1. General Questions

Board (s):
American Board of Anesthesiology

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1 - Please provide the name of the proposed new or modified certification:
Adult Cardiac Anesthesiology Subspecialty Certification

2a - Please select the type of certificate (Specialty/Subspecialty)
Subspecialty

2b - Is this application a modification of an existing certificate?
No

2c - Are multiple Boards requesting this certification?
No

2. Purpose, Status, and Need
3 - Briefly state the purpose of the proposed certification:

The purpose for establishing a new board subspecialty certification is to advance the highest standards of the practice of adult cardiac anesthesiology towards excellence in patient care. Board certification demonstrates, to the public and other healthcare providers, a physician's expertise and commitment to consistently superior clinical outcomes in patient care. The subspecialty of Adult Cardiac Anesthesiology has developed because of the unique physiologic challenges, technologic developments, and collaborative approaches in patient care with surgeons, cardiologists and other proceduralists, together required for successful outcomes and continuing process improvement. Patients presenting for cardiac surgery typically have advanced cardiac disease, which creates complex physiologic conditions that are optimally managed by an anesthesiologist who has advanced understanding and experience managing this physiology and the associated anesthetic implications, experience and understanding beyond core residency training and general anesthesiology practice. Through education, training or clinical experience during their practice careers, these anesthesiologists commonly prevent, treat, and rescue patients from hemodynamic perturbations that are potentially life threatening due to these conditions themselves, or the procedural interventions aimed to correct the aberrant physiology.

Subspecialty certification would improve standardization of curricula and consistency of cardiac anesthesiology fellowship training, and result in better definition of the cardiac anesthesiology scope of practice. As a new subspecialty certificate, it will further accelerate improvements and innovation in the training of future subspecialists in cardiac anesthesiology and improve the anesthetic and perioperative or peri-procedural care of adult patients undergoing cardiac procedures as well as other surgical, diagnostic, or therapeutic procedures that may involve cardiopulmonary bypass, mechanical circulatory assistance, and/or transcutaneous structural heart interventions.

The significant collaboration among cardiac anesthesiologists, cardiac surgeons, cardiac surgical intensivists, and cardiologists in their shared missions of patient care, research, and education, will be enhanced through providing similar subspecialty certification for specially qualified anesthesiologists in this subspecialty.

4a - Describe how the existence of a body of scientific medical knowledge underlying the proposed area of certification is in large part distinct from, or more detailed than other areas in which certification is offered:

The subspecialty of cardiac anesthesiology is based upon a distinct and growing body of scientific medical knowledge as evidenced by textbooks, scientific medical journals, journal articles, monographs, and scientific consensus statements (Appendix A). The growth of this body of knowledge pertaining to cardiac anesthesiology has paralleled the growth of the subspecialty.

Several textbooks are dedicated to the specialty of cardiac anesthesia. Notables are:

- The first definitive multi-authored textbook devoted to the field of cardiothoracic anesthesiology was edited by Joel Kaplan in 1979. Seven editions of Kaplan's Cardiac Anesthesia: For Cardiac and Non-cardiac surgery (7th edition 2017) have been published since 1979, along with two condensed paperback versions, Kaplan's Essentials of Cardiac Anesthesia for Cardiac Surgery (2nd edition 2018), and Kaplan's Essentials of Cardiac Anesthesia for Non-Cardiac Surgery (1st edition 2019).


The body of scientific medical knowledge representing the subspecialty of cardiac anesthesiology is diverse and overlaps, to some extent, other medical specialties and subspecialties including cardiothoracic surgery, cardiology, echocardiography, vascular surgery, pediatrics, pediatric cardiology, critical care medicine, and pulmonology. As perioperative echocardiography represents an important part of the curriculum of cardiac anesthesia training, several textbooks have been published on perioperative transesophageal echocardiography, written and referenced primarily by cardiac anesthesiologists. Notable textbooks include:


- Comprehensive Textbook of Perioperative Transesophageal Echocardiography, by Aronson, Savage, Sherman,
Several journals are dedicated to the specialty of cardiac anesthesiology.

- Anesthesia & Analgesia is the official journal of the Society of Cardiovascular Anesthesiologists. The cardiac anesthesia section was one of the first subspecialty sections and continues to be an important subspecialty section of Anesthesia & Analgesia. There have been over 2000 papers (which have been cited more than 18,000 times) published in the journal over the past 5 years, more than 200 of these papers were dedicated solely to the practice of cardiac anesthesiology and were cited more than 1900 times.

- The Journal of Cardiothoracic and Vascular Anesthesia was first published in 1987. The journal has accepted 536 manuscripts in the past 24 months and has a print circulation of 347 in 2019. In the past 12 months, the journal's website had 245,939 visits, and has 2,124 followers on Twitter (@JCVAonline).

- Seminars of Cardiothoracic and Vascular Anesthesia is a quarterly journal established in 1997, also dedicated to the field of cardiac anesthesia. The journal's homepage experienced 14,191 visits during the past two years, with 24,060 full text downloads by mid-2019, and has an average of 93 citations per year.

Other journals dedicated to the subspecialty of cardiac anesthesia are The Journal of Cardiothoracic Anesthesia and Annals of Cardiac Anaesthesia.

Cardiac anesthesiologists, members of the SCA, serve on the editorial boards of Anesthesia & Analgesia, Perfusion, The Annals of Thoracic Surgery, The Journal of Thoracic and Cardiovascular Surgery, and The Journal of the American Society of Echocardiography to review and edit scientific content related to cardiac anesthesia published within these journals.

Medical textbooks in print, the scientific medical literature, national medical societies, the anesthesia community, accreditation councils, and citation trends all indicate that the subspecialty of cardiac anesthesia has developed a unique and distinct body of scientific and clinical medical knowledge that continues to grow rapidly.
The need for specialized care in cardiac anesthesiology has been driven in the past decade by several factors including the overall shift in the health characteristics of the population, and accelerated developments in technology.

Changing characteristics of the population. According to the National Health and Nutrition Examination Survey (NHANES) 2013 to 2016 data, the prevalence of cardiovascular disease (including congenital heart disease, heart failure, stroke, and hypertension) in adults ≥20 years of age is 48.0% (121.5 million in 2016) and increases with advancing age in both men and women.

Among patients with cardiovascular disease, those with heart failure and those with adult congenital heart disease present unique clinical challenges to anesthesiologists and require specialized care. Between 2013 and 2016, the NHANES data estimated that 6.2 million American adults ≥20 years of age had heart failure as compared to the time period between 2009 and 2012 when it was an estimated 5.7 million. Furthermore, the general trend of improved outcome and survival among patients with congenital heart disease has led to expansion of this adult population.

Advancements in technology. Mechanical circulatory support (MCS) is an alternative treatment for patients who are not transplant candidates or who are rapidly deteriorating before a suitable donor organ is identified. The 8th Interagency Registry for Mechanically Assisted Circulatory Support (INTERMACS) database report reveals that between June 23, 2006 and December 31, 2016, 22,866 patients received an FDA-approved MCS. Because of increasingly favorable outcomes, MCS devices are emerging as standard of care in selected groups of patients. Their placement has become an increasingly common surgical procedure in cardiac operating rooms. Moreover, most of these patients supported by MCS devices return for non-cardiac surgery, underscoring the importance of identifying cardiac anesthesiologists who can serve as consultants in the care of these patients.

Technological advancements have led to expanded and innovative application of extracorporeal membrane oxygenation (ECMO). The use of ECMO (pulmonary or cardiac) has more than doubled over the past decade, with demonstrably improving outcomes. According to the Extracorporeal Life Support Organization registry, there have been 21,874 deployments of pulmonary ECMO worldwide in 2019 (partial data to July), with an overall survival to discharge or transfer of 59%, and 22,193 deployments of cardiac ECMO, with an overall survival to discharge or transfer of 43%. All these patients have very specific physiologic needs, which require advanced and focused medical care.

Percutaneous interventions for structural heart disease have exploded in recent years (transcatheter mitral valve repair and replacement, transcatheter aortic valve replacement and treatment of tricuspid valve disease) and cardiac anesthesiologists are at the forefront of this emerging field with periprocedural care and echocardiographic imaging.

4ci - The current number of such physicians (along with the source(s) of the data):
There were 3,793 (YE 2019) members of the Society of Cardiovascular Anesthesiologists in January 2020 (See Table 1).

4cii - The annual rate of increase of such physicians in the past decade (along with the source(s) of the data):
The percentage of respondents to a bi-annual survey conducted by the Society of Cardiovascular Anesthesiologists 2008-2018, who report spending more than 60% of their clinical time performing cardiac anesthesia, has remained consistently at more than 50% (from a minimum of 50% in 2010 to a maximum of 57% in 2012). The number of total respondents to this survey has increased by 50% over the past 10 years. (See Table 2).

4ciii - The current geographic distribution of this group of physicians, its projected spread in the next five (5) years, and an explanation of how you arrived at this projection:
The geographical distribution of these physicians is widespread throughout the United States and the world (Appendix B).

4d - Identify the existing national societies that have a significant interest in the area of certification. Additionally, indicate the size and scope of the societies, along with the source(s) of the data:
Two major national professional societies exist with a primary focus on cardiac anesthesiology. The older and smaller of the two is the Association of Cardiac Anesthesiologists (ACA). Founded in 1972, the ACA was conceived as a forum for the exchange of information among academically-oriented anesthesiologists who devoted their clinical
practice to the care of patients requiring anesthesia for cardiothoracic surgery. Membership in the ACA is limited to 60 members, each of whom requires a sponsoring nomination followed by approval by vote of existing members. All members are physicians; many members are chairs of their respective anesthesia departments. Since its inception, the ACA has conducted an annual meeting. Attendees include members and invited guests. The annual meeting includes presentations on new knowledge in the field of cardiothoracic anesthesiology as well as group discussions of controversies and practice trends in the subspecialty. The ACA held its 48th annual meeting in October 2019. Of note, board certification in adult cardiac anesthesiology was the featured presentation and generated significant discussion with overwhelming support among members and non-member guests who were present.

The Society of Cardiovascular Anesthesiologists (SCA) was founded in 1978 with the goal to broadly promote the anesthetic care of patients requiring cardiothoracic surgical procedures by enhancing the education of practitioners in this subspecialty, while also promoting original research activity. The fact that a significant number of anesthesiologists are devoted to the clinical, academic and educational components of cardiothoracic anesthesiology was proven within a few years of the SCA's inception. Its membership grew rapidly during those first years, and there are currently 3,793 (YE 2019) SCA members.

The SCA annual meeting is the largest single gathering of cardiac anesthesiologists in the world, with a consistent yearly attendance of greater than 1000 participants. The annual meeting facilitates the introduction and review of new science. There were 462 scientific abstracts or posters presented in 2019 at the 41st SCA annual meeting in Chicago, IL. The 1,173 registrants at this meeting attended four days of refresher course lectures, interactive workshops, panel discussions, problem-based learning discussions, and thematically-based lecture sessions covering a broad range of topics of importance to cardiac anesthesiology (Appendix C). Trainees in cardiac anesthesiology are encouraged to attend the SCA annual meeting, which provides educational sessions specifically designed for fellows and residents. Additionally, the program includes a joint session of the SCA and the Society of Thoracic Surgeons (STS). Speakers include experts in cardiac anesthesia, thoracic anesthesia, cardiothoracic surgery, cardiology, perfusion, business and practice management, patient safety, health policy, pain management, and critical care medicine.

The SCA also has two yearly educational meetings focused on applications of ultrasound technology. The SCA's 22nd annual meeting devoted to echocardiography (EchoWeek) was held in 2019 with 305 participants in Atlanta, GA. This interdisciplinary program developed, and has evolved over the years, to meet the continuing demand for education in the applications of ultrasound technologies as a fundamental diagnostic modality and monitor of perioperative cardiac performance and hemodynamic interrogation. The program traditionally includes educational sessions that cover cardiac anatomy (including live and interactive porcine heart dissection), ventricular and valvular function, principles of 3D imaging of cardiac valves and other structures, advanced 3D imaging, innovations in echocardiography, clinical case dilemmas, case-based decision-making and three hands-on workshops. Scientific abstracts and posters are also presented.

The SCA offered an inaugural course in perioperative ultrasound in 2017 to meet the increasing demand by its members for ultrasound education in general. This course is now offered annually. Presentation and hands-on sessions cover multiple ultrasound topics including transthoracic echocardiography, assessment for deep vein thrombosis, ultrasound for vascular access, and ultrasound evaluation of the lung, abdomen, and stomach.

The SCA's educational and research activities have extended beyond its own membership to thousands of non-SCA member anesthesiologists within similar cardiac anesthesiology societies in other countries modeled after, and collaboratively developed with, the SCA. On an international stage, the SCA co-sponsors scientific and educational meetings at international venues including a biannual International Congress of Cardiothoracic & Vascular Anesthesia (ICCVA), as well as the World Congress every four years. Collaborations with European, South American, South African, Japanese, Chinese, Australian/New Zealand, Canadian, Brazilian, Israeli and Korean cardiac anesthesiology societies have generated national and international scientific and educational meetings on cardiac anesthesiology from 2017 to 2020 (Appendix D).

Beyond the above-mentioned meetings, other related organizations sponsor annual meetings with direct relevance to, and with substantive participation by, cardiac anesthesiologists. For example, the American Society of Anesthesiologists (ASA) has prominent sections devoted to topics in cardiac anesthesiology at its annual meeting, including ASA Refresher Course lectures. The ASA Educational Track Subcommittee on Cardiac Anesthesia is comprised of 29 cardiac anesthesiologists responsible for organizing these educational sessions of the annual ASA meeting.

The SCA has contributed $2,220,000 to funding research starter, mid-career and education grants over the past 12
years. The SCA awarded an additional $500,000 in the form of Roizen research grants from 2009-2016. Funding for leadership development in cardiac anesthesiology came through the Kaplan grant for a total of $65,000 from 2012 through 2019. A total of $2,785,000 has been contributed toward SCA grants. This represents only a portion of the funding contributed by the SCA and SCA Foundation (SCAF) in support of cardiac anesthesiology research and investigation in related areas. The SCA Foundation funded the SCA's research grants for 10 years (2008-2018), with the continuance of research funding now occurring through the SCA's Endowment fund.

The SCA maintains a trainee membership category (Table 4) with specific, educational benefits. These include a reduced subscription rate to the Journal of Cardiothoracic and Vascular Anesthesia, reduced fees for attending SCA educational programs, and reduced membership dues. A cardiothoracic anesthesia fellow session was added to the SCA Annual Meeting in 2009 and, due to its considerable popularity, now comprises a full afternoon session and a workshop. This focus on trainees has increased attendance at the annual meeting fellow and resident registration totaled 438 in 2019. Education is a core value of the SCA and as such is a primary component of the society's activities. The mission, vision, and goals of the SCA's CME Program are outlined in Appendix E.

Cardiac anesthesiologists contribute to national and international meetings at a variety and multitude of non-anesthesia meetings. Every year the STS annual meeting presents "SCA @ STS" which features experts in the field of cardiac anesthesiology. Additionally, at their respective annual meetings, the American Association for Thoracic Surgery, the American Heart Association and the American College of Cardiology incorporate participation from experts in cardiac anesthesiology. The American Society of Echocardiography's (ASE) council on perioperative echocardiography presents multiple sessions at the ASE's annual scientific sessions.

The Enhanced Recovery after Cardiac Surgery (ERACS) Society was established in 2017. This multidisciplinary society has members from the subspecialties of cardiac surgery, cardiac anesthesia and critical care medicine. The mission of ERACS is to improve surgical care and recovery through research, education, audit and implementation of evidence-based practices. They provide hospitals with guidance on developing local protocols to improve patient care, reduce complications, and reduce cost.

As the practice of cardiac anesthesiology has evolved, the influence of the inter-disciplinary societies associating and collaborating with cardiac anesthesiologists has grown as well. These societies span the world, educate and support large numbers of health care providers, and significantly impact the care of cardiac surgical patients.

The ABA communicated with SCA leadership to evaluate the purpose, interest, value, and impact of subspecialty certification in Adult Cardiac Anesthesiology. The ABA has discussed the purpose, interest, value and impact of this subspecialty certification with the ASA as well as other organizations to evaluate the impact, value and support. The SCA is highly supportive. The American Board of Thoracic Surgery is similarly supportive. The ASA and the American Board of Internal Medicine, which offers subspecialty certification in Cardiovascular Disease have each indicated a position neither to support nor to oppose.

4di - Indicate the distribution of academic degrees held by their members, along with the source(s) of the data:

See answer in 4d above.

4dii - Indicate the relationship of the national societies' membership with the proposed certification:

See answer in 4d above.

4diii - Describe whether and how your Board has interacted with the key societies and stakeholders in developing this proposed certification:

See answer in 4d above.

5ai - On its own primary and subspecialty training and practice:

Approval of a certification for the subspecialty of Adult Cardiac Anesthesiology will result in more focused and more effective treatment of patients undergoing cardiac surgical procedures. The ABA does not foresee any impact of the proposed subspecialty certification on core anesthesiologist residency training, or on initial or continuing certification in anesthesiology.
5aii - On the primary and subspecialty training and practice of other Member Boards:

The ABA does not foresee any impact on the primary or subspecialty training and practice of other Member Boards. The cohort of anesthesiology trainees that would qualify for cardiac anesthesiology subspecialty training already exists in well-established ACGME-accredited fellowship training programs.

5bi - Access to care (please include your rationale):

Subspecialty certification in adult cardiac anesthesiology will improve access to, and add to the quality of, the provision of cardiac anesthesia care. As the nature of this practice continues to increase in complexity, certification and continuing certification will help to assure that physicians maintain the highest standards of lifelong learning, demonstration of knowledge, and commitment to advancing practice, as they continue to translate this rapidly evolving body of advancements in medicine, science and technology toward excellence in the clinical care of patients.

We anticipate that change will first be noticeable in the conduct of highly complex cardiac anesthesia procedures. This new category of certified individuals will also be a valuable source of up-to-date consultants and educators to raise the quality of periprocedural care of cardiac interventions in and across institutions.

5bii - Quality and coordination of care (please include your rationale):

Subspecialty certification will promote and foster collaboration among cardiac anesthesiologists, cardiac surgeons, cardiac surgical intensivists, and cardiologists in their mission to improve patient care, conduct research, and provide education, by identifying qualified anesthesiologists in this subspecialty.

5biii - Benefits to the public (please include your rationale):

Establishing board certification for cardiac anesthesiologists will insure that all patients requiring cardiac surgery and specialized procedures receive care from physicians who have demonstrated their advanced knowledge of the field of cardiac anesthesiology; continuing certification requirements insure that these physicians remain current as the knowledge of the specialty continues to grow and evolve.

The National Board of Echocardiography’s Advanced Perioperative Transesophageal Echocardiography (PTEeXAM) is currently the only vehicle that assesses knowledge in perioperative echocardiography. Passing this examination alone confers the status of “Testamur” upon the applicant and is valid for 10 years. Many hospital credentialing committees use passing of the PTE examination as part of privileging criteria to provide cardiac anesthesiology services at their institutions. While there are currently no other assessment tools to measure anesthesiologist’s knowledge in perioperative echocardiography, the ABA remains open to alternatives should others be developed that can serve as a prerequisite for certification in Adult Cardiac Anesthesiology.

The intent of establishing the NBE PTE examination was to demonstrate to the public that these physicians have made efforts to optimize their skill in the performance and interpretation of cardiac ultrasound. Over time, many have come to use this exam as a surrogate to represent mastery for the totality of adult cardiac anesthesiology fellowship training. Although echocardiography knowledge is essential for a practicing adult cardiac anesthesiologist, this alone does not represent the essential core or knowledge or the curriculum of an ACGME-accredited adult cardiac anesthesiology fellowship. It does not define or uniquely demonstrate expertise in the medical subspecialty of adult cardiac anesthesiology, necessary to provide the best possible care to the public.

Although demonstration of knowledge and some level of clinical skills in performing PTE will be a requirement for board certification in adult cardiac anesthesiology, there is a need for a process that evaluates the initial and continuing competencies beyond PTE, in the interests of the highest standards of care for anesthesiology and for the public.

Board certification would allow individuals to distinguish themselves, and patients to know that their physician is qualified to provide cardiac anesthesia care. It has been stated that the actions of medical specialty boards improve the health of the public by decreasing the burden of disease, increasing individual productivity, and providing more cost-effective care (Waisel D. Disagreements between Medical Specialty Boards and their Diplomates. AMA Journal of Ethics. 2015; 17(3): 193-8). One of the most promising outcomes of board certification will be to increase value to the public by ensuring physician competence as it relates to ensuring high-quality patient care.
5ci - Immediate costs and their relationship to the probable benefits (please indicate your methodology):

The immediate costs include those to develop and to deliver a certification process. The ABA does not foresee negative impact of the new subspecialty on the costs of healthcare delivery. The determination of the immediate costs and their relationship to their probable benefits of the proposed adult cardiac anesthesiology board certification is dependent upon the methodology selected to divide these costs amongst the various stakeholders that would be involved in this process. As in all value propositions, costs must be considered relative to the benefits of board certification.

Costs associated with training physicians in ACGME-approved programs are already being borne by those institutions offering this fellowship training, so there are no additional costs incurred. As defined in the ACGME Program Requirements in Adult Cardiothoracic Anesthesiology, there are very specific goals for the Educational Program defined in section IV. Mastery of these specific skills and knowledge, as they relate to adult cardiac anesthesiology, should be demonstrated and tested by this new board certification examination. These ACGME-approved programs already provide for this education, but there will now be the natural and practical matter of preparing physicians for the successful completion of examinations to demonstrate understanding of the diverse knowledge required of a consultant cardiac anesthesiologist. There will be benefit, however, to improving the quality of education and clinical experience, in that many programs currently train toward a primary goal of expertise in cardiac ultrasound to prepare them for successfully completing the PTE alone.

The ABA is proposing that, as a condition for entry into the ABA/ABMS board certification process, applicants will have to pass the NBE's PTE. The large majority of practicing cardiac anesthesiologists have already borne this expense. The cost of this examination and updating its content to accurately reflect the knowledge that examinees are expected to demonstrate, will continue to be assumed by the NBE, which is independent of the ABA. There will be some physicians who have practiced as cardiac anesthesiologists and have not taken the PTE exam. These individuals will now have to prepare for and pass the PTE and the new adult cardiac anesthesiology subspecialty exam, with the associated costs, should they elect to pursue this professional achievement.

5cii - Long-term costs and their relationship to the probable benefits (please indicate your methodology):

The most important benefit of adult cardiac anesthesiology subspecialty certification would be the ability to attest to the public that physicians who have been fellowship-trained in cardiac anesthesiology and met the high standards of initial certification in the subspecialty remain current in the advancing knowledge of the specialty through continuing certification. Added expense of certifying cardiac anesthesiologists will be associated with the need for these physicians to develop understanding and facility with newer technology. Cardiac anesthesiologists are often on the forefront of many of the most advanced procedures performed. Their involvement in transcatheter technologies involving heart valves, ventricular assist devices, extra-corporeal membrane oxygenation, and heart failure technologies are examples of some of the costliest services provided by healthcare institutions. Through recognition of this group of highly educated physicians caring for the most critically ill patients, increased costs may be linked to providing such care. However, the belief is that with this care comes improvement in the quality and quantity of life.

Another potential area associated with increased cost may be recruiting and retaining board certified cardiac anesthesiologists. They may have higher market-based compensation. However, this is often the case presently, and we do not anticipate further escalation in market compensation related to board certification; indeed, it may have a mitigating effect on compensation through identifying those who do not justifiably merit such a designation. There will also be the costs of technology and equipment that are required to provide advanced cardiac care in the operating rooms and intensive care units, beyond staffing costs.

These long-term costs to the healthcare system may be offset through improvement in quality and increased value. As leaders within the multidisciplinary components of cardiac anesthesiology (including, for example, perioperative echocardiography and blood conservation), their involvement will mitigate long-term costs to the healthcare system. Cardiac anesthesiologists have been leaders in implementing diagnostic coagulation technology, developing transfusion algorithms, and implementing policies to decrease blood product utilization. A substantial body of research on hemostasis and anti-fibrinolytic therapy has been led by cardiac anesthesiologists. There will continue to be opportunity to effect cost long-term by providing such leadership.

Once the certifying examination has been developed and initially administered there will be continued costs to ensure that the content of the exam accurately reflects the most current teaching in the field of adult cardiac anesthesiology. The cost of this exam will be managed by the ABA. There will be a process for continuing certification, but these fees will be parallel to current cohorts of initial and subspecialty-certified physicians.
5d - Explain the effects if this certification is not approved:

The performance of ACGME-accredited Cardiothoracic Anesthesiology fellowship programs is periodically assessed by the ACGME; however, the graduates and faculty of these fellowship programs do not currently have any comprehensive and robust assessment against national standards that demonstrates their educational achievements. Both fellows and the fellowship program faculty lose a valuable opportunity to receive important feedback about their curriculum that could help them improve. Although a curriculum is outlined by the ACGME for the subspecialty, the only existing objective assessment of the graduates of these fellowship programs (beyond their case and procedural volumes) is their performance on the NBE’s PTEeXAM. The ABA is proposing a process to assess and maintain demonstration of the full spectrum of the domains of knowledge and performance for the subspecialty of adult cardiac anesthesiology, far beyond the diagnostic imaging component. Most importantly, an opportunity will be lost to accelerate improvements in all four areas of the quadruple aim, and other specific areas of patient and provider outcomes.

Quadruple Aim

Impact on patients: Validation through examination of the comprehensive content outline of the curriculum for fellowship training encourages and rewards attention to all aspects of cardiac anesthesia care. This broader focus (i.e. beyond echocardiography) should lead to accelerated developments in cardiac anesthesia patient care including guideline and pathway development (evidence-based care) and research scope expansion. Patients will be able to use adult cardiac anesthesiology subspecialty certification as one measure of physician quality when choosing a provider. Without a certification process, these improvements to patient care may not occur or may be realized more slowly.

Impact on cost: Costs of not providing the opportunity for subspecialty certification may result from increased unjustified variation from best-practice patient care and less robust guideline development or inquiry (research). Should we accept the premise that high quality care results in cost reduction, the inability to realize the opportunities outlined for patients and providers will result in higher costs. A simple example: today some programs still place pulmonary artery catheters (PACs) in every patient having coronary artery bypass graft or valve surgery, while other programs use PACs in only a minority of patients having the same procedures. Although the cost difference between a central venous catheter (CVP) and a PAC may not be significant, measurements of cardiac output and other clinical decisions made based on the added information provided by a PAC have been shown to incur additional costs. Evidence does not support universal use of the PAC for patients having cardiac surgery, and yet the practice persists.

Impact on population health: Loss of an opportunity to promote more evidence-based and less variable care will challenge the advancement of improvements to patient care. In addition, opportunities will likely be missed for expanded of research examining how value is best provided for the population requiring cardiac anesthesia care. Lack of subspecialty certification may impede the development of specialty teams, challenging development of the most highly functioning collaboration and safety culture.

Impact on providers: To the extent that the lack of subspecialty certification negatively impacts the development of specialty teams mentioned above, provider outcomes (wellness) will also be challenged. Absence of "joy in work" will result in further provider recruitment and retention costs affecting other aspects of the quadruple aim. Lack of subspecialty certification will not recognize the knowledge and experience that cardiac anesthesiologists have developed. Providers will lack the ability to distinguish themselves by demonstrating their achievement (and added competency) gained during their fellowship training, nor will they have the ability to participate in a specialty-focused longitudinal assessment/education process of continuing certification.

Beyond the Quadruple Aim

Impact on trainees: The current state is that the ACGME’s full content outline is not, and will not be, tested (assuming the NBE PTE exam will continue to be used as a surrogate). Without cardiac subspecialty certification, those in fellowship will continue to have incentives that are not aligned with the educational goals defined by the ACGME. Fellowship opportunities could expand if the number of trainees in training programs is not limited by the NBE’s mandate of 300 PTEs for board certification, but rather on cardiac surgical case volume as required by ACGME, which is currently 100 cardiac surgical cases, with at least 50 requiring cardiopulmonary bypass).

Impact on training programs: Fellowship training programs will continue to emphasize echocardiography and given limited resources; other aspects of the cardiac anesthesia curriculum will receive less attention. Training programs will continue to be limited to having a number of fellows so that each one can obtain 300 PTEs (as opposed to training a number based upon the ACGME minimum of 100 cardiac surgical cases).

Impact on research: As stated above, lack of a balanced curriculum focus will likely limit the research scope for
cardiac anesthesiology.

Impact on practices: Practices will lack a metric to assess potential hires and a means to demonstrate a level of excellence for their existing physicians practicing cardiac anesthesiology. If fewer fellows are trained because of the limitations stated above, practices will lack sufficient cardiac anesthesiologists with adequate training.

Impact on privileging: Lacking a more comprehensive assessment of those practicing cardiac anesthesiology, the maintenance of PTEeXAM certification or testamur status will likely remain as the sole privileging metric for many practices and hospitals.

3. Training Requirements

6 - List the number and names of institutions providing residency training and other acceptable educational programs in the proposed area of certification:

There are 70 ACGME accredited adult cardiac anesthesiology fellowship programs which have relatively even distribution throughout the 48 continental states. By region the number of fellowship programs in each area are as follows: Eastern 29, Midwestern 15, Southern 14, and Western 12. All of these programs must fulfill the ACGME program requirement to have one or more of their attending-level anesthesiologists who serve as faculty to "have education and experience in the care of adult cardiothoracic patients that meets or exceeds completion of a one-year adult cardiothoracic anesthesiology training program".

It is challenging to quantify the total number of cardiac anesthesiology groups beyond these fellowship training programs. One thousand three hundred and thirty-three (1,333) cardiac surgical programs participate in the Society of Thoracic Surgeons (STS) database representing both academic and private practice settings. While the exact number of cardiac anesthesiology programs is not known, there are likely approximately the same number (1,333) of anesthesiology groups caring for cardiac surgical patients. Not all of these anesthesiologists are members of the SCA, which had 3,719 members across the US and internationally (see Appendix B and Table 1 for details).

Residency Review Committee requirements for Core Anesthesiology Residency training dictate that each of the 153 programs has faculty with subspecialty expertise and sufficient program case volume to provide adequate resident training. (Section II.B.1 of 2019 ACGME Program Requirements for Graduate Medical Education In Anesthesiology: "The members of the faculty must have varying interests, capabilities, and backgrounds, and include individuals who have specialized expertise in the subspecialties of anesthesiology, including critical care, obstetric anesthesia, pediatric anesthesia, neuroanesthesia, cardiothoracic anesthesia, and pain medicine, and also in research").

Thus, there at least 153 academic anesthesiology departments with specialized expertise in cardiac anesthesiology.

6a - Indicate the total number of trainee positions available currently (along with the source(s) of the data):

See Appendix F

6b - Provide the number of trainees completing the training annually (along with the source(s) of the data):

See Table 3

6c - Describe how the numbers of training programs and trainees are adequate to sustain a critical mass of trainees necessary for program accreditation and certification:

Sustain the subspecialty

The recent growth of cardiac interventional procedures (in traditional operating rooms and hybrid operating rooms), has driven the demand and employment opportunities for cardiac anesthesiologists. The number of training programs and trainees have steadily increased since 2006, when ACGME began accrediting adult cardiothoracic anesthesiology (ACTA) fellowship training programs, to meet this increased demand. San Francisco Match data for ACTA fellowships reported a 32% increase in applications to 354 in 2018 (from 267 in 2013). Although accredited fellowship positions within the match have increased from 199 to 218 per year over the past three years, on average, twenty-three percent of fellowship applicants remain unmatched, while over the past five years, 975 fellows have matched within ACTA fellowship programs. The steady increase in ACTA fellowship applicants and ACTA fellowship positions, with little variation in the percentage of unmatched fellowship applicants, indicates sustainability and a critical mass of trainees within the subspecialty.

There are 215 ACGME-accredited positions available nationally, providing a similar number of fellows graduating
each year. The previous five years produced 964 graduating fellows. The number of fellows eligible to pursue board
certification alone would be significant, and able to provide sufficient numbers for statistical validation of certifying
exams. There are 6,322 practicing anesthesiologists who have passed the National Board of Echocardiography's
PTEeXAM examination, more than 3,000 of which are not board certified in Advanced PTE by the NBE.

The enthusiasm for cardiac anesthesia fellows to pursue ABMS board certification is evident by the fact that 587
physicians passed the NBE's PTEeXAM during the past three years, which is a number similar to the number of
physicians graduating from fellowship programs. In lieu of a board certification in adult cardiac anesthesiology, these
fellows are studying for and demonstrating the knowledge and clinical skills for a sub-component of their fellowship
training in a related field, supporting the necessity of subspecialty board certification in adult cardiac anesthesiology
that encompasses their entire fellowship experience.

Adult Cardiothoracic Anesthesiology Fellowship Match Data

2013:
Applicant registrations: 267
# of Participating Programs: 54
Positions Filled: 166

2014:
Applicant registrations: 268
# of Participating Programs: 55
Positions Filled: 172

2015:
Applicant registrations: 268
# of Participating Programs: 57
Positions Filled: 182

2016:
Applicant registrations: 331
# of Participating Programs: 60
Positions Filled: 199

2017:
Applicant registrations: 316
# of Participating Programs: 64
Positions Filled: 202

2018:
Applicant registrations: 354
# of Participating Programs: 64
Positions Filled: 211

2019:
Applicant registrations: 355
# of Participating Programs: 66
Positions Filled: 222

6d - Provide the estimated number and type of additional educational programs that may be developed based on
this proposed certification. Please indicate how you arrived at that estimate:

None.

6e - Does ACGME accreditation currently exist for the training programs associated with this proposed area of
certification?

Yes.
6ei - If not, do you plan to ask for ACGME accreditation for this new program?

N/A

6eii - If these programs are not accredited by the ACGME, document the accrediting body for this program and whether it has the resources to review these programs in a fashion comparable to ACGME.

N/A

7a - The goals and objectives of the existing programs:

Adult cardiothoracic anesthesiology is devoted to the pre-operative, intraoperative, and post-operative care of adult patients undergoing cardiothoracic surgery and related invasive procedures. The majority of the clinical education involves caring for patients in the operating room, other anesthetizing locations, and intensive care units, and includes experience providing anesthesia for cardiac, non-cardiac thoracic, and intrathoracic vascular surgical procedures, as well as for non-operative diagnostic and interventional cardiac and thoracic procedures.

7b - The competencies, scope of practice, knowledge, judgment, and skills that differentiate this certification from other certifications

See APPENDIX G: ACGME Program Requirements for Graduate Medical Education in Adult Cardiothoracic Anesthesiology. See especially Section IV.B.1.c).(1).(a-y).

7c - The body of knowledge and clinical skills required and whether it is broad enough to require (36 for specialty, 12 for subspecialty) months of training:

See APPENDIX G: ACGME Program Requirements for Graduate Medical Education in Adult Cardiothoracic Anesthesiology. See especially Section IV.B.1.c).(1).(a-y).

8 - Provide an estimated annual cost of the required training and how you arrived at that estimate:

No additional cost. Training pathway for eligibility for proposed subspecialty certification already in place.

4. Eligibility and Assessment

9 - Outline the degree and training requirements and any additional qualifications for applicants in the proposed certification:

Degree: MD or DO

Training Requirement: Successful completion of 12 months of formal training in an ACGME-accredited adult cardiothoracic anesthesiology fellowship.

Additional Qualification: Successful completion of the National Board of Echocardiography Advanced Perioperative Transesophageal Echocardiography examination (PTEeXAM).

9a - Will your Board allow a practice pathway for physicians who currently practice in this field? (All practice pathways to Board certification must be time-limited)

Yes
9ai - Specify the eligibility requirements for physicians to apply for the practice pathway and when the practice pathway will close:

Pathway to close following 3 full calendar years of eligibility potential.

Eligibility: Diplomates who have not completed 12 months of formal training in an ACGME-accredited adult cardiothoracic anesthesiology fellowship will have the opportunity to register for the Adult Cardiac Anesthesiology Examination via the following temporary practice criteria:

(1) An applicant's clinical practice, within the three years before time of application, has included at least 150 cardiac surgical procedures employing cardiopulmonary bypass, and a spectrum of surgical intervention including coronary revascularization, cardiac valve repair/replacement, and ascending/arch aortic surgery.

(2) Current testamur or certified status in Advanced Perioperative Transesophageal Echocardiography (PTEeXAM) conferred by the National Board of Echocardiography, with personal performance of at least 100 transesophageal examinations during the qualifying practice history.

(3) Attestations from the applicant as well as leadership in the applicant's department that the applicant meets these practice requirements will be required.

9b - Required primary and/or subspecialty ABMS Member Board certification(s):

ABA Initial Certification in Anesthesiology is required.

9bii - Will your Board require your diplomates to maintain the required certificate(s) in order to maintain this subspecialty certification?

No

Please describe

9biii - Will diplomates from other ABMS Member Boards (not co-sponsoring this subspecialty certification) be eligible to apply for this subspecialty certification?

No

Which Boards

Would you require diplomates to maintain their primary certificate from the other Board to maintain the subspecialty certification? Will diplomates from non-sponsoring Boards who let their primary certification lapse continue to be eligible for maintenance of certification in the subspecialty certification?

10 - With regard to Board-based assessment for candidates prior to awarding this proposed certification, which assessment methods will be required? (Check all that apply)

Examination: Written

10a - Describe the rationale behind the method(s) required in the assessment process:

Written examinations are a valid, reliable and efficient method for assessing a candidate's level of mastery of the subspecialty-specific knowledge, judgment and skills that define the practice of the subspecialty.

5. Implementation and Approval Process
11 - Outline the Continuing Certification (CC) program planned for the proposed certification: Describe the relationship between the proposed CC program and existing potential CC programs for your diplomats.

Diplomates of Adult Cardiac Anesthesiology will maintain their certification by:

* Holding an active, unrestricted license to practice medicine in at least one jurisdiction of the United States (U.S.) or Canada. Furthermore, all U.S. and Canadian medical licenses that diplomate holds must be unrestricted.

* 250 Category 1 CME credits of which 20 must be ABA-approved Patient Safety CMEs. No more than 60 credits per calendar year will be credited toward the required 250 in a 10-year period.

* Answering 120 questions per year on the MOCA Minute assessment, and maintaining a performance value of ≥.10.

* Complete 25 points in Years 1-5 and 25 points in years 6-10 for a total of 50 points per 10-year cycle.

* Pay an annual fee of $210 for first certificate maintained and $100 for each additional certificate maintained.

Additionally, a cardiac anesthesiology subspecialty-specific item bank will be developed for administration via our MOCA Minute longitudinal assessment platform. Successful completion in this program, as well as all other elements of the Continuing Certification program of the ABA, will be required for the diplomate to maintain this subspecialty certification. ABA diplomates who choose to maintain both initial certification in anesthesiology and subspecialty certification will benefit from one set of program requirements for all parts of the Continuing Certification program. Diplomates only maintaining adult cardiac anesthesiology subspecialty certification will receive some subspecialty-specific questions representative of what certified diplomates should know and some questions based on the areas of practice they select in their practice profile during the Continuing Certification annual registration process. Diplomates maintaining multiple certifications in anesthesiology and a subspecialty certificate will receive questions related to each certification area.

We will use Measurement Decision Theory (MDT) to evaluate diplomates' MOCA Minute performance. MDT is a statistical model that estimates the likelihood or probability that diplomates are keeping their specialty-specific knowledge up-to-date based on their pattern of responses to MOCA Minute questions. Diplomates will be informed on a continuous basis in their portal account whether they are meeting the standard for MOCA Minute.

11a - If your Board is planning to accept multiple options for assessment of knowledge, judgment, and skills for the certification, describe each:

We do not have multiple knowledge assessment options.

12 - Indicate how the utility of the proposed certification will be re-evaluated periodically (e.g., every five years) to assure that the area of clinical practice remains a viable area of certification:

The ABA collects workforce data to inform its operations. We evaluate annually the number of fellows who enter cardiac anesthesia fellowship training and who enter the examination system for initial and for subspecialty certification. We track annually the declared clinical practice profile of anesthesiologists from completion of residency through discontinuation of participation in continuing certification. We collaborate with our exam development committee and experts in the field (e.g. ACGME RRC, ASA) to understand training and current workforce trends for both generalists and subspecialty anesthesiologists. With this information we evaluate whether the subspecialties remain viable for the near and long term.

13 - Provide an anticipated timeline for when your Board will assess candidates and when your Board will begin issuing certificates:

The first subspecialty certification examination is planned for fall of 2023.

14 - List key external stakeholders from whom COCERT should consider soliciting public comment on the proposed certification:

• Society of Cardiovascular Anesthesiologists
• Association of Cardiac Anesthesiologists
• American Society of Anesthesiologists
• National Board of Echocardiography
• Society of Thoracic Surgeons
Copy of proposed application form for the candidates for certification

ABA-Adult-Cardiac-Anesthesiology-Application-MOCK-RegistrationSteps-Reduced.pdf

A written statement indicating concurrence or specific grounds for objection from each Member Board having offering certification or having expressed related interests in certifying in the same field (for existing co-sponsored certificates, written statements from co-sponsors are due at the time the letter of intent is due)

Written comments on the proposed subspecialty certification from at least two (2) external stakeholders

ABA-Adult-Cardiac-Anesthesiology-Application-Support-Letters.pdf

A copy of the proposed certificate

ABA-Adult-Cardiac-Anesthesiology-App-MOCK-Certificate.pdf
Experiential Education with YOU in Mind

The 41st Annual Meeting & Workshops offers the latest education in anesthesiology research and advancements. With an enticing mix of sessions focusing on clinical dilemmas, techniques, innovations, and practice management, you choose how to make the most of this time for your professional development. Participate in hands-on, small-group, and didactic session formats to learn in the best environment for you. Whether a beginner or an expert, the SCA Annual Meeting has educational content for you!

Make Essential Connections

Join more than 1,200 of your colleagues to learn about the latest updates and innovations from subject matter experts. At the SCA Annual Meeting, you will be able to network with your peers and leaders in the field from around the world and connect with industry partners to learn about the newest products and programs available.

At the SCA Annual Meeting You Can

- earn more than 35 hours of continuing medical education (CME)
- attend more than 20 sessions and discover new research and innovations in the field
- register for up to five hands-on workshops and five problem-based learning discussions (PBLDs) for a conference experience tailored to YOUR practice and educational needs
- network with your fellow anesthesiology professionals to help you gain insight into your practice and career.
Plenary Sessions

Saturday, May 18
Refresher Course Lectures
Stay up to date on issues relevant to every cardiac anesthesiologist, including the current state of ultrasound use in clinical anesthesia practice, tricuspid valve disease, a primer on finance for the practicing anesthesiologist, and the SCA Clinical Practice Improvement Project.

Monday, May 20
When the Healer Is Sick: Personal Stories of Surviving Burnout
Take charge of your well-being. Experts and colleagues will share uplifting personal stories of resilience and strategies for leading a burnout-proof life.

Sunday, May 19
VAD 2019: VAD Care in the OR and Beyond
Dive deep with content experts into anesthesia, echo imaging, and troubleshooting for Ventricular Assist Device (VAD) surgery as well as providing support for the ailing right ventricle.

Tuesday, May 21
Working in the Dark: Interventional Cardiology in 2019
Field experts address the non-OR world, anesthetic choice for trans-aortic valve replacement (TAVR), applications of Mitraclip technology, the latest developments in percutaneous valve care, and the interventional future.

Fellow/Resident Program
This program allows fellows and residents to attend incredible educational sessions specifically designed for the trainee. Sessions include a PBLD, which creates a relaxed and nurturing learning atmosphere for you and your colleagues to apply your knowledge and discuss clinical dilemmas, and our “Mission Possible” session, which gives you practical tips on how to be successful in your first job out of training. The program creates the opportunity for you to meet your peers, content experts, future mentors, and program directors.

Other Concurrent Sessions
• Atrial Fibrillation and Arrhythmia
• Quick Communications and Complicated Cases in Cardiac Coagulation
• Perioperative Delirium in CT Surgery: Mechanisms and Strategies
• Building Expertise in the Care of the Adult Congenital Patient

View the complete program at www.scahq.org/AnnualMeeting

Continuing Education: SCA is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education (CME) for physicians.
Ways to Engage

Workshops

Separate registration is required.

This year’s workshops are packed with hands-on instruction for the busy clinician. From pacemakers and ventricular assist devices to the new Enhanced Recovery After Cardiac Surgery workshop, participants will have the chance to learn from the experts. Cutting-edge procedures, real-life equipment, and imaging instruction will provide valuable education for today’s cardiac anesthesiologist through small-group discussions and hands-on experience in advanced transesophageal echocardiography (TEE), mechanical circulatory systems, 3D TEE, and more!

Problem-Based Learning Discussions (PBLDs)

Separate registration is required.

A PBLD enables participants to apply their knowledge and answer clinical dilemmas described in a case presentation. PBLDs serve to open up new topics of discussion, suggest alternative management strategies, and encourage communication among participants. Each PBLD has limited registration to allow for interaction, discussion, and exchange of ideas. Choose from more than 25 clinically relevant PBLD session topics!

Join the Conversation

Like us on Facebook and follow us on Twitter @scahq. Make sure to mention #SCA2019 in your posts!
Poster Presentations

Share your research findings or medically challenging cases with your peers at one of SCA’s poster sessions to enhance clinical knowledge and gain insights from your colleagues. Throughout the meeting, more than 500 posters will be displayed for attendees to learn about cutting-edge research and what’s upcoming in medicine. Take the opportunity to be a part of this education experience by submitting an abstract or difficult case to be considered for presentation!

Social Q&A and Polling Are Back!

Have you ever stopped yourself from asking a question because you didn’t want to ask it in front of an audience? SCA is excited to offer Social Q&A, a tool that will enable you to interact with SCA faculty and attendees in real time using the SCA meeting app on your mobile device or laptop. Polling, an interactive audience response system, allows presenters to ask the audience questions during their presentations through the meeting app and helps attendees engage with the session to gain a deeper understanding of the material presented.
Come a Day Early

On May 17, 2019, SCA will hold the 8th Annual Thoracic Anesthesia Symposium, an event focused entirely on thoracic anesthesia for academic and private practitioners. There have been many recent advances in anesthesia for noncardiac thoracic surgery—this year’s Thoracic Anesthesia Symposium will cover topics such as airway management, right-heart failure, surgical innovations, and risk factors of geriatric patients. This 1-day event has limited slots available to maximize interaction between attendees and faculty through panel discussions, case presentations, workshops, pro-con debates, abstracts, and a town hall.

Save the date and look forward to

• PBLDs addressing hot topics in thoracic anesthesiology
• a focus on airway management and new frontiers in lung cancer surgery
• a NEW interactive session format to enhance your educational experience
• hands-on workshops (included in your registration!)
• a town hall to discuss your questions and clinical dilemmas with experts in the field
• research and difficult case presentations
• industry exhibitors presenting the newest airway and ventilation tools
• earning nearly 10 hours of CME.

Visit www.scahq.org/TAS for the full schedule, program details, and travel and registration information!
...Explore Your Way

Known for its architecture, performing arts, museums, professional sports, and unique dining options, Chicago has something for everyone. Create your own itinerary and experience all that Chicago has to offer!

Navy Pier • Magnificent Mile • Art Institute of Chicago • Millennium Park • Buckingham Fountain • Chicago Riverwalk • Architecture Tours

Venue

Hyatt Regency Chicago
151 E. Upper Wacker Drive
Chicago, IL 60601
Phone: 312.565.1234

Visit scahq.org/AnnualMeeting/Trip for hotel reservations and transportation information.

Ways to Save

Early registration: Register early and save $200!
Become a member: Join SCA today and save up to $285!

REGISTRATION OPENS DECEMBER 2018!
Save $200 when you register early!
Learn about additional ways to save inside!
## National and International Scientific and Educational Meetings on Cardiothoracic Anesthesiology

### 2017

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<td>AACP 38th Annual Seminar</td>
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<td>ACC Asia Pacific Conference</td>
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<td>AHA BCVS Scientific Sessions</td>
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<td>ASA International Forum on Perioperative Safety &amp; Quality</td>
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<td>ASRA Annual Regional Anesthesiology and Acute Pain Medicine Meeting</td>
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<td>ASRA-ASA Ultrasound-Guided Regional Anesthesia Edu Portfolio Cadaver Course</td>
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<td>CAS Annual Meeting</td>
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<td>CCAS Annual Meeting</td>
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<td>EACTA Annual Cardiologists Conference</td>
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<td>EACTA Association for Cardiothoracic Anesthesia &amp; Critical Care Annual Scientific Meeting</td>
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<td>EACTA Echo Course</td>
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<td>ESA Focus Meeting on Regional Anesthesia in the Perioperative Setting</td>
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<td>Heart Valve Summit</td>
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<td>HFSA Annual Scientific Meeting</td>
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<td>JSCVA Annual Meeting</td>
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<td>ASE Symposium on Interventional Echocardiography</td>
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<td>ASRA 43rd Annual Regional Anesthesiology and Acute Pain Medicine Meeting</td>
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<td>ASRA Pain Medicine and MSK Ultrasound Cadaver Course</td>
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<td>CAAHEP Annual Meeting</td>
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CME Mission, Vision and Goals

Overview

The Society of Cardiovascular Anesthesiologists (SCA) is an international organization of physicians that promotes excellence in patient care through education and research in perioperative care for patients undergoing cardiothoracic and vascular procedures. The SCA comprises is comprised of cardiac, thoracic and vascular anesthesiologists.

Through its CME program, the SCA

- Promotes excellence in clinical care
- Facilitates the application of research in the subspecialty that serves to improve the professional practice of the membership and improves the quality of care and patient safety associated with cardiovascular and thoracic anesthesiology
- Contributes to improvements in physician competence leading to new and improved practice strategies in practice.

Expected Results

The expected results of the SCA CME Program are to:

- Provide cardiovascular and thoracic anesthesiologists and affiliated health care professionals with educational activities that advance their current clinical knowledge and ability to apply that knowledge to practice (competence).
- Improve physician and affiliated health care professional comprehension of cardiovascular and pulmonary physiology and pathology.
- Enhance the perioperative management of patients with cardiovascular and pulmonary system diseases.
- Educate learners on the most efficacious and current perioperative care tactics for patients with cardiovascular and pulmonary system conditions.
• Integrate research knowledge into clinical practice for best patient care.

• Facilitate lifelong learning consistent with the high ethical standards of the SCA.

• Provide educational interventions that modify clinician and patient behavior; assess those educational outcomes consistently through educational outcomes measurements that determine how SCA educational activities enabled and promoted the implementation of appropriate and evidence-based patient care strategies.

• Utilize skills-based courses to enhance the application of acquired knowledge and skills through hands-on training and small group education.

• Identify and overcome barriers to physician change through leadership training, addressing barriers in CME content and in the use of non-educational interventions (algorithms, patient education materials, etc.) so as to support the attainment of educational goals and implementation of acquired knowledge and skills into clinical practice.

To measure the attainment of the expected results of the CME Program, the SCA deploys a series of outcomes measurement options for every CME activity, including surveys and questionnaires, patient cases and vignettes with questions, selected learner interviews, follow-up performance questionnaires.

“To be the globally-recognized leader for cardiac, thoracic and vascular anesthesiology and perioperative care.”
Geographical Distribution of Accredited ACTA Fellowship Training Programs and Map

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<tr>
<th>ACGME-Accredited ACTA Fellowships by US Geographical Region</th>
<th>Positions</th>
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*Eastern Region Institutions: 29  Positions: 105*
### Midwestern Institutions

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<td>Loyola University Medical Center</td>
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<tr>
<td>Henry Ford Hospital</td>
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<tr>
<td>Mayo Graduate School of Medicine/Mayo Clinic</td>
<td>3</td>
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<tr>
<td>Medical College of Wisconsin</td>
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<td>Northwestern University</td>
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<tr>
<td>The Ohio State University</td>
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<td>University of Cincinnati College of Medicine</td>
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<tr>
<td>University of Iowa</td>
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<td>University of Michigan</td>
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<td>University of Nebraska Medical Center</td>
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**Midwestern Region Institutions: 15 Positions: 52**

### Southern Institutions

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<tr>
<td>Medical University of South Carolina</td>
<td>2</td>
</tr>
<tr>
<td>Ochsner Clinic Foundation</td>
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</tr>
<tr>
<td>Texas A&amp;M University/Scott &amp; White Memorial Hospital</td>
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</tr>
<tr>
<td>Texas Heart Institute/Baylor University</td>
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</tr>
<tr>
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<td>University of Florida</td>
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<td>University of Miami</td>
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<td>University of Mississippi Medical Center</td>
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<td>University of Texas Medical Branch at Galveston</td>
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<tr>
<td>University of Texas Health Science Center - Houston</td>
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**Southern Region Institutions: 14 Positions: 46**

### Western Institutions

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<td>Loma Linda University Medical Center</td>
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<td>University of California, Davis Medical Center</td>
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**Western Region Institutions: 6 Positions: 14**
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<td>University of Colorado</td>
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<td>University of Utah</td>
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<td>University of Washington</td>
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<tr>
<td>Oregon Health &amp; Science University</td>
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| Western Region Institutions: 12 | Positions: 35 |

**Summary:**

<table>
<thead>
<tr>
<th>Total Number of Institutions Offering ACTA Fellowships</th>
<th>Total Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>238</td>
</tr>
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</table>
Geographical Distribution of Accredited ACTA Fellowship Training Programs Map

Legend: Each fellowship position is represented by a diameter of 0.1 inches
1. Fellowship Duration Requirement: **Twelve months**

2. Clinical Program Requirements:
   a. Six months of clinical anesthesia experience (A minimum of 35 cases must be performed with a fellow being the primary anesthesia provider)
      i. **Cardiac Experience:**
         1. A minimum of 100 cardiac surgical procedures
            a. A minimum of 50 requiring cardiopulmonary bypass (CPB)
            b. A minimum of 25 aortic and/or mitral valve repairs or replacements
               i. At least five mitral and aortic valve repairs or replacements requiring cardiopulmonary bypass (CPB)
            c. A minimum of 25 myocardial revascularization procedures with or without cardiopulmonary bypass (CPB)
            d. Management of patients undergoing procedures in each of two or more of the following categories:
               i. adult correction/revision of congenital cardiac lesions
               ii. cardiac and lung transplantation
               iii. placement of circulatory assist devices including left heart bypass, ventricular assist devices, intra-aortic balloon pumps, and ECMO
               iv. electrophysiology procedures
      ii. **Thoracic Experience**
         1. A minimum of 15 patients undergoing non-cardiac thoracic surgery
            a. including procedures involving airway/lung repair, lung resection (open and/or video-assisted segmentectomy, lobectomy, and pneumonectomy), and esophageal resection/repair
            b. anesthetic management of patients undergoing endovascular and/or open repair of the thoracic aorta including the management of cerebral spinal fluid drainage
      iii. **Critical Care/Intensive Care Experience**
         1. A minimum of one-month experience managing adult cardiothoracic surgical patients in an intensive care unit setting.
   iv. **Electives:**
      1. A minimum of two months of clinical elective rotations
         a. Suggested options:
            i. inpatient cardiology
            ii. invasive cardiology
            iii. medical (cardiology)
            iv. critical care
            v. pediatric cardiac anesthesiology
vi. extracorporeal perfusion

v. Perioperative Echocardiography
   1. Fellows must meet the National Board of Echocardiography requirements for Advanced Perioperative Transesophageal Echocardiography
      a. Performance: 150 exams
      b. Interpretation: 300 exams

3. Scholarship
   a. All Fellows Must Complete A Scholarly Project
      i. Dissemination must occur through a variety of means, including publication or presentation at local, regional, national, or international meetings
   b. Quality Improvement and Patient Safety Initiatives
      i. Fellows should be involved in interprofessional efforts to enhance patient safety and improve patient care quality along with identifying system errors and implementing potential system solutions

4. The following ACGME Core Competencies must be integrated into the professional skill development of fellows utilizing diverse formats such as didactical presentations, multidisciplinary grand rounds, problem-based learning discussions, workshops, simulation, etc.
   a. Professionalism:
      i. Fellows must demonstrate a commitment to professionalism and an adherence to ethical principles
   b. Patient Care and Procedural Skills:
      i. Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health
      ii. Fellows must demonstrate competence by following standards for patient care and established guidelines and procedures for patient safety, error reduction, and improved patient outcomes
      iii. Fellows must demonstrate competence in:
         1. Pre-operative patient evaluation and optimization of clinical status prior to the cardiothoracic procedure
         2. Interpretation of cardiovascular and pulmonary diagnostic test data
         3. Hemodynamic and respiratory monitoring
         4. Pharmacological and mechanical hemodynamic support
         5. Peri-operative critical care, including ventilatory support and peri-operative pain management
      iv. Fellows must maintain current certification in advanced cardiac life support
      v. Fellows must be able to perform all medical, diagnostic, and surgical procedures considered essential for the area of practice
         1. Fellows must demonstrate competence in providing anesthesia care for patients undergoing cardiac surgery with and without extracorporeal circulation
2. Fellows must demonstrate competence in providing anesthesia care for patients undergoing thoracic surgery, including operations on the lung, esophagus, and thoracic aorta
3. Fellows must demonstrate competence in advanced-level perioperative transesophageal echocardiography
4. Fellows must be able to independently manage intra-aortic balloon counterpulsation and be actively involved in the management of other extracorporeal circulatory assist devices;
6. Fellows must demonstrate competence in management of CPB

c. Medical Knowledge
i. Fellows must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social behavioral sciences
ii. Fellows must demonstrate knowledge of how cardiothoracic diseases affect the administration of anesthesia and life support to adult cardiothoracic patients, including:
   1. embryological development of the cardiothoracic structures
   2. pathophysiology, pharmacology, and clinical management of patients with cardiac disease, to include cardiomyopathy, heart failure, cardiac tamponade, ischemic heart disease, acquired and congenital valvular heart disease, congenital heart disease, electrophysiologic disturbances, and neoplastic and infectious cardiac diseases
   3. pathophysiology, pharmacology, and clinical management of patients with respiratory disease, to include pleural, bronchopulmonary, neoplastic, infectious, and inflammatory diseases
   4. pathophysiology, pharmacology, and clinical management of patients with thoracic vascular, tracheal, esophageal, and mediastinal diseases, to include infectious, neoplastic, and inflammatory processes
   5. non-invasive cardiovascular evaluation, to include electrocardiography, transthoracic echocardiography, transesophageal echocardiography, stress testing, and cardiovascular imaging
   6. cardiac catheterization procedures and diagnostic interpretation, to include invasive cardiac catheterization procedures, including angioplasty, stenting, and transcatheter laser and mechanical ablations;
   7. non-invasive pulmonary evaluation, to include pulmonary function tests, blood gas and acid-base analysis, oximetry, capnography, and pulmonary imaging
   8. pre-anesthetic evaluation and preparation of adult cardiothoracic patients
   9. peri-anesthetic monitoring, both non-invasive and invasive (intra-arterial, central venous, pulmonary artery, mixed venous saturation, cardiac output)
   10. pharmacokinetics and pharmacodynamics of medications prescribed for medical management of adult cardiothoracic patients
11. pharmacokinetics and pharmacodynamics of anesthetic medications prescribed for cardiothoracic patients
12. pharmacokinetics and pharmacodynamics of medications prescribed for management of hemodynamic instability
13. extracorporeal circulation, to include:
   a. myocardial preservation, effects of CPB on pharmacokinetics and pharmacodynamics; cardiothoracic, respiratory, neurological, metabolic, endocrine, hematological, renal, and thermoregulatory effects of CPB; and coagulation/anticoagulation before, during, and after CPB
14. inotropes, chromotropes, vasoconstrictors, and vasodilators
15. circulatory assist devices, to include intra-aortic balloon pumps, left and right ventricular assist devices, and extracorporeal membrane oxygenation (ECMO)
16. pacemaker insertion and modes of action
17. cardiac surgical procedures, to include:
   a. minimally invasive myocardial revascularization; valve repair and replacement; pericardial, neoplastic procedures; and heart and lung transplantation
18. thoracic aortic surgery, to include:
   a. ascending, transverse, and descending aortic surgery with circulatory arrest; CPB employing low flow and or retrograde perfusion; lumbar drain indications and management; and spinal cord protection, including cerebral spinal fluid drainage
19. esophageal surgery, to include varices:
   a. neoplastic, colon interposition, foreign body, stricture, and tracheoesophageal fistula
20. pulmonary surgery, to include:
   a. segmentectomy (open or video-assisted), thoracoscopic or open, lung reduction, bronchopulmonary lavage, one-lung ventilation, lobectomy, pneumonectomy and bronchoscopy, including endoscopic, fiberoptic, rigid, laser resection
21. post-anesthetic critical care of adult cardiothoracic surgical patients;
22. peri-operative ventilator management, to include intra-operative anesthetics, and critical care unit ventilators and techniques
23. pain management of adult cardiothoracic surgical patients
24. research methodology/statistical analysis, the fundamentals of research design and conduct, and the interpretation and presentation of data
25. quality assurance/improvement; and,
26. ethical and legal issues, and practice management

d. **Practice-based Learning and Improvement**
   i. Fellows must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning
e. **Interpersonal and Communication Skills**
   i. Fellows must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals

f. **Systems-based Practice**
   i. Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care, including the social determinants of health, as well as the ability to call effectively on other resources to provide optimal health
### Figure 1:

**Adult Cardiothoracic Anesthesiology Fellowship Match Data 2013 – 2020**

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<td>Applicant Matching % (Overall)</td>
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<td>86%</td>
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<td>76%</td>
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</table>

* Total # of internal candidates (33) includes both internal only (26) and internal/more than 1-year commitment (7)

* Total # of more than 1-year commitment candidates (32) includes dual only (24), internal/more than 1-year commitment (7), and active military/more than 1-year commitment (1)

* Total of 59 = internal candidates (33) + dual only (24) + military (1) + outside US (1)
## TABLE 1.

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<td>Associate - Education Only</td>
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<td>Career Scientist - Education Only</td>
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<td>Active - Joint</td>
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<td>Associate - Joint</td>
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<td>Career Scientist - Joint</td>
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<td>Retired</td>
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<td><strong>Total</strong></td>
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</table>
TABLE 2

The percentage of respondents to a bi-annual survey conducted by the Society of Cardiovascular Anesthesiologists 2008-2018, who report spending more than 60% of their clinical time performing cardiac anesthesia, has remained consistently at more than 50% (from a minimum of 50% in 2010 to a maximum of 57% in 2012). The number of total respondents to this survey has increased by 50% over the past 10 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>60%+</th>
<th>Total resp</th>
<th>% responses =60% or &gt;</th>
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<td>2008</td>
<td>186</td>
<td>336</td>
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<td>2010</td>
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<td>412</td>
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<td>2012</td>
<td>268</td>
<td>468</td>
<td>57%</td>
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<td>2014</td>
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<td>319</td>
<td>53%</td>
</tr>
<tr>
<td>2016</td>
<td>308</td>
<td>605</td>
<td>51%</td>
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<tr>
<td>2018</td>
<td>270</td>
<td>489</td>
<td>55%</td>
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* Source SCA Bi-Annual Salary Survey 2008 - 2018
Table 3
Adult Cardiac Anesthesiology (ACTA) Training Graduates

<table>
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<tbody>
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<td>ACGME ACTA Fellowships</td>
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<td>47</td>
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<td>56</td>
<td>58</td>
<td>60</td>
<td>61</td>
<td>62</td>
<td>66</td>
<td>66</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>Positions (active fellows)</td>
<td>109</td>
<td>119</td>
<td>144</td>
<td>153</td>
<td>165</td>
<td>167</td>
<td>177</td>
<td>183</td>
<td>193</td>
<td>207</td>
<td>215</td>
<td></td>
</tr>
<tr>
<td>Graduates</td>
<td>85</td>
<td>119</td>
<td>123</td>
<td>151</td>
<td>165</td>
<td>171</td>
<td>176</td>
<td>187</td>
<td>191</td>
<td>202</td>
<td>208</td>
<td>1778</td>
</tr>
</tbody>
</table>

Source: ACGME GME Data Resource Book
Note: 2008-2009, 2009-2010 and 2010-2011 involved several programs obtaining accreditation.
Accreditation and fellow graduation may have varying dates leading to graduate number discrepancies.
### Fellow Membership

<table>
<thead>
<tr>
<th>Description</th>
<th>Eligibility Requirements</th>
<th>Annual Dues</th>
</tr>
</thead>
</table>
| Fellow members must be a physician in an approved anesthesiology training program accredited by ACGME, the American Osteopathic Association, or other international equivalent; possess a degree of Doctor of Medicine, Bachelor of Medicine, Doctor of Osteopathy, or other international equivalent; and provide the name of the director of fellowship program. | * Physician in an approved anesthesiology training program accredited by the ACGME or the American Osteopathic Association, or other international equivalent.  
* Physician in an approved anesthesiology training program accredited by the ACGME or the AOA, or other international equivalent.  
* Possession of a degree of Doctor of Medicine, Bachelor of Medicine or Do | $50         |

### Resident Membership

<table>
<thead>
<tr>
<th>Description</th>
<th>Eligibility Requirements</th>
<th>Annual Dues</th>
</tr>
</thead>
</table>
| Resident members must be a physician in an approved anesthesiology training program accredited by ACGME, the American Osteopathic Association, or other international equivalent; possess a degree of Doctor of Medicine, Bachelor of Medicine, Doctor of Osteopathy, or other international equivalent; and provide the name of the director of resident program. | * Physician in an approved anesthesiology training program accredited by the ACGME or the American Osteopathic Association, or other international equivalent.  
* Possession of a degree of Doctor of Medicine, Bachelor of Medicine, or Doctor of Osteopathy, or other international equivalent. | $50         |
Candidates for initial certification and diplomates must report the state/province, license number, issue date and expiration date for every U.S. or Canadian license held.

They have the affirmative obligation to advise us of all restrictions placed on their medical licenses and to provide complete information about restrictions within 60 days of their imposition.

DO NOT report training licenses.

<table>
<thead>
<tr>
<th>State</th>
<th>License #</th>
<th>Status</th>
<th>Exp Date</th>
<th>Edit</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL</td>
<td>ME53615</td>
<td>Satisfactory</td>
<td>01/31/2021</td>
<td></td>
</tr>
</tbody>
</table>

+ Add New License

Please Answer the Following Statement

Do you have, or have you ever had, a restriction, condition, reprimand, limitation, probation, suspension or revocation on a license to practice medicine in any state of the United States or province of Canada that was not reported to the ABA on your current registration or as an amendment to it? *

[Yes] [No]
Alcohol and Drug Use

The ABA supports the intent of the Americans with Disabilities Act, which protects individuals with a history of alcohol abuse who are rehabilitated, and protects former drug users who currently do not use drugs illegally. Please see our policy regarding alcohol and substance abuse in the Policy Book.

Please complete the following statements:

- [ ] Alcohol Abuse
- [ ] Illegal Drug Use

* Required field
Alcohol and Drug Use

The ABA supports the intent of the Americans with Disabilities Act, which protects individuals with a history of alcohol abuse who are rehabilitated, and protects former drug users who currently do not use drugs illegally. Please see our policy regarding alcohol and substance abuse in the Policy Book.

Please complete the following statements:

- Alcohol Abuse *
  - No, I currently do not abuse Alcohol

- Illegal Drugs *
  - No, I currently do not use Drugs illegally

* Required field
Registration for Adult Cardiac Anesthesiology

**CLINICAL ACTIVITY**

**Practice Requirements**

Have you completed 12 months of satisfactory training OR are you currently enrolled in an Adult Cardiothoracic program and will graduate by December 31?

- Yes
- No

**Please enter your Training Information**

**Program Name**

**Program Address**

- **Program Address**

- **Enrollment Date**

- **Graduation Date**

* Required field
Registration for Adult Cardiac Anesthesiology

**Practice Requirements**

Have you completed 12 months of satisfactory training OR are you currently enrolled in an Adult Cardiothoracic program and will graduate by December 31?

[Yes] [No]

**Please enter your Training Information**

**Program Name:**

**Sample Program Name**

**Program Address:**

**Sample Program Address**

178 characters remaining

**Enrollment Date:**

07/01/2000  ex: MM/DD/YYYY

**Graduation Date:**

06/30/2001  ex: MM/DD/YYYY

**Actual or Expected**

* Required field

[Previous] [Continue]
Registration for Adult Cardiac Anesthesiology

CLINICAL ACTIVITY

Practice Requirements

Physicians must have on file with the Board documentation attesting to the current privileges and evaluations of various aspects of his or her current practice of anesthesiology. Such evaluations will include verification that the physician meets the Board’s clinical activity requirement by spending, on average, at least one day per week during 12 consecutive months over the previous three years in the clinical practice of anesthesiology and/or related subspecialties.

Have you spent on average, at least one day per week during 12 consecutive months over the previous three years in the clinical practice of anesthesiology and/or related subspecialties?*

* Required field

[ ] Yes
[ ] No

Previous
Continue »
Registration for Adult Cardiac Anesthesiology

CLINICAL ACTIVITY

Page 1 of 4

Practice Type Information

What is your primary practice? *

On average, how many days a week do you practice? *

- Anesthesiology
- Critical Care Medicine
- Hospice and Palliative Medicine *
- Pain Medicine
- Pediatric Anesthesia
- Sleep Medicine
- Other Anesthesiology

* Required field

Previous  Continue →
<table>
<thead>
<tr>
<th>What is your primary practice? *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anesthesiology</td>
</tr>
<tr>
<td>Anesthesia for Outpatient Surgery</td>
</tr>
<tr>
<td>Cardiothoracic Anesthesia</td>
</tr>
<tr>
<td>Critical Care Medicine</td>
</tr>
<tr>
<td>Hospice and Palliative Medicine</td>
</tr>
<tr>
<td>Neuroanesthesia</td>
</tr>
<tr>
<td>Obstetric Anesthesia</td>
</tr>
<tr>
<td>Pain Medicine</td>
</tr>
<tr>
<td>Pediatric Anesthesia</td>
</tr>
<tr>
<td>Recovery Room Care</td>
</tr>
<tr>
<td>Regional Anesthesia</td>
</tr>
<tr>
<td>Sleep Medicine</td>
</tr>
<tr>
<td>Other Anesthesiology</td>
</tr>
</tbody>
</table>
Registration for Adult Cardiac Anesthesiology

Please select from one of the statements below:

- I currently practice or have practiced in a facility and/or I was enrolled in a training program during the past three years.
- I engage in independent office-based practice.
- I engage in locum tenens practice at more than one facility.

* Required field

Previous

Continue
CLINICAL ACTIVITY DETAILS
Please fill out the information below about your current Clinical Activity

From (mm/dd/yyyy) * ___________________________ To present ___________________________

Institution/Practice *

Country *

UNITED STATES

City *

State *

Phone * Fax

RESTRICTIONS AND LIMITATIONS
Have your clinical privileges at this institution been relinquished, limited, suspended, or revoked? *

Yes  No

Note: If you Respond "Yes", you are required to provide a personal statement explaining the details of any action(s) taken against your clinical privileges.

* Required field
Registration for Adult Cardiac Anesthesiology

**Chief of Anesthesiology or equivalent**

- [ ] I serve in this position or there is no such position.
  (Please enter another reference)

Prefix  

Middle Name

Last Name*  

Medical Degree*  

Email*

Office Phone*  

Fax*
MAILING ADDRESS

Institution/Practice *

Address 1 *

Address 2

Dept/Box

Country *

UNITED STATES

City *

State * Postal Code *

- Chief of Staff or equivalent
- Clinical Competence Committee Chair or equivalent

* Required field

Save Reference

Incomplete

Previous Continue →
Chief of Anesthesiology or equivalent

Chief of Staff or equivalent

Clinical Competence Committee Chair or equivalent
Training Information

Practice Requirements

Have you completed 12 months of satisfactory training OR are you currently enrolled in an Adult Cardiothoracic program and will graduate by December 31?

Yes  No

Please enter your Training Information

Program Name
Sample Program Name

Program Address *
Sample Program Address

178 characters remaining
Registration for Adult Cardiac Anesthesiology

INDEPENDENT PRACTICE REQUIREMENT

(General IPR - All Exams)

Although admission into the ABA examination system and success with the examinations are important steps in the ABA certification process, they do not by themselves guarantee certification. After successful completion of the examination for certification, the ABA will make an independent determination whether each candidate meets all the criteria for certification, including the independent practice requirement, without accommodation or with reasonable accommodation.

Are you capable of performing independently in the practice of Adult Cardiac Anesthesiology without accommodation or with reasonable accommodation? *

Yes  No

* Required field
Registration for Adult Cardiac Anesthesiology

NONSTANDARD EXAMINATION REQUEST

We support the intent of the Americans with Disabilities Act (ADA) to accommodate individuals with disabilities who demonstrate a need for reasonable accommodation. Individuals will be required to submit documentation of their need for a particular accommodation and the nature and severity of their disability. All individuals requesting exam or MOCA Minute under non-standard conditions should read our Guidelines for Requesting Accommodations.

If you are requesting use of Medical Devices, Medicine, or Mobility Devices (i.e., Insulin pump, Nitro Glycerin pills, Inhaler, Hearing Aids, Medical Alert Bracelet, Canes, Wheelchairs, etc):

ACTION NEEDED: Click "No" below and email exams@theaba.org with the specific medical devices, medicine, or mobility devices you will need during the exam at least two weeks prior to your exam date.

If you are a breastfeeding mother requesting 20 minutes additional break time (total of 40 minutes) for lactation purposes on your scheduled exam day:

ACTION NEEDED: Click "Yes" below and complete the additional break time request form no later than three months before the first day of your assigned exam week.

Are you requesting administration of an ABA exam or MOCA Minute under nonstandard conditions to accommodate substantial limitations in your ability to take the exam or answer computer-based questions under standard conditions due to a physical or mental impairment?*

[Yes] [No]

* Required field

[Previous] [Continue]
Registration for Adult Cardiac Anesthesiology

Before proceeding to the next section, please read and acknowledge the following statement:

"I, the undersigned registrant ("registrant"), hereby agree to participate in the American Board of Anesthesiology, Inc.'s (ABA) subspecialty certification program. I acknowledge that my participation is subject to the ABA rules and regulations. I further acknowledge and agree that if I withdraw my registration or the ABA does not accept it, the ABA will retain the registration fee and any late fee."

"I represent and warrant to the ABA that all information I provide to the ABA is true, correct and complete in all material respects. I understand and acknowledge that any material misstatement or omission over the course of my subspecialty certification program shall, at any time, constitute cause for disqualification from the ABA examination system or from the issuance of an ABA certificate or to forfeiture and redelivery of such ABA certificate to the ABA."

"I agree that this acknowledgement, as submitted by me, shall survive the electronic submission of the registration, regardless of whether the information or data provided in the registration has been reformatted in any manner by the ABA. I also agree that this acknowledgement is a part of and incorporated into the registration whether submitted along with the registration or not."

"I acknowledge that I have read a copy of the ABA Policy Book. I agree to be bound by the policies, rules, regulations and requirements published in the book, in all matters relating to consideration of and action upon this registration and certification should it be granted. I understand that ABA certificates are subject to ABA rules and regulations, all of which may be amended from time to time without further notice. I understand and acknowledge that in the event I have violated any of the ABA rules governing my registration and/or certification, such violations shall constitute cause for disqualification from the ABA examination system or from the issuance of an ABA certificate or for revocation of certification and indication of such action in the ABA Diplomate and Candidate Directory."

☐ I have read and understand the Registration Acknowledgement statement as it pertains to my registration for ABA exam.

* Required field

By checking the above box, you are affixing your legal electronic signature to this document.
Registration for Adult Cardiac Anesthesiology

Before proceeding to the next section, please read and acknowledge the following statement:

I, the undersigned registrant ("registrant"), hereby agree to participate in the American Board of Anesthesiology, Inc.'s (ABA) subspecialty certification program. I acknowledge that my participation is subject to the ABA rules and regulations, all of which may be amended from time to time without further notice.

In connection with my registration, I authorize all persons holding testimony, records, documents, opinions, information and data relevant to or pertaining to my professional competence and ethical conduct and/or behavior (the "Background Information") to release such information to the ABA, its employees and agents. This authorization applies whether or not such persons are listed as a reference on my registration. Background Information includes any information relating to any abusive use of alcohol and/or illegal use of drugs, and any medical or psychological treatment or rehabilitation related thereto. I understand that such Background Information may be used to determine or verify my qualifications for entrance into the ABA entrance examination and ABA certification. A copy of this release may accompany any request made by the ABA for such Background Information.

I authorize the ABA to: (1) report my status in the Examination system; (2) use any score in the psychometric analyses to validate observations and reports of suspicious irregularities in the conduct of an examination; and (3) respond to any inquiry about my status in the ABA examination system. I understand and agree that once my examination registration is completed and granted, this consent cannot be withdrawn.

I understand that the ABA may use all and all Background Information for the purpose of conducting longitudinal studies to assess the ABA certification process. I further understand that the ABA, alone or in collaboration with other researchers, may use information from the registration testing, assessment and certification processes (the "Assessment Information") to conduct scientific research relating to anesthesiologists' practice of anesthesiology and/or the education of anesthesiologists. Any and all information used for research may be reported or released to the public only in the aggregate. I agree that without any individual identification.

I agree that the use of any Background Information or Assessment Information for analysis or research will not imply in any way my individual registration, test results or certification status. I understand and agree that should I not wish for my information to be used for research purposes, prior to taking the exam I must notify the ABA in writing to the attention of: [redacted] at the ABA.org.

I agree to opt out and withdraw consent for my information to be used as part of research studies. I cannot opt out or withdraw my consent to the release of personally identifiable information, in good faith.

I release and agree to hold harmless each person from any liability to me arising out of the giving or releasing of information to the ABA. This release and agreement includes liability for the inaccuracy or untruth of the information, so long as such information is provided in good faith. I also release and agree to hold harmless the ABA and its agents and employees, including but not limited to its directors, officers and examiners, from any liability to me as a result of any acts or proceedings undertaken or performed in connection with my registration, provided such acts or proceedings are made or conducted in good faith.

☐ I have read and understand the Registration Release statement as it pertains to my registration for ABA exam.

By checking the above box, you are attesting your legal electronic signature to this document.
Registration for Adult Cardiac Anesthesiology

Before proceeding to the next section, please read and acknowledge the following statement:

All exams - Confidentiality Policy

The exam questions are the confidential and proprietary information of the American Board of Anesthesiology, Inc. (ABA) and are the ABA’s copyrighted material. By your registering to take the exam you agree to treat the exam questions as confidential and not share, copy, create derivative works, or otherwise distribute the exam questions to any third party without the ABA’s explicit written consent. Any copying of questions, including memorizing questions and later reproducing them or creating derivative works from them, constitutes copyright infringement. The security of this examination is vital to the fair grading of the examination and is of paramount importance to the ABA. Examination questions are the sole property of the ABA and are not available for review by candidates before or after the examination. Candidates found to have violated the confidentiality agreement or copyright protection by engaging in the aforementioned activities, or in some other conduct or manner, will be subject to disciplinary actions by the ABA, which may include permanent disqualification from this examination and all future examinations.

The ABA enforces your confidentiality obligations and its copyright of each examination question to the fullest extent of the law.

☐ I have read and understand the Registration Release statement as it pertains to my registration for ABA exam.

By checking the above box, you are affixing your legal electronic signature to this document.

* Required field

Previous  Continue →
**Registration**

Below is a list of available exam sessions for which you can register, along with the price of that exam. This price does not reflect any credits you may have on account.

<table>
<thead>
<tr>
<th>2023 Available Exam Sessions</th>
<th>2023 Adult Cardiac Anesthesiology</th>
<th>Date TBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exm Fee</td>
<td>Late Fee</td>
<td>Total</td>
</tr>
<tr>
<td>$1800.00</td>
<td>$0.00</td>
<td>$1800.00</td>
</tr>
</tbody>
</table>

* Required field

Previous
Examination Payment Overview

*All fees are non-refundable

<table>
<thead>
<tr>
<th>Item</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023 Adult Cardiac Anesthesiology: Date TBD</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

Total: $0.00

Notes

- You have chosen to register for the 2023 Adult Cardiac Anesthesiology - Date TBD exam.
- You must complete payment in order to be registered for the exam.

We expect a candidate who accepts an exam to keep the exam appointment. Candidates who inform us that they are canceling their exam appointment will be charged a cancellation fee.

Notice of cancellation must be in writing and must include a check in the amount of the cancellation fee.

Our records indicate that you do not owe a payment to the ABA at this time for the 2023 Adult Cardiac Anesthesiology Exam. You MUST press the "Continue" button to finish.

* Required Field

Previous

Continue
American Board of Anesthesiology  
c/o David Warner, MD, Board Secretary  
4208 Six Forks Road, Suite 1500  
Raleigh, North Carolina 27609-5765

RE: Society of Cardiovascular Anesthesiologists Letter of Support for ABA Adult Cardiac Anesthesiology Board Certification

Dear Dr. Warner:

The Society of Cardiovascular Anesthesiologists (SCA) has desired to have a board certification for anesthesiologists for many years, as a means to demonstrate the unique skills and expertise required to provide anesthetic care for patients undergoing cardiac surgery. Fellowships in Adult Cardiothoracic Anesthesiology were established by the Accreditation Council of Graduate Medical Education in 2009 with the expectation that a board certification process would eventually follow. Consistent with our society’s commitment to excellence in patient care, we feel that excellence in cardiac anesthesia care is best demonstrated to the public and to healthcare organizations, through a board certification process. The subspecialty of Adult Cardiac Anesthesiology has developed and evolved because of the unique physiologic challenges, technological advancements, and multidisciplinary and collaborative approach to patient care that involves cardiac surgeons, cardiologists, and other specialists.

We believe that a new subspecialty certificate in Adult Cardiac Anesthesiology will further advance research, innovation, and education in the training of future cardiac anesthesiologists. We also hope to see improvements in the anesthetic and perioperative or peri-procedural care of adult patients undergoing cardiac procedures, and other surgical, diagnostic, or therapeutic procedures that may involve cardiopulmonary bypass, mechanical circulatory assistance, and/or percutaneous structural heart interventions. We thank you for your support of a new board certification for Adult Cardiac Anesthesiology.

Sincerely,

Christopher A. Troianos, MD, FASE, FASA  
Chair, SCA Task Force on Board Certification  
Immediate Past-President

Stanton K. Shernan, MD, FAHA, FASE  
President  
Society of Cardiovascular Anesthesiologists
December 3, 2020

David O. Warner, MD
Secretary
The American Board of Anesthesiology
4208 Six Forks Road
Suite 1500
Raleigh, North Carolina 27060-5765

Re: Adult Cardiac Anesthesiology Subspecialty Certification

Dear Dr. Warner:

On behalf of the American Board of Thoracic Surgery (ABTS), I am writing to provide enthusiastic support for the proposal by the American Board of Anesthesiology (ABA) to develop subspecialty certification in Adult Cardiac Anesthesiology.

The discipline of Cardiac Anesthesiology is one requiring sophisticated technical capabilities and a mastery of cardiovascular physiology, pathophysiology, pharmacology, imaging, and the peri-procedural management of critically ill patients. These requisite skills are unique to the discipline and merit a standardized educational paradigm to best prepare anesthesiologists for the rigors demanded by the field. Subspecialty certification will provide for this education and will provide tangible demonstration that an individual is qualified to practice in this area.

Cardiac anesthesiologists are integral members of the Heart Team, working closely with cardiac surgeons, intensivists, and interventional cardiologists in caring for patients with complex cardiovascular problems. The inherently collaborative nature of the contemporary Heart Team is needed to optimize the care of such patients. The skills brought to the Heart Team by cardiac anesthesiologists are invaluable in providing the best possible clinical outcomes. As with other members of the Heart Team, it is very important that they be well-qualified.

The ABTS strongly supports the development of subspecialty certification in Adult Cardiac Anesthesiology. It will strengthen the Heart Team by providing well-educated cardiac anesthesiologists for the care of cardiac patients. In so doing, it will serve the public.

Thank you for the privilege of supporting this application.

Sincerely,

David A. Fullerton, MD
Executive Director
HEREBY CERTIFIES THAT

John Sample Doe

A LICENSED PHYSICIAN AND DIPLOMATE OF THE AMERICAN BOARD OF ANESTHESIOLOGY,
HAVING COMPLIED WITH ALL THE REQUIREMENTS OF THIS BOARD, IS AWARDED

SUBSPECIALTY CERTIFICATION
IN
ADULT CARDIAC ANESTHESIOLOGY
FROM NOVEMBER 10, 2023 TO DECEMBER 31, 2033

Certificate No. 00000
The current status of this certificate may be verified at www.theABA.org