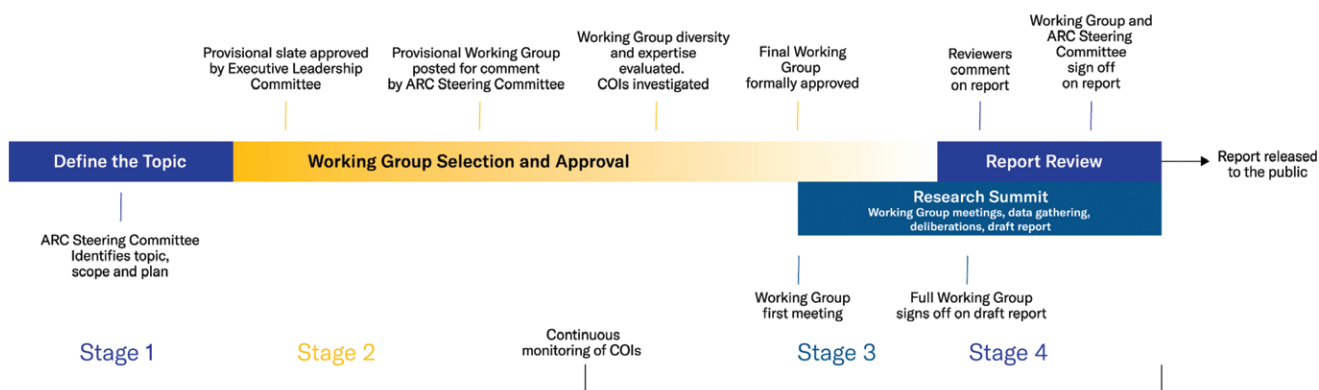


Figure 1. Research topic selection and approval process. The ARC Steering Committee, with input from multiple stakeholders, selects a topic annually, defines the Statement of Task to the Working Group for that topic, recruits members of the Working Group, reviews conflict of interest information, finalizes the Working Group, and is responsible for revisions and external peer review of the report. The Working Group, comprised experts and affected parties in the topic, meets, identifies information needed to address the Statement of Task, convenes an annual summit of a diverse group of experts and parties affected by the topic to review and discuss the provisional report, creates a draft report for peer review, and revises the report as necessary for final approval by the ARC Steering Committee. The process is envisioned to take 12–15 mo. Public release of the report occurs in several manners, including publication in medical journals, posting on organization Websites, digital sharing, and for use by ARC Steering Committee small groups meeting with federal and local decision makers. ARC indicates Anesthesia Research Council; COI, conflicts of interest.

In July 2019, the task force met with approximately 20 individual leaders and representatives from organizations, which are primarily focused on research, to get their perspectives on this plan. Young investigators from eSAS also participated to provide representation from the future scientists and leaders of our specialty. Attendees (Table 2) were asked (1) to evaluate the proposed mission and vision statements and (2) to consider several specific questions relating to the organizational framework for creating a process to define the goals of ARC, generate ideas for important research topics to be considered, create timelines for generating enduring products and presentations, to ensure diverse points of views, and generate ways to increase the development and advancement of underrepresented groups in anesthesiology-related research.

Attendees noted several opportunities for improvement in the anesthesiology research arena. These opportunities include inadequate funding for research; a lack of recognition of and appreciation for the contributions anesthesiologists have made to medicine as a whole; insufficient institutional support for research and the development of physician scientists; difficulties in sustaining a culture of inquiry and problem-solving in a specialty constrained by financial imperatives; and the important role research plays in the future of the specialty and advancing anesthesiology practice—including the development of new drugs.

Perhaps more importantly, there were 3 major themes that the group believed the ARC should pursue in support of anesthesia research.

- First was the need to communicate our value to Congress, the National Institutes of Health (NIH), government regulators, other external funders, and academic leaders and institutions through the dissemination of white papers, publications, and advocacy.
- Second was the need to strengthen the research environment in anesthesiology by investigating characteristics of successful academic anesthesia research departments; fostering collaborations; conducting “boot camps” for institutional leaders and the next generation of physician scientists so that they know how to create and sustain a viable research department; and identifying characteristics from successful FAER and IARS grant awardees that can be replicated in other departments and the need to draw on our own resources such as the AUA and FAER Academy of Mentors.
- Third was the need to engage stakeholders both within and outside anesthesiology investigators, clinicians, patients, and physician colleagues to identify common themes where research is needed and topics to focus on. As a part of this third theme, it was posited that the ARC should be a place where stakeholders can come to get answers to scientific questions that can then be used in advocacy efforts by the ASA. The major concern was some uncertainty that the proposed National Research Council-like effort was too complex and that we should begin a pan-specialty collaboration with something simpler.

The task force provided a budget and 3-year proposal for ARC to the Boards of ASA, FAER, and the IARS, and this was approved by all organizations by the end of 2019. ARC activities are currently overseen by a Steering Committee, chaired by Max Kelz, MD, PhD (Table 3). The Steering Committee is responsible for choosing the annual topic to be addressed and generating a series of concrete questions (ie,

Table 2. 2019 Research Collaborative Summit Attendees

Daniel L. Cole, MD
Tom Cooper, IARS Executive Director
Deborah Culley, MD
James C. Eisenach, MD
Lee Fleisher, MD
Julie Freed, MD, PhD
Sandra Gordon
Harriet Hopf, MD, FAS
Keith (A.) Tony Jones, MD
Max Kelz, MD, PhD
Evan Kharasch, MD, PhD
Jeffrey Kirsch, MD
Colleen Koch, MD, MS, MBA, FACC
Mark D. Neuman, MD
Mary Dale Peterson, MD, FASA
Jean-Francois Pittet, MD
Paul Pomerantz, ASA CEO
Y. Prakash, MD, PhD
Daniel I. Sessler, MD
Vivianne Tawfik, MD, PhD
Paloma Toledo, MD, MPH
Miriam Treggiari, MD, PhD, MPH
Mark Warner, MD
Elizabeth L. Whitlock, MD, MS

Abbreviations: ASA, American Society of Anesthesiologists; CEO, Chief Executive Officer; IARS, International Anesthesia Research Society.

Table 3. Steering Committee Members

Max Kelz, MD, PhD, Chair
University of Pennsylvania
Colleen Koch, MD, MS, MBA, FACC
John Hopkins University
James C. Eisenach, MD
Wake Forest University
Deborah Culley, MD
Brigham and Women's Hospital
Mark D. Neuman, MD
University of Pennsylvania
Elizabeth Whitlock, MD, MS
University of California, San Francisco
Rose Marie Robertson, MD, FAHA
American Heart Association
Anne-Marie Mazza (Advisor)
The National Academies of Sciences, Engineering & Medicine

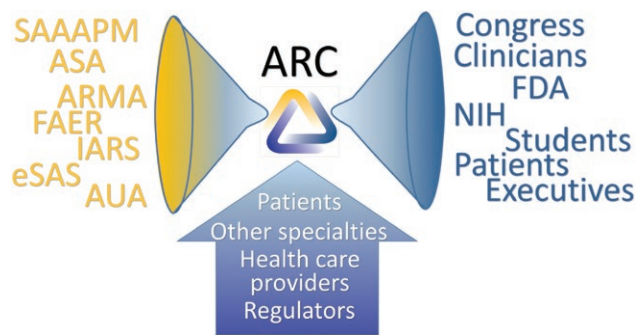


Figure 2. ARC input and output. ARC will seek input from many organizations involved in research in the specialty (left), including ARMA, ASA, AUA, eSAS, FAER, IARS, and SAAAPM, to define the annual topic, participate in working groups, and assisting in review. The annual working group within ARC receives input needed to address the Statement of Task from these and other groups (below), including patients, physicians from other medical specialties, health care providers, and regulators. The final products from the working group are used by others to communicate research challenges and findings critical to advancing care of patients to the many groups (right) affected by these challenges and those able to support research to address these challenges. ARC indicates Anesthesia Research Council; ARMA, Association of Research Managers and Administrators; ASA, American Society of Anesthesiologists; AUA, Association of University Anesthesiologists; eSAS, early-Stage Anesthesia Scholars; FAER, Foundation for Anesthesia Education and Research; FDA, Food and Drug Administration; IARS, International Anesthesia Research Society; NIH, National Institutes of Health; SAAAPM, Society of Academic Associations of Anesthesiology & Perioperative Medicine.

the Statement of Task) to be addressed in a written report. The Committee also identifies and recruits a working group of 5–6 people responsible for generating the report. As part of their effort, the working group is tasked with inviting diverse stakeholders to a research summit in the summer to provide input on the Statement of Task questions and the preliminary draft of the report. The working group report would be submitted to the Steering Committee in September, undergo external peer review, and be approved in October of the same year, completing the 12-month cycle shown in Figure 1. The topic begun for the 2020 report is “Strengthening the Research Environment: Addressing the ‘Pipeline’ of Researchers,” and the working group is being chaired by Charles W. Emala, MD. Due to delays from the coronavirus disease 2019 (COVID-19) pandemic, this effort will be completed in 2021.

We believe that this 3-year pilot will evolve into an enduring structure and process, supported by ASA, FAER, and the IARS. It will thus enable the constituent organizations to advance anesthesiology research in a collaborative manner through critical appraisal of high-priority research topics by addressing a declining research infrastructure; by educating

ourselves, funding agencies, and our patients on the value of the research in our specialty and subspecialties; and through the development of research leadership within the medical community. The proposed process includes input from the specialty and other, external stakeholders to affect change (Figure 2). There is indeed a myriad of groups in our specialty, but to advance research, we believe that the acronym ARC is truly fitting as it forms an arc across multiple stakeholders toward a more productive and brighter future. ■■

DISCLOSURES

Name: Deborah J. Culley, MD.

Contribution: This author helped prepare the original draft of the manuscript, review the revisions, and edit and finalize the manuscript.

Conflicts of Interest: None.

Name: Max B. Kelz, MD, PhD.

Contribution: This author helped review the original draft of the manuscript and edit and finalize the manuscript.

Conflicts of Interest: None.

Name: Colleen G. Koch, MD, MS, MBA, FACC.

Contribution: This author helped review the original draft of the manuscript and edit and finalize the manuscript.

Conflicts of Interest: None.

Name: James C. Eisenach, MD.

Contribution: This author helped review the original draft of the manuscript and edit and finalize the manuscript.

Conflicts of Interest: J. C. Eisenach is a President and Chief Executive Officer of the Foundation for Anesthesia Education and Research

Name: Mark D. Neuman, MD.

Contribution: This author helped review the original draft of the manuscript and edit and finalize the manuscript.

Conflicts of Interest: None.

Name: Elizabeth L. Whitlock, MD, MS.

Contribution: This author helped review the original draft of the manuscript and edit and finalize the manuscript.

Conflicts of Interest: None.

Name: Rose Marie Robertson, MD, FAHA.

Contribution: This author helped review the original draft of the manuscript and edit and finalize the manuscript.

Conflicts of Interest: None.

Name: Thomas Cooper, EJD.

Contribution: This author helped review the original draft of the manuscript and edit and finalize the manuscript.

Conflicts of Interest: T. Cooper is an Executive Director of the International Anesthesia Research Society.

Name: Paul Pomerantz, FACHE.

Contribution: This author helped review the original draft of the manuscript and edit and finalize the manuscript.

Conflicts of Interest: P. Pomerantz is a Chief Executive Officer of the American Society of Anesthesiologists.

This manuscript was handled by: Jean-Francois Pittet, MD.

REFERENCES

- Chandrakantan A, Adler AC, Stayer S, Roth S. National Institutes of Health-funded anesthesiology research and anesthesiology physician-scientists: trends, promises, and concerns. *Anesth Analg*. 2019;129:1761–1766.