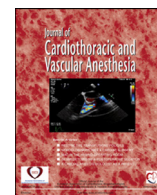




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## Special Article

# In Celebration of the Life and Contributions of Paul G. Barash

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Dr. Paul G Barash, former chair of the Department of Anesthesiology at the Yale University School of Medicine, died on June 8, 2020, at the age of 78. He was one of the giants in anesthesiology: a notable clinician, investigator, teacher, and founding editor of his internationally renowned textbook *Clinical Anesthesia*. However, he was in particular a pioneer and leader in the subspecialty of cardiac anesthesia. In this review, we summarize his career, the contributions he made to the practice of anesthesiology in general and to cardiac anesthesia in particular and provide comments from his colleagues and friends. We summarize the attributes of this man that made him a model of our profession that we can all strive to emulate.

THIS YEAR we mourn the loss of a giant in anesthesia, Paul George Barash, on June 8, 2020 at the age of 78 (Fig 1). In this special article, we review and celebrate his contribution to the practice of anesthesia worldwide. Virtually all anesthesiologists in the world recognize him as the editor of his textbook *Clinical Anesthesia* (first published in 1989 [Fig 2] and now in its eighth edition). In the present review, we concentrate particularly on his contributions to cardiac anesthesia, as a professor and subsequent chair at Yale University and mentor to many, as a founding member and fifth president of the Society of Cardiovascular Anesthesiologists (SCA), a member of the Multicenter Study of Perioperative Ischemia (McSPI) clinical research group, and to this journal. (See editorial accompanying this paper.<sup>1</sup>) Table 1 provides a summary of some highlights in his career.

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Paul was born in Brooklyn, New York, on February 22, 1942, received his BA degree from City College of NY in 1963, and graduated from the fourth medical school class at the University of Kentucky in 1967. He then served a rotating internship at Kings County Medical Center, New York City (1967–1968), followed by 2 years in the United States Public Health Service (USPHS)/Indian Health in Oklahoma. Between 1970 and 1973, he was an anesthesiology resident at Yale New Haven Medical Center, where he was chief resident. He then joined the faculty there and served as director of the surgical Intensive care Unit (ICU) at the Yale New Haven Medical Center. He rose to the rank of Professor in 9 years (Fig 3). He then served as chair of that department between 1983 and 1994 (see Fig 4 of prior and subsequent chairs at Yale). Thereafter he stayed on as a clinician and teacher in that department until his retirement in 2016.

Besides these activities at Yale, he was a president of the Connecticut State Society of Anesthesiologists and of the Society of Cardiovascular Anesthesiologists, a senior examiner for the American Board of Anesthesiology, and served as a consultant to the National Aeronautics and Space Administration (NASA) on anesthesia (pre- and postflight working group.) Paul was a mentor to innumerable anesthesia academicians including Lee Fleisher, former chair of Anesthesiology at University of Pennsylvania, Roberta Hines, chair of Anesthesiology at Yale, and Zeev Kain, former chair of Anesthesiology at the University of California, Irvine. In addition to being the founding editor of his textbook, Dr. Barash was an author of over 182 papers, 130 abstracts, and over 79 book chapters, and was an editor or coeditor of several other textbooks.

Most notably, Paul was recognized as an exemplary educator. This was reflected in his bedside teaching, numerous



Fig 1. Paul G Barash, MD, 1942–2020.

lectures at various medical centers as a visiting professor and at national meetings (Fig 5), and his publications. He was the first recipient of the American Society of Anesthesiology Excellence in Teaching Award and received a similar award from the International Anesthesia Research Society (IARS) in 2014.

As a member of the faculty at the University of Kentucky, one of the authors (E.A.H.) is particularly proud that he was an early graduate of the medical school and a visiting professor to the department on several occasions. The University of Kentucky College of Medicine gave him the Commonwealth Award in 2004, named him Distinguished Alumnus of the Year in 2007, and in 2010 honored him with the Alumni Milestone Medical Contribution.

Paul had a major interest in social issues. In 1988, he established an anesthesiology training program in Armenia after a devastating earthquake there. After the tragic and premature death of one of his sons, he established 2 annual scholarships (Daniel Barash Scholarships) for law students interested in the public defender program at his son's law school (Colorado Law, University of Colorado, Boulder).

Paul was also a fun-loving and friendly person (Fig 6) and an accomplished chef (see comment from Dr. Robert Hines later in this article). In 2015 he published the article “The game changers: The most important books and articles in anesthesiology.”<sup>2</sup> He indicated to one of the authors (E.A.H.) his criteria for consideration. These included that they (1) relate to clinical practice, (2) be seminal, (3) be landmark, (4) be revolutionary transformative, and 5) be maintained in clinical practice since first appeared.

Based upon these criteria we have identified 19 of Dr. Barash's publications that might qualify (although Dr. Barash himself never endorsed these selections). These are listed in Table 2. Notably, as evidence of his humility and efforts to promote junior colleagues, many of them earned the role of first author of papers that they coauthored together, and in his paper “Game Changers”<sup>2</sup> he included the 2 research librarians

Table 1  
Paul Barash Time Line

Feb 22, 1943	– Born in Brooklyn, New York
1962	– BA, City College of NY
1967	– MD, University of Kentucky, College of Medicine
August 19, 1967	– Married Norma Bernard
1967–68	– Rotating internship, Kings County Medical Center, NYC
1968–1970	– Indian Health, USPHS, Oklahoma
1970–1973	– Anesthesia Residency, Yale-New-Haven Medical Center
1973–2016	– Faculty, Department of anesthesiology, Yale University Medical School
1975	– One of his first published papers. Management of coarctation of the aorta during pregnancy (J Thoracic Cardiovasc Surg)
1982	– Professor, Department of Anesthesiology, Yale University Medical School
1981–2003	– Examiner for American Board of Anesthesiology (senior examiner 1985–2003)
1982–83	– President, Connecticut State Society of Anesthesiologists
1983–94	– Chair, Department of Anesthesiology, Yale University Medical School
1985–87	– President (5th), Society of Cardiovascular Anesthesiologists
1989	– Founding and senior editor of the textbook <i>Clinical Anesthesia</i>
1993	– Coeditor of the textbook <i>Cardiac Anesthesia</i> (with Estaphanous and Reves 1993)
1994–2000	– Board of trustees of Foundation for Anesthesia Education and Research
2010	– Distinguished Service Award, Society of Cardiovascular Anesthesiologist
~2010	– Excellence in Teaching Award, American Society of Anesthesiology
2014	– Excellence in Teaching Award, American Society of Anesthesiology
2015	– One of his last published papers (Brull SJ, Barash PG. Is ‘ol reliable still reliable?)
2016	– Professor Emeritus, Department of Anesthesiology, Yale University Medical School
June 8, 2020	– Died at 78 years of age, in Orange, Connecticut

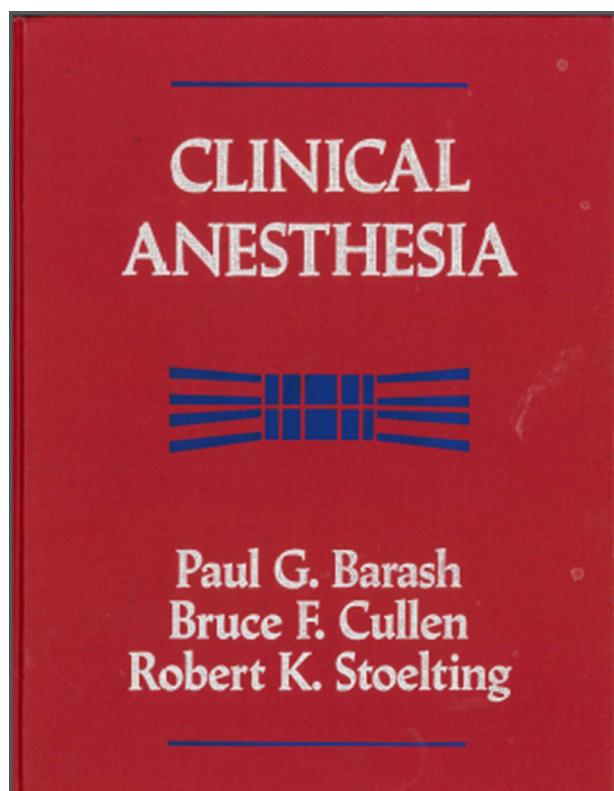


Fig 2. Photo of cover of first edition of *Clinical Anesthesia* (1989).

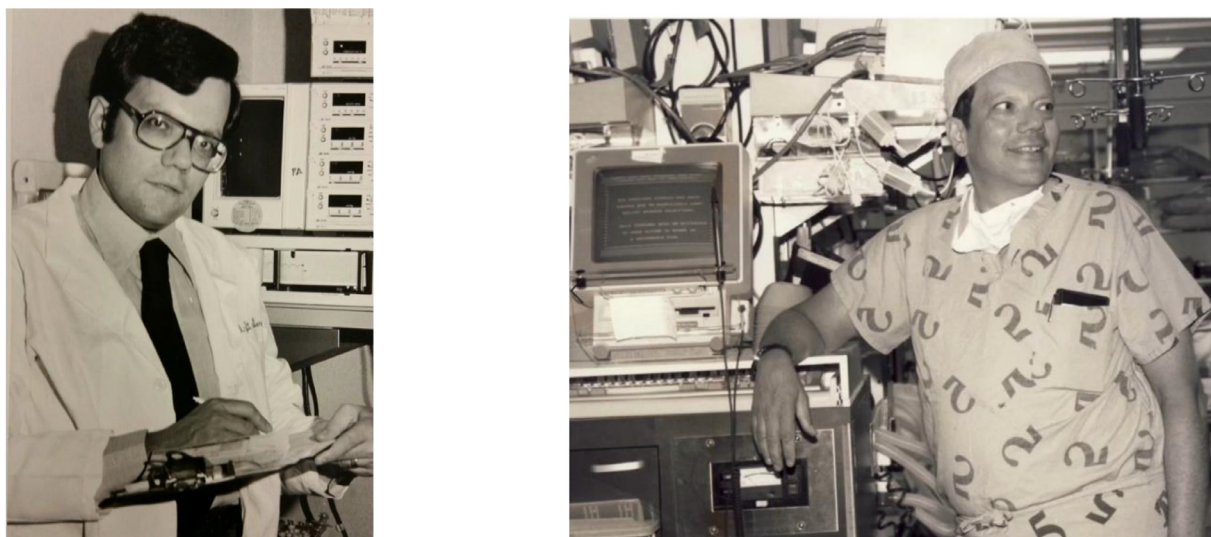


Fig 3. Photos of Paul Barash as a young academic researcher at Yale.

who assisted him as coauthors. Not included in this list of notable papers is perhaps the first paper he published, which discussed the management of coarctation of the aorta during pregnancy.<sup>22</sup>

### Yale Department of Anesthesiology

After his anesthesia residency at Yale under Chair Nicholas Greene, he joined the faculty and followed Greene as chair in 1983. During his tenure as department chair, Paul was instrumental in championing significant growth in the department's clinical expertise, including new and innovative areas such as pediatric anesthesiology and pain medicine. His leadership and vision in cardiac anesthesia led the department to develop

one of the first cardiac intensivist teams in the nation, providing leadership in the emerging field of cardiac anesthesia critical care. As an accomplished clinical researcher, Paul spearheaded the implementation of novel and robust research programs focused on addressing important and relevant clinical questions. These studies have significantly advanced the care of all patients undergoing anesthesia.

### Society of Cardiovascular Anesthesiologists

Among all of Dr. Barash's lifetime achievements, his contributions to the SCA remain especially memorable to those who have directly benefited—and we all have. Paul began his involvement in SCA leadership by becoming the chair of the



Fig 4. Four anesthesia chairs at Yale. Left to right: Nicholas M. Greene (1955-1973), Paul G. Barash (1983-1994), Roberta Hines (1995-2021), and Luke M. Kitahata (1973-1983).





Fig 5. Paul Barash giving one of his many talks at the American Society of Anesthesiologists.

Annual Meeting Program (1979-1984) for an unprecedented 3 consecutive 2-year terms. He has been credited with the vision to change the structure of the meeting to include a more interactive format by enhancing direct membership involvement and by reorganizing how sessions were arranged to encourage greater attendance throughout the duration of the meeting. Anecdotally, Paul and Dr. Mike Roizen were responsible for improving both the health and finances of the SCA Annual Meeting by eliminating expensive fried foods from being served to the membership.<sup>23</sup> Paul was also the chairman of the SCA's Education and Research Committee (1980-1984). He proceeded with the honor of serving as president elect (1983-1985) even during his last term as the annual program chair, before assuming the esteemed role of the fifth SCA president (1987-1989). After Paul completed his formal role in SCA leadership as Past President (1989-1991) he then served on the

Board of Directors (1989-91) and on the Membership Committee (2004). He continued to provide exceptional mentorship, sponsorship, professional development advice, wisdom, and, most importantly, friendship to numerous future SCA leaders, thus firmly establishing his eternal legacy as one of the most admired and respected visionaries in the history of the SCA. In 2010 he received the Distinguished Service Award from the Society. See additional commentaries later from Drs. Reves and Gravlee on Dr. Barash's role in the SCA

### Personal Remembrances

Norma Bernard Barash (Paul Barash's wife of over 52 years, English as a second language (ESL) teacher)

Paul was raised by parents who had a strong work ethic and believed in integrity and equality. They instilled in him the idea that he could do anything if he worked hard. I believe that Paul was most proud of being an educator, both in and out of the operating room. Teaching took a great deal of focus, which he considered the most important attribute in work. And focus he did! Pity the person who owed him a chapter. There was no rest until he got what he needed. Another expression of this focus was his undivided attention and respect to the patient. Whether it was the first or last case of the day, he felt that each patient deserved his best effort and individualized care. There was no procedure that he considered "standard."

Paul treated everyone equally and had no pretenses about him or her. He valued people—not what they did, but who they were. His door was always open and students and colleagues alike came to consult with him or "just shoot the breeze," as he liked to say. He believed in the dignity of every person and the good in everyone, always making people feel comfortable and important through his humility and kindness. As an example, when a resident once noted that his journal club presentation on train-of-four monitoring was a rather mundane



Fig 6. The casual Paul Barash.

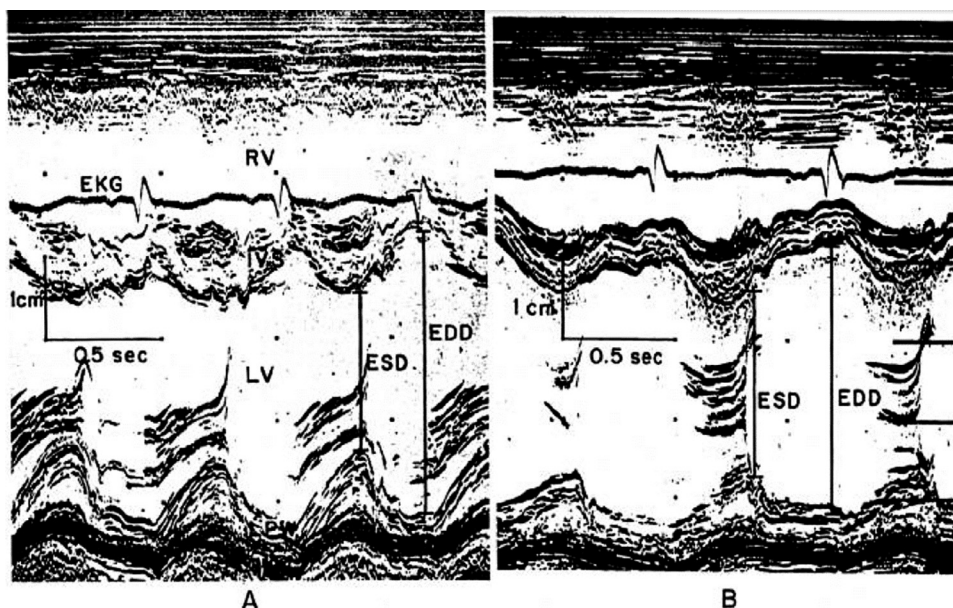


Fig 7. Transthoracic M-mode echocardiogram during anesthesia. Printed with permission from Barash P, et al.<sup>4</sup>

topic for a clinician of Dr. Barash's renown, Paul took the time to invite the resident to his office to review the slides and counsel on hitting the key point during the presentation.

One dear friend of long standing said, "If I had to say something about Paul in 2 words, it would be, 'He cared.'" And that's exactly how he conducted his personal and professional life each and every day.

*Roberta Hines, MD (former resident of Dr. Barash, professor and chair, Department of Anesthesiology, Yale)*

Paul's influence and impact on my career is impossible to overstate. When I reflect on my professional success, Paul's influence is pervasive. I cannot remember precisely the first time I met Paul, but I suspect it involved a discussion around my decision to pursue a career in anesthesiology after initially contemplating a career in surgery. I could always count on his insight, wisdom, and advice for personal and professional matters. During my training, Paul was always there to provide support and guidance. His persistent yet gentle nature was focused on ensuring that I was focused on acquiring all the necessary skills to advance. His mind was always thinking about the next research project and how he could get me involved. Upon reflection I wonder just how many ideas he could actually hold in his head at one time!

As my career progressed, there were numerous discussions about goals, objectives, and deliverables. As was often the case Paul would provide a compelling argument for doing exactly what he had in mind for you and making you think it was your idea all along! Paul remained the consummate advisor, friend, and mentor throughout my career.

As many of you know Paul loved to play a game of "challenge the chef" to make sure every dining experience was memorable. My first experience with this occurred at an academic conference in which Paul graciously included me in a dinner with the giants of anesthesiology including himself,

Robert Stoelting, Ron Miller, and Steve Slogoff. Although I don't remember what we ate, I will never forget watching the delight in which these pillars of academic anesthesiology were dazzled by Paul's culinary antics.

In anyone's life there are only a handful of individuals that affect both their professional and personal life. As much gratitude as I have for Paul's impact on my career, I am most grateful that Paul was my friend.

*Lee Fleisher, MD (former resident of Dr. Barash [1987-1990] and faculty member at Yale [1990-1991]; chief medical officer and director of the Center for Clinical Standards and Quality for the Center for Medicare and Medicaid Services; professor and former chair, Department of Anesthesiology, University of Pennsylvania)*

Paul was a special individual who had a profound impact on so many anesthesiologists in this country and around the world. His intellect and inquisitive mind taught generations of clinicians and clinician-scientists how to address both patient care and research questions. Despite being one of the most prominent anesthesiologists of his generation, he made sure that he kept that unique touch to his residents and mentees. Many of my own approaches to being a chair of an anesthesiology department were learned from him. Finally, he was always there for those he trained or mentored. I left Yale only 1 year after joining faculty because I met my future wife who was an attorney in Baltimore. Paul remained my mentor for decades after that and I spoke to him frequently. He will be missed.

*Gail Norup (executive administrator to the chair, Department of Anesthesiology, Yale University School of Medicine)*

I was hired in the Department of Anesthesiology at Yale School of Medicine in 1971 and I am still there 40+ years later. I began working for Dr. Paul Barash as his executive

Table 2  
Notable Publications by Paul Barash

Title	Ref #	Significance
Barash PG, et al. <i>Clinical Anesthesia</i> .	3	Became one the 2 major definitive international textbooks on anesthesiology, now in its eighth edition (2017).
Barash P, et al. Ventricular function in children during halothane anesthesia.	4	He used transthoracic M mode to estimate LV SV (See Fig 6) and function; one of first applications of ECHO to anesthesia.
Barash PG, et al. Early extubation following pediatric cardiothoracic operation.	5	One of the first papers on “fast track” anesthesia.
Estafanous FG, et al. <i>Cardiac Anesthesia</i> .	6	One of the early definitive textbooks on Cardiac anesthesia.
VanDyke C, et al. Cocaine: Plasma concentrations after intranasal application in man.	7	One of the early papers on effect of cocaine, followed by several other papers he coauthored on adverse effect of cocaine during anesthesia.
Barash P, Dizon C. An introducer for intraoperative percutaneous insertion of a Swan Ganz catheter.	8	This became standard practice.
Deren M, et al. Perforation of the pulmonary artery requiring pneumonectomy after the use of a flow directed (Swan Ganz) catheter.	9	One of the early papers to call attention to this life-threatening complication of PAC. The next paper soon followed.
Barash PG, Nardi D, et al. Catheter induced pulmonary artery perforation: Mechanisms, management and modifications.	10	
Hasel R, Barash PG. Dilated coronary sinus on pre-bypass transesophageal echocardiography.	11	One of the early papers to call attention to this observation—its possible causes and impact on conduct of CPB.
Barash P. Cardiopulmonary bypass and postoperative neurologic dysfunction.	12	One of the early papers to address the problem of neurologic dysfunction post CPB. Published in a cardiology journal.
Katz J, et al. Postoperative hypertension: A hazard of abrupt cessation of antihypertensive medication in the preoperative period.	13	At the time that this paper was published, it was widely recommended to discontinue antihypertensive therapy before anesthesia. This paper led to a change in this dangerous practice.
Kopriva CJ, et al. Should propranolol be discontinued before coronary artery surgery?	14	Again, at this time many were advocating discontinuing beta-blocker therapy before cardiac surgery. This paper led to reconsideration of this potentially dangerous practice.
Hines R, Barash PG. Right ventricular function in the perioperative period.	15	One of the early papers to call attention to the importance of right ventricular dysfunction to perioperative care.
Barash PG. Preoperative evaluation of the cardiac patient for noncardiac surgery.	16	An early paper describing the systematic preoperative evaluation of the cardiac patient undergoing noncardiac surgery. Followed by numerous guidelines from various organizations.
Fleisher LA, Barash PG. Preoperative cardiac evaluation for noncardiac surgery: A functional approach.	17	A follow-up of the previous paper. It included an algorithm (see Fig 7), part of which was subsequently modified by the ACC/AHA guidelines.
Fleisher L, et al. The predictive value of preoperative silent ischemia for postoperative ischemic to cardiac events in vascular and nonvascular surgical patients.	18	Called attention of the significance of preoperative silent myocardial ischemia.
Swamidoss C, et al. The use of relational databases in the transition from quality assurance to continuous quality improvement: An anesthesia clinical practice model.	19	One of the early papers to advocate the use of “big data.”
Schonberger RB, Barash PG. Impact versus impact factor: Revisiting a classic article that has never been cited.	20	Emphasized that not all important papers are frequently cited; a critique of the importance of the citation index or impact factor. Metric.
Brull SJ, Barash PG. Is ‘ol reliable still reliable?	21	One of his last published papers.

Abbreviations: ACC, American College of Cardiology; AHA, American Heart Association.

administrator soon thereafter. During the time we worked together, he would always have me running in different directions at one time. Thank God I could multitask, whether it be working on presentations, visiting professorships, meetings, travel, books chapters, or most important and always the next Edition of *Clinical Anesthesia*.

In the anesthesia office, the administrative staff loved him. He would come by the office, almost on a daily basis, whether in the morning or at the end of the day after his operating room shift. When he was nonclinical, you would always find him in his office with his door open. He never failed to have the time to chat and tell stories of his family, driving his red convertible, traveling the world (then making photo albums of his trips to share with all), or Yankee games, and he always listened to the administrators' life interests and events as well. Nothing was more important. We were blessed to have worked for this special

man for so many years. He will be long remembered for his charismatic, funny, kind, thoughtful way and generosity with his time in guiding others, whether it be personal or on medical issues.

All those who have crossed paths with Paul Barash refer him as the giant in the anesthesia community. “PB,” as he was affectionately known, selflessly mentored numerous chairs and section chiefs, and encouraged younger physicians in anesthesiology at the faculty, fellow, and resident level. Teaching and mentoring were at the heart of his distinguished career. He was a gifted educator, whether in the operating room with residents or in a large lecture hall to hundreds of participants. He was a legend, friend, and mentor to so many. He not only cared about what happened with many resident careers, but also the choices they made; he advised them on a personal level to always find time with their family. PB was a remarkable and unique man. He was bright and very talented with endless



energy, ideas, and focus. His residents and fellows and generations of anesthesiologists were influenced by Paul, and through them his legacy will be carried on for years to come. He was a great teacher and also a mentor, encouraging of all choices made by residents and fellows. He was a sounding board for ethical and work problems, a confidant for personal issues and always provided support to them. He was always honest in his opinions and always in his teaching taught those to see the other side of all situations. He showed those he taught that everyone had something to contribute, nothing too small or too big. His relationships continued on as he remained a constant mentor, guide, and friend to those who left Yale. He was a living model of how a clinician-educator should be focused, persistent, passionate, and inquisitive, while being humble and compassionate, and he had a genuine and selfless desire to make his medical students, residents, and fellows better, so it made all of the critiques welcome. He treated all with whom he interacted as if they were his own children. He took them under his wing pushing them forward to the best they can be into their future anesthesiology career.

Fig 8.

Joseph “Jerry” Reves, MD (second president of the SCA; former chair of Anesthesiology, Duke University; former dean at the Medical University of South Carolina [Fig 9])

Paul Barash made many contributions to cardiothoracic anesthesia as a clinician, clinical investigator, program director and chair at Yale, and as a career-long devoted educator.

My fondest memories of Paul relate to the very early days of the Society of Cardiothoracic Anesthesiologists, in which he single handedly organized 4 of the early Society meetings. He wore a bright green coat similar to the Master’s tournament winner, but Paul wore it as the master educator. He planned, invited speakers by himself, and saw to it that those first meetings were of the highest caliber. He would scurry around and the green coat became a green blur as he went from session to session, from scientific presentations to exhibits and back. There was no urgent or emergent problem that he did not solve swiftly and with equanimity. I am certain that the success of the Society in its early years was owed to Paul Barash and the programs he ran in the years 1981 to 1984. If they had failed or had not led to greater participation each year, there would not be a Society today. It is that simple.

Paul published research and ran a fine department at Yale, but his heart was always on the heart. And in that subspecialization of anesthesia, he most cared about education. We coauthored books with him on cardiac anesthesia<sup>6,24</sup> and he covered cardiac so well in his very popular 8 editions of books entitled *Clinical Anesthesia*. Most meaningful to me was the career-long friendship we had where we often discussed the excitement in our field, but also shared the personal challenges that we both had. Those conversations were always filled with optimism no matter how difficult the problem. Paul’s profound impact on our field is a result of his energetic, charismatic leadership that was based on his fundamental decency and his sincere wish to make us all better doctors through education.

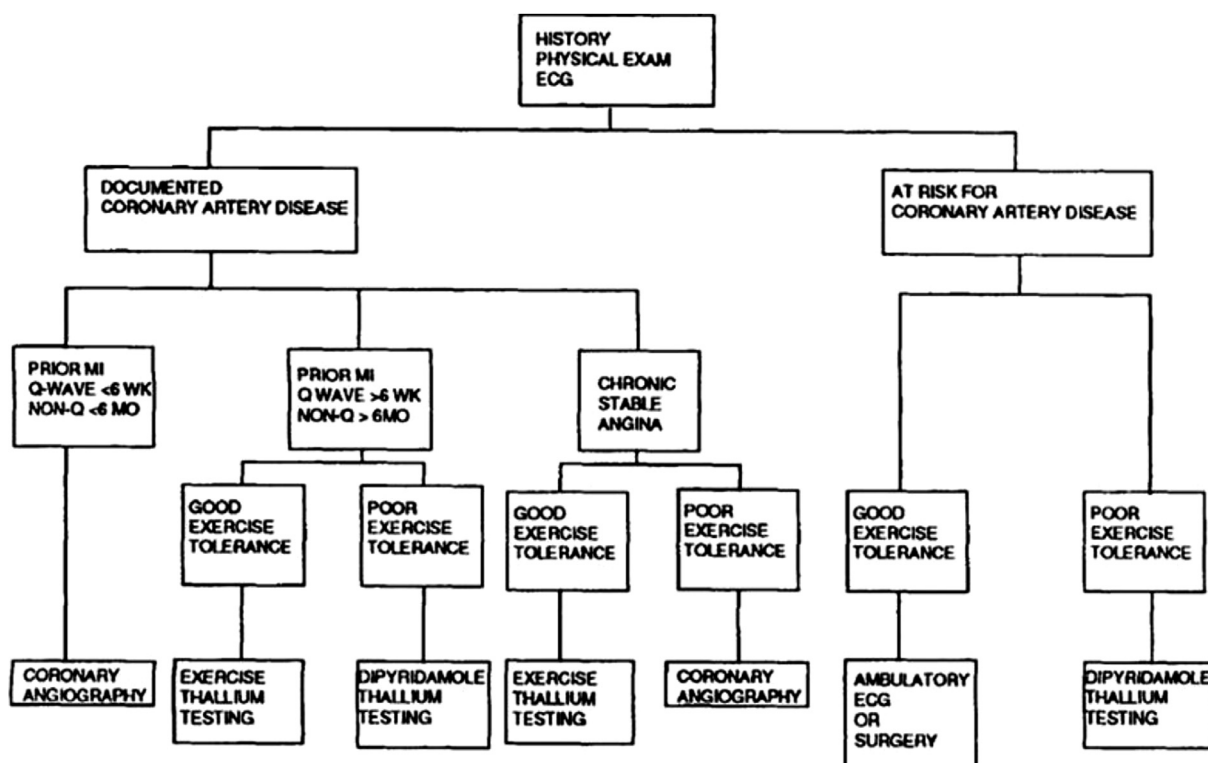


Fig 8. Depicting their algorithm. Reproduced with permission from Fleisher LA, Barash PG.<sup>17</sup>



Fig 9. Paul Barash with Jerry Reves in New Haven 2001.

*Glenn Gravlee, MD (professor emeritus, Department of Anesthesiology, University of Colorado; past president of Society of Cardiovascular Anesthesiologists)*

I first remember interfacing with Paul when he kindly appointed me to the Annual Meeting Program Committee of the SCA in 1981 and then invited me to speak at the 1982 Annual SCA Meeting. I was an unknown junior faculty member trying to gain entry to the academic community beyond our small subspecialty group at Wake Forest. Paul was the first person outside my department to crack that door open for me, and he patiently led me into a burgeoning world of cardiac anesthesia. Over the ensuing decades, I remember his generous willingness to either answer the phone immediately or promptly return calls to provide astute career guidance or discuss clinical and administrative conundrums I faced. I greatly enjoyed his lectures, which were filled with warmth, humor, and unique thought-provoking insights.

I vividly recall that the first SCA Program Committee meeting I attended was chaired by Paul. He was a force of nature brimming with creativity and energy while encouraging outside-the-box ideas. Panels and topics were flying onto a whiteboard as he put the program together fueled by the stimulating discussion that he inspired. Paul boldly called for limited split sessions for the second annual meeting in the face of a first one that had just drawn fewer than 100 attendees. This prescient format likely recruited new members and attendees who enjoyed having multiple options tailored to their specific needs. He encouraged and supported the creation of freestanding workshops integrated into the Annual Meeting. I remember Paul wisely discouraging our anticipated full-day Wednesday program in saying, “By that time, people are getting dizzy in the city.” I admired and later attempted to emulate his style of

running a meeting—this was not your customary committee meeting. His mind ran at hyper-speed. Clearly it was a struggle for him to speak slowly enough for us to (usually) assimilate his lightning-quick brilliance. Paul was a visionary leader with a compelling personality who will be missed by me and by many, many others.

*Jonathan Mark, MD (professor, Department of Anesthesiology, Duke University)*

Every anesthesiologist and resident anesthesiologist knows the name Paul Barash. All know him as the lead editor of one of our most popular and authoritative textbooks. All cardiac anesthesiologists also know his broad impact on our subspecialty. Paul was arguably one of the founding fathers of cardiac anesthesia, a clinical scholar who published widely and lectured compellingly on many core aspects of our field: pulmonary artery catheter monitoring to perioperative echocardiography; cardiac risk assessment to intensive care management; cocaine toxicity to beta-blocker treatment; and on and on. . .

What many may not know about Paul Barash is something much more personal. Paul befriended, mentored, and inspired so many physicians and leaders in our field. He embodied traits I and many others cherish dearly: warm humility, academic discipline, and commitment to teamwork. I was the beneficiary of many personally meaningful interactions with Paul, through professional organizations like the American Board of Anesthesiology (ABA) and SCA, as well as other opportunities over the years. One particularly sticks in my mind. Paul came to Duke as visiting professor in 2012, and I was asked to participate in his grand rounds presentation titled “SCIP measures enhance patient care: A pro-con debate.” What an honor to share



the podium with Paul for that hour and offer my (somewhat less convincing) side to the question. More than anything, I recall Paul's academic embrace and encouragement after our presentation and the time he took to further our discussion and compliment my comments and perspective. People like Paul are rare. They are special indeed.

*Daniel Thys, MD (12th president of SCA; professor emeritus, Department of Anesthesiology, Columbia University; founding member of National Board of Echocardiography)*

In 1980, one of the cardiac anesthesiologists (Stanley Rosenbaum) who had mentored me during my cardiac anesthesia fellowship at Columbia-Presbyterian joined the cardiac faculty at Yale. At the following American Society of Anesthesiologists (ASA) annual meeting, he introduced me to his new colleagues of the cardiac anesthesia team at Yale including Paul Barash. Paul was easy to interact with, and our conversation at that ASA annual meeting began a long-lasting friendship. Our paths crossed numerous times in New York, New Haven, and around the world. Paul had a clear vision of what it meant to be a cardiac anesthesiologist and I frequently turned to him for professional advice; he dispensed it generously and with humility. Many years later, when his name had become synonymous with a major textbook of anesthesia, I often invited him as a visiting professor to my department. He enjoyed coming to New York and always graciously made time to engage with the house staff. Their interactions with him were just as easy as those that I had experienced when I first met him in the early 80s. He was a true but humble giant and none of us will ever forget him.

*Dennis T. Mangano, PhD, MD (founder, Multicenter Study of Perioperative Ischemia (McSPI); founder, The Ischemia Research and Education Foundation (IREF); professor emeritus, University of California, San Francisco)*

Paul Barash—not only a dear friend, inspirational research leader, and wonderful role model, but also a man with grace, intelligence, dedication, humility, and character.

Paul and I were friends for 40 years. From the moment we met I realized that Paul was special. He certainly was greatly accomplished, but more than that he was warm, compassionate, and giving, which are extraordinary traits rarely, if ever, seen among highly successful professionals. Simply put, Paul was a Mensch.

Paul's gifts for mentoring are well described by his students and junior faculty who went on to develop successful academic careers. To this is added his role as director of the international research group McSPI and director of the funding nonprofit, The Ischemia Research and Education Foundation. Under his leadership, scores of high-impact publications were written by junior investigators mentored by Paul, many addressing global issues important to Paul in the disciplines of Neurology, Cardiology, and Drug Safety. Throughout that all-encompassing experience, I witnessed a stellar mentor and dedicated leader who at the same time remained humble and compassionate.

Paul, I will miss you only physically, for I will continually embrace your spirit and bathe in the glow of your person. You, my dear friend, live within all of us.

*Christopher Troianos, MD, FASE, FASA (professor and chair, Anesthesiology Institute, Cleveland Clinic Lerner College of Medicine; past president, Society of Cardiovascular Anesthesiologists; president-elect, National Board of Echocardiography)*

Paul Barash was a mentor to me early on in my career, even though I had not trained under Paul, nor had any professional relationship with him. When I took the chance to organize my own transesophageal echocardiography (TEE) course in the early 1990s, I asked Paul to be our keynote speaker and share his thoughts as to what this new technology could mean to the practice of cardiac anesthesiology. He shared that he was not an expert in TEE, but he would certainly be happy to share his opinions and perspective. I was eternally grateful, and humbled that he would make such a contribution at the request of an early-career anesthesiologist whom he hardly knew. Later as I was organizing my first textbook, *Anesthesia for the Cardiac Patient*, I asked Paul if he would contribute a chapter on valvular heart disease. Again, he did not hesitate to accept, but I thought to myself, "Wow, here is one of the giants in anesthesiology, whose own textbook is one of the authorities of our specialty, helping a young faculty to elevate the stature of my book." These are just 2 examples of what a very kind-hearted and generous person he was, never hesitating to guide and help someone's budding career. Paul was intrigued by my work using ultrasound-guided vascular cannulation and would call me from time to time to hear my opinion and thoughts regarding use of this technology for vascular cannulation, often quoting my early work in this area. He was one of the very few people of his generation who was willing to adopt this new technology in performing a procedure in which he had considerable experience. Although others of his era took pride in "blindly" accessing the internal jugular vein with a landmark-guided approach, I admired Paul for being open to new technology, such as TEE and ultrasound-guided vascular cannulation, which have now become "standards" in cardiac anesthesia practice. Paul's visionary work and contributions to the SCA certainly motivated me to get more involved with the SCA, and eventually follow in Paul's footsteps to become president of our Society. I am forever grateful for the impact he has had on my career.

*Rob Sladen, MD (professor emeritus, Department of Anesthesiology, Columbia University; past member of Board of Trustees of the International Anesthesia Research Society [IARS])*

Paul Barash was an extraordinary teacher, a wonderful mentor, and a true "mensch"—one of the giants of our profession. I met Paul for the first time in 1986 when he was chair of the Department of Anesthesiology at Yale, with some trepidation, I might add, because he was already regarded as one of our

country's leading academic anesthesiologists. Paul's warmth and unassuming, down-to-earth personality immediately put me at ease. I was particularly struck by his mentorship of his Critical Care Fellow, Roberta Hines, who subsequently went on to succeed him as chair at Yale. My admiration for Paul continued to grow as I listened to his contributions at major anesthesiology meetings over the years. Paul treated everyone alike, from his peers to the most neophyte medical student, with kindness and respect and always an encouraging word.

In 1998 I initiated our first Annual Academic Evening at Columbia University Medical Center to provide a forum for our anesthesiology students, residents, and fellows to present their clinical and laboratory research. This involved inviting a guest judge to evaluate and comment on the finalists' presentations. The choice was simple. Paul accepted, and as expected conducted himself with grace and empathy—the perfect role model for our aspiring academicians.

In 2003 I was charged by the Society of Cardiac Anesthesiologists' Annual Meeting Committee to create an august panel of experts to address challenging ethical issues. Paul unhesitatingly agreed and joined a pantheon of leaders in the field, Ed Lowenstein and Carl Hug, in leading a discussion I shall never forget: wise yet practical, and right on target. I could go on—there are so many instances when I turned to Paul, a colleague and friend for whom I had enormous affection and respect.

Suffice it to say that Paul was one of our profession's true leaders. He exemplified academic excellence, selflessness, humility, honesty, and kindness. Paul was always willing to listen and always ready to help. His like shall not soon come our way again.

*Eugene A. Hessel, II (professor, Department of Anesthesiology, University of Kentucky [Fig 10])*

Although I was 6 years older than Paul was, I entered anesthesia 15 years after he did and was lightyears behind him, but I benefited greatly from his mentoring and friendship. I first

“met” him in the course of preparing a presentation on the effect of anesthesia on cardiac function while I was an anesthesia resident at the University of Washington in the early 1980s. I came across his previously mentioned article on utilizing transthoracic echocardiography to assess the cardiac effects of halothane.<sup>4</sup> Later he and Dr. Estafanous invited me to write a chapter on the history of cardiac surgery and anesthesia for the second edition of their textbook on cardiac anesthesia.<sup>24</sup> This sparked my career in the study and publishing in the area of cardiac history. Subsequently he generously invited me to collaborate with him on identifying key papers in anesthesia and cardiac anesthesia, and as always welcomed my differences of opinions.

I most enjoyed his several visits to our department here at the University of Kentucky. As all would know, his presentations were outstanding, but most important was his impact on our residents and young faculty members at small conferences and dinners (Fig 11). All were moved to emulate him. On his most recent visit in 2016 he was overjoyed to find the house he lived in while a medical student, still in existence 50 years later (Fig 12). Until his passing, Paul Barash would provide me with advice and encouragement for my work.

## Summary and Conclusions

In the past 2 years, we have lost 2 giants in our specialty, Paul Barash and Michael Cahalan.<sup>25</sup> Both were outstanding clinicians, researchers, educators and communicators, and most notably they were exemplary “servant leaders.”<sup>26</sup> Chestnut identified servant leadership as one of the important characteristics of physician professionalism.<sup>27</sup> Servant leadership focuses on serving the highest needs of others in an effort to help others achieve their goals.<sup>28</sup> Drs. Barash and Cahalan both cared for and interacted with every person they came in contact with, with interest and support, whether they were colleagues, support staff, students, or trainees. They sought to serve others rather than themselves.



Fig 10. Paul Barash with Eugene Hessel in Lexington Kentucky 2016.



Fig 11. Paul Barash with young anesthesia faculty members at the University of Kentucky in 2016. A classic highlight of his visit to any institutions or meeting.



Fig 12. Paul Barash in 1966 in front of the house he lived in during medical school in Lexington, Kentucky in the 1960s.

Paul George Barash, named after George Washington, one of the “fathers” of the United States, made tremendous contributions to the science, clinical practice, and education of anesthesiology in general, and to cardiothoracic anesthesia in particular, and is certainly one of the “fathers” of our specialty. However, mainly he was an exemplar of what a human being, a clinician, and an academician should be—a servant leader. Our specialty is better because of him, and each of us can be better if we strive to emulate him.

## References

- 1 Kaplan JA. Paul Barash, MD: Cardiac anesthesia giant. *J Cardiothorac Vasc Anesth* 2021;35:689–90.
- 2 Barash P, Bieterman K, Hersey D. Game changers: The 20 most important anesthesia articles ever published. *Anesth Analg* 2015;120:663–70.
- 3 Barash PG, Cullen BF, Stoelting RK. Clinical anesthesia. Philadelphia, PA: Lippincott Williams and Wilkins; 1987.
- 4 Barash PG, Glanz S, Katz JD, et al. Ventricular function in children during halothane anesthesia: An echocardiographic evaluation. *Anesthesiology* 1978;49:79–85.



- 5 Barash PG, Lescovich F, Katz JD, et al. Early extubation following pediatric cardiothoracic operation: A viable alternative. *Ann Thorac Surg* 1980;29:228–33.
- 6 Estafanous FG, Barash PG, Reves JG. *Cardiac Anesthesia*. Philadelphia, PA: Lippincott Williams and Wilkins; 1993.
- 7 VanDyke C, Barash P, Jatlow P, et al. Cocaine: Plasma concentrations after intranasal application in man. *Science* 1976;191:859–61.
- 8 Barash P, Dizon C. An introducer for intraoperative percutaneous insertion of a Swan Ganz catheter. *Anesth Analg* 1977;56:444–5.
- 9 Deren M, Barash P, Hammond G, et al. Perforation of the pulmonary artery requiring pneumonectomy after the use of a flow directed (Swan Ganz) catheter. *Thorax* 1979;34:550–3.
- 10 Barash PG, Nardi D, Hammond G, et al. Catheter induced pulmonary artery perforation: mechanisms, management and modifications. *J Thorac Cardiovasc Surg* 1981;82:5–12.
- 11 Hasel R, Barash PG. Dilated coronary sinus on pre-bypass transesophageal echocardiography. *J Cardiothorac Vasc Anesth* 1996;10:432–5.
- 12 Barash P. Cardiopulmonary bypass and postoperative neurologic dysfunction. *Am Heart J* 1980;99:675–7.
- 13 Katz J, Cronau L, Barash P. Postoperative hypertension: A hazard of abrupt cessation of antihypertensive medication in the preoperative period. *Am Heart J* 1976;92:79–80.
- 14 Kopriva CJ, Firestone L, Stefansson S, et al. Should propranolol be discontinued before coronary artery surgery? *Pract Cardiol* 1978;4:55–68.
- 15 Hines R, Barash PG. Right ventricular function in the perioperative period. *Mt Sinai J Med* 1985;52:529–33.
- 16 Barash PG. Preoperative evaluation of the cardiac patient for noncardiac surgery. *Canad J Anaesthesia* 1991;38:R134–9.
- 17 Fleisher LA, Barash PG. Preoperative cardiac evaluation for noncardiac surgery: A functional approach. *Anesth Analg* 1992;74:586–98.
- 18 Fleisher LA, Rosenbaum SH, Nelson AH, et al. The predictive value of preoperative silent ischemia for postoperative ischemic cardiac events in vascular and nonvascular surgery patients. *Am Heart J* 1991;122:980–6.
- 19 Swamidoss C, Watrous G, Dickson BS, et al. The use of relational databases in the transition from quality assurance to continuous quality improvement: An anesthesia clinical practice model. *Am J Med Quality* 1998;13:228–9.
- 20 Schonberger RB, Barash PG. Impact versus impact factor: Revisiting a Classic article that has never been cited. *Anesth Analg* 2012;115:1286–7.
- 21 Brull SJ, Barash PG. Is ‘ol reliable still reliable? *Anesth Analg* 2015;121:1–3.
- 22 Barash P, Hobbins JC, Hook R, et al. Management of coarctation of the aorta during pregnancy. *J Thorac Cardiovasc Surg* 1976;69:781–4.
- 23 Reves JG. An essay on 35 years of the Society of Cardiovascular Anesthesiologists. *Anesth Analg* 2014;119:255–65.
- 24 Estafanous FG, Barash PG, Reves J. *Cardiac anesthesia: Principles and clinical practice*. ed 2 Philadelphia, PA: Lippincott Williams and Wilkins; 2001.
- 25 Hessel EA, Talmage DE, Michael K, Cahalan: In celebration of his life and contributions to cardiac anesthesiology. *J Cardiothorac Vasc Anesth* 2020;34:12–9.
- 26 Greenleaf RK. *Servant leadership: A journey into the nature of legitimate power and greatness*. Mahwah, NJ: Paulist Press; 1977.
- 27 Chestnut DH. On the road to professionalism. *Anesthesiology* 2017;126:780–6.
- 28 Trastek VF, Hamilton NW, Niles EE. Leadership models in health care - a case for servant leadership. *Mayo Clin Proc* 2014;89:374–81.