



Alex Macario MD MBA

Professor of Anesthesiology, Perioperative and Pain Medicine (MSD)

CLINICAL OFFICE (PRIMARY)

- **Anesthesia**

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Bio

BIO

Alex Macario, MD, MBA is vice-chair for education and Professor in the Department of Anesthesiology, Perioperative and Pain Medicine at the Stanford University School of Medicine.

Dr. Macario also serves on the Board of Directors for the American Board of Anesthesiology and is the past President. This is an exceptional honor as one anesthesiologist is appointed each year with each Director serving for 12 years. The mission of the Board is to advance the highest standards of the practice of anesthesiology.

Dr. Macario has also served as a member of the Anesthesiology Review Committee for the Accreditation Council for Graduate Medical Education which aims to improve health care and population health by advancing the quality of resident physicians' education.

Born in Argentina, Dr. Macario came to the US at age 10 with his family, and completed his undergraduate, medical school and business school education at the University of Rochester with the Wilson Merit Scholarship. He trained in anesthesiology at Stanford, served as Chief Resident, and completed a fellowship in health services research.

Dr. Macario's clinical practice is with adult patients in the general operating room. He also serves as hospital scheduler to provide management & leadership in the medical center's operating rooms and procedure rooms including interventional radiology and endoscopy.

Dr. Macario has received numerous awards, including being internationally recognized with the Excellence in Education Award from the American Society of Anesthesiologists given to one anesthesiologist per year for extraordinary contributions to graduate medical education. Dr. Macario was also the inaugural recipient of the Outstanding Contribution to Graduate Medical Education as Program Director Award for the Stanford University Medical Center. He has also been honored with the Faculty Mentor Award on two occasions from the American Society of Anesthesiology for his efforts to foster diversity.

A member of the faculty at Stanford since 1995, Dr. Macario established a well known academic program in operating room management, including creating the Management of Perioperative Services Fellowship which has trained dozens of physicians from the US and other countries. Dr. Macario also designed and led other innovative educational programs, including the Stanford Fellowship in Anesthesia Research and Medicine track for anesthesia residents who want to pursue research-intensive careers, many of whom have gone on to obtain NIH funding.

Dr. Macario served as the founding program director for the Combined Residency in Internal Medicine and Anesthesiology as well as the founding associate program director for the Combined Residency in Pediatrics and Anesthesiology.

Dr. Macario's research career has been dedicated to the economics of health care, helping develop the scientific study of the management of the operating room suite including pioneering work related to efficiency & scheduling. Dr. Macario's research team also studies medical education and board certification.

Dr. Macario's innovative work has led to 200+ peer reviewed publications which have 14000 citations. Dr. Macario's H-Index is 61. An index of h indicates an investigator has published h papers each of which has been cited in other papers at least h times. His I-10 Index is 163 meaning that 163 of his articles have been cited at least 10 times.

Dr. Macario authored "A Sabbatical in Madrid: A Diary of Spain," an award winning travel memoir. Dr. Macario has 2 adult children one married with two daughters in Palo Alto & the other in New York City, & lives with his wife in their home on the Stanford Campus. In his free time, Dr. Macario enjoys rooting for Stanford sports, biking up the local hills, & playing tennis.

CLINICAL FOCUS

- Multispecialty including for example anesthesia for orthopedics, urology, neurosurgery, ambulatory surgery, and general surgery
- Anesthesia

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Anesthesiology, Perioperative and Pain Medicine
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Program Director, Combined Internal Medicine-Anesthesiology residency, (2013-2023)
- Associate Program Director, Combined Pediatrics and Anesthesiology Residency, (2010-2023)
- Founder, Faculty Teaching Scholars Program, Department of Anesthesiology, (2007-2017)
- Director, CME Grand Rounds Program, Department of Anesthesiology, (2010- present)
- Executive Committee, Faculty Senate, Stanford University School of Medicine, (2007-2012)
- Program Director, Anesthesiology Residency, (2006-2023)
- Vice-Chairman for Education, Department of Anesthesiology, (2006- present)
- Finance Committee, Dept of Anesthesiology, (2003- present)
- Visiting Professor, TAISS, Madrid, Spain, (2001-2002)
- Governance Committee, Dept. of Anesthesiology, (1997- present)
- Program Director, Management of Perioperative Services Fellowship, (1996- present)

HONORS AND AWARDS

- Excellence in Education Award (one national awardee per year), American Society of Anesthesiologists (2018)
- Global Health Grant: Collaboration in Zimbabwe for anesthesiologist training and education research, Sponsor: Office of International Affairs, Stanford University (2015)
- Inaugural recipient, Outstanding Contribution to Graduate Medical Education as Program Director, Stanford University (2015)
- Medical technology grant: A monitoring system to prevent unnecessary blood wastage, Sponsor: Stanford Center for Clinical and Translational Research and Education (2015)
- Faculty Mentor Award, American Society of Anesthesiology, Committee on Professional Diversity (2012 and 2013)
- Charter member, Education Academy, Foundation for Anesthesia Education & Research (2012)
- Education Advisory Board, Association of University Anesthesiologists (2012)
- First place, "best article", Journal of Medical Internet Research: 4th World Congress on Social Media & Web 2.0 Health & Medicine (2012)
- Ellis N. Cohen Achievement Award (Department of Anesthesiology highest honor), Stanford University (2009)
- Keynote speaker, American Association of Clinical Directors Annual Meeting (2007)
- 1st place, Literature Prize, American Society of Anesthesiology Annual Meeting (2004)
- Research Incentive Award, Testing a secure Web based, decision support system for anesthesia, Stanford University Office of Technology Licensing (2001-2002)
- Principal Investigator for grant on patient preferences for postoperative outcomes, Foundation for Anesthesia Education Research (1998)
- Annual Resident Research Prize, 3rd Place, American Society of Anesthesiologists (1995)
- Valdes - Dapena Research Prize, The Graduate Hospital, University of Pennsylvania (1991)
- Graduation Speaker, College of Arts & Sciences, University of Rochester (1986)
- Phi Beta Kappa, University of Rochester (1986)
- Rigby - Wile Prize in Biology, University of Rochester (1985)
- Joseph C. Wilson Scholar, University of Rochester (1982)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, ACGME Anesthesiology Review Committee (2019 - present)
- Director, Board of Directors, American Board of Anesthesiology (2017 - present)
- Examiner, American Board of Anesthesiology (2011 - present)
- Editorial Board, Medscape Anesthesiology website at <http://www.medscape.com/anesthesiology> (2010 - 2019)
- Member, Association of University Anesthesiologists (honorific society) (2000 - present)
- Editorial Board, Anesthesiology News (1999 - 2019)

PROFESSIONAL EDUCATION

- Board Certification: Anesthesia, American Board of Anesthesiology (1995)
- Residency: Stanford University Anesthesiology Residency (1994) CA
- Internship: Graduate Hospital (Closed) (1991) PA
- Fellowship: Stanford University Medical Center (1995) CA
- Medical Education: University of Rochester (1990) NY
- Chief Resident, Stanford University , Anesthesiology (1994)
- MBA, University of Rochester , Health Economics (1988)
- BA, University of Rochester , Sociology (1986)

COMMUNITY AND INTERNATIONAL WORK

- Zimbabwe Global Health elective for anesthesia residency
- Postgraduate Fellowship in Global Health
- Global Health Trip 1994, Vietnam

LINKS

- Podcast: Being a Physician MBA. An interview with Dr. Alex Macario: <https://itunes.apple.com/us/podcast/the-undifferentiated-medical-student/id1173721448?mt=2&i=1000391186431>
- Media Interview, Barcelona: <http://www.youtube.com/watch?v=y8kLL7dKQ08>
- Management Fellowship: <https://surgicalhome.stanford.edu/>
- Dr. Macario's most frequently cited papers as per Google Scholar: https://scholar.google.com/citations?view_op=list_works&hl=en&user=BGLZ_YMAAAAJ
- Education Blog: <https://askalex.stanford.edu/>
- Twitter: <https://twitter.com/alexmacario>
- Youtube video of talk on economics of the operating room: https://m.youtube.com/watch?v=u_f-eH68Kvg
- New York Times interview: http://www.nytimes.com/2006/07/18/health/18tech.html?_r=1&
- Youtube video of talk on utilization of the OR: <https://m.youtube.com/watch?v=KFt99KYRG18>
- Q and A Videos with Dr. Macario about the Stanford Anesthesia Residency: <https://www.youtube.com/playlist?list=PLpGHT1n4-mAtMvquqa7mye5EnKbmy8AX5>
- Why I Became an Anesthesiologist: <http://www.medscape.com/viewarticle/881001>
- Press release American Society of Anesthesiologists: <https://www.asahq.org/about-asa/newsroom/news-releases/2018/10/excellence-in-education-award>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Macario studies health care economics and outcomes, with a special focus on surgery and anesthesia.

Dr. Macario is well known for helping develop the field of operating room management.

He is also passionate about cost-effectiveness analyses of drugs and devices.

For the past decade Dr. Macario has added research in medical education as a key focus to better understand methods to best teach residents.

Google Scholar calculates Dr. Macario's H-Index as 54 and his I-10 as 127, with 10,000 total citations.

PROJECTS

- Collaboration in Zimbabwe for anesthesiologist training and education research - Stanford University, Department of Anesthesiology

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Anesthesia (Fellowship Program)
- Cardiac Anesthesia (Fellowship Program)
- Critical Care Medicine (Fellowship Program)

- Health Services Research (Masters Program)
- Obstetric Anesthesia (Fellowship Program)
- Pain Management (Fellowship Program)
- Pediatric Anesthesia (Fellowship Program)

Publications

PUBLICATIONS

- **A Longitudinal Assessment for Continuing Certification of Anesthesiologists: Utilization, Performance, and Perception of MOCA Minute.** *Anesthesiology*
Sun, H., Lee, Y., Harman, A. E., Macario, A., Deiner, S. G., Minhaj, M., Cook, D. A., Warner, D. O.
2026
- **Effect of preoperative intranasal insulin on postoperative delirium in adult surgical patients: a systematic review, meta-analysis, and trial sequential analysis.** *Perioperative medicine (London, England)*
Velasco, E. M., Lima, V. S., Caldonazo, T., Passos, F. S., Lins, P. R., Grillo, I. T., Tanaka, P., Macario, A., Zivkovic, A. R., da ManoelSilva, J. J., Ehler, J., Esper Trembl, R.
2026
- **Anesthesiology Milestones 1.0: Residents' Learning Trajectories and Training Outcomes.** *Anesthesia and analgesia*
Ye, T., Sun, H., Harman, A. E., Deiner, S. G., Mitchell, J. D., Macario, A.
2025
- **Reliability and utility of anesthesiology entrustable professional activities assessed with a mobile web application.** *Journal of clinical anesthesia*
Tanaka, P., Park, Y. S., Chen, J., Macario, A.
2025; 106: 111922
- **Factors Identified by Faculty That Contribute to Straight-Line Scoring in End-of-Rotation Evaluations of Anesthesiology Residents.** *A&A practice*
Tanaka, P., Goldmacher, J., Park, Y. S., Vinagre, R., Macario, A.
2025; 19 (4): e01947
- **Large Language Models and the American Board of Anesthesiology Examination.** *Anesthesia and analgesia*
Macario, A., Minhaj, M. M., Keegan, M. T., Harman, A. E.
2025; 140 (1): e7-e8
- **Implementing Holistic Applicant Review and Addressing Biases in Anesthesiology Residency Committee Deliberations.** *A&A practice*
Tanaka, P., Chen, M. C., Beck, T., Carbonar, M., Park, Y. S., Macario, A.
2024; 18 (12): e01873
- **Administration of the American Board of Anesthesiology's virtual APPLIED Examination: successes, challenges, and lessons learned.** *BMC medical education*
Keegan, M. T., Harman, A. E., McLoughlin, T. M., Macario, A., Deiner, S. G., Gaiser, R. R., Warner, D. O., Suresh, S., Sun, H.
2024; 24 (1): 749
- **Domains Influencing Faculty Decisions on the Level of Supervision Required for Anesthesiology EPAs with Analysis of Feedback Comments.** *Journal of surgical education*
Tanaka, P., Soo Park, Y., Chen, C. Y., Yumul, R., Macario, A.
2024
- **Comparing characteristics and perspectives of U.S. anesthesiology fellows in training and anesthesiologists in their first year of practice.** *BMC medical education*
Toutkoushian, E., Chen, D., Sun, H., Warner, D. O., Macario, A., Deiner, S. G., Keegan, M. T.
2023; 23 (1): 963
- **RE: Conley et al. APPLIED Advocacy: How the ABA Improved the RTID, and How It Could Be Even Better.** *The journal of education in perioperative medicine : JEPM*

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- Keegan, M. T., Macario, A., Harman, A. E., Gaiser, R. R.
2023; 25 (4): E717
- **Defining entrustable professional activities for first year anesthesiology residents: A Delphi study.** *Journal of clinical anesthesia*
Tanaka, P., Marty, A., Park, Y. S., Kakazu, C., Udani, A., Pardo, M., Sullivan, K., Sandhu, C., Turner, J., Mitchell, J., Macario, A.
2023; 88: 111116
 - **Career decisions, training priorities, and perceived challenges for anesthesiology residents in the United States.** *Journal of clinical anesthesia*
Chen, D., Toutkoushian, E., Sun, H., Warner, D. O., Macario, A., Deiner, S. G., Keegan, M. T.
2023; 89: 111155
 - **Defining entrustable professional activities for first year anesthesiology residents: A Delphi study** *JOURNAL OF CLINICAL ANESTHESIA*
Tanaka, P., Marty, A., Park, Y., Kakazu, C., Udani, A., Pardo, M., Sullivan, K., Sandhu, C., Turner, J., Mitchell, J., Macario, A.
2023; 88
 - **US versus UK Anesthesiology Training - a sprint versus a marathon?** *Journal of clinical anesthesia*
Taylor, J., Solomon, S., Tanaka, P., Macario, A.
2022; 83: 110983
 - **Evaluation of the Stanford Anesthesiology Faculty Teaching Scholars Program Using the Context, Input, Process, and Product Framework.** *The journal of education in perioperative medicine : JEPM*
Chen, M. C., Macario, A., Tanaka, P.
2022; 24 (4): E693
 - **Content Evaluation of Residency Websites for All 159 Anesthesiology ACGME Programs in the USA.** *The journal of education in perioperative medicine : JEPM*
Cohen, S. A., Cohen, L. E., Perez, F. D., Macario, A., Xie, J.
2022; 24 (1): E683
 - **Resident Family and Medical Leave During the First Year of the American Board of Anesthesiology's Extended Leave Policy** *ACADEMIC MEDICINE*
Sun, H., Dainer, R. J., Warner, D. O., Macario, A.
2021; 96 (10): 1373
 - **Resident Family and Medical Leave During the First Year of the American Board of Anesthesiology's Extended Leave Policy.** *Academic medicine : journal of the Association of American Medical Colleges*
Sun, H., Dainer, R. J., Warner, D. O., Macario, A.
2021; 96 (10): 1373
 - **Waste reduction in the operating room - old habits die hard, but change is possible**
Taylor, J., Kalra, P., Alejandro-Harper, D., Pena, N., Saffary, R., Solomon, S., Law, B., Kadry, B., Macario, A., Lu, A.
LIPPINCOTT WILLIAMS & WILKINS.2021: 1637
 - **Residency program directors' perceptions about the impact of the American Board of Anesthesiology's Objective Structured Clinical Examination.** *Journal of clinical anesthesia*
Chen, D., Sun, H., Warner, D. O., Macario, A.
2021; 75: 110439
 - **In Response.** *Anesthesia and analgesia*
Warner, D. O., Lien, C. A., Wang, T., Zhou, Y., Isaak, R. S., Peterson-Layne, C., Harman, A. E., Macario, A., Gaiser, R. R., Suresh, S., Rathmell, J. P., Keegan, M. T., Cole, et al
2021; 133 (1): e5-e7
 - **Anesthesiology Residents' Experiences and Perspectives of Residency Training.** *Anesthesia and analgesia*
Sun, H., Chen, D., Warner, D. O., Zhou, Y., Nemergut, E. C., Macario, A., Keegan, M. T.
2021
 - **Demographic Trends From 2005 to 2015 Among Physicians With Accreditation Council for Graduate Medical Education-Accredited Anesthesiology Training and Active Medical Licenses.** *Anesthesia and analgesia*
Zhou, Y., Sun, H., Wang, T., Harman, A. E., Keegan, M. T., Macario, A., Minhaj, M. M., Chaudhry, H. J., Young, A., Warner, D. O.

2021

- **Construct Validation of the American Board of Anesthesiology's APPLIED Examination for Initial Certification.** *Anesthesia and analgesia*
Wang, T. n., Sun, H. n., Zhou, Y. n., Chen, D. n., Harman, A. E., Isaak, R. S., Peterson-Layne, C. n., Macario, A. n., Fahy, B. G., Warner, D. O.
2021
- **Milestone Learning Trajectories of Residents at Five Anesthesiology Residency Programs.** *Teaching and learning in medicine*
Tanaka, P., Park, Y. S., Roby, J., Ahn, K., Kakazu, C., Udani, A., Macario, A.
2020: 1–10
- **Red Flags, Geography, Exam Scores, and Other Factors Used by Program Directors in Determining Which Applicants Are Offered an Interview for Anesthesiology Residency.** *Cureus*
Vinagre, R., Tanaka, P., Park, Y. S., Macario, A.
2020; 12 (11): e11550
- **Red Flags, Geography, Exam Scores, and Other Factors Used by Program Directors in Determining Which Applicants Are Offered an Interview for Anesthesiology Residency** *CUREUS*
Vinagre, R., Tanaka, P., Park, Y., Macario, A.
2020; 12 (11)
- **First-Year Results of the American Board of Anesthesiology's Objective Structured Clinical Examination for Initial Certification.** *Anesthesia and analgesia*
Warner, D. O., Lien, C. A., Wang, T., Zhou, Y., Isaak, R. S., Peterson-Layne, C., Harman, A. E., Macario, A., Gaiser, R. R., Suresh, S., Culley, D. J., Rathmell, J. P., Keegan, et al
2020
- **Anesthesiologist Burnout, Distress, and Depression: Reply.** *Anesthesiology*
Sun, H., Warner, D. O., Macario, A., Zhou, Y., Culley, D. J., Keegan, M. T.
2020; 132 (6): 1601-1602
- **Barriers and aidsto routine neuromuscular monitoring and consistent reversal practice -a qualitative study.** *Acta anaesthesiologica Scandinavica*
Thomsen, J. L., Marty, A. P., Wakatsuki, S., Macario, A., Tanaka, P., Gatke, M., Ostergaard, D.
2020
- **Assessment Scores of a Mock Objective Structured Clinical Examination Administered to 99 Anesthesiology Residents at 8 Institutions.** *Anesthesia and analgesia*
Tanaka, P., Park, Y. S., Liu, L., Varner, C., Kumar, A. H., Sandhu, C., Yumul, R., McCartney, K. T., Spilka, J., Macario, A.
2020
- **Economic analysis of perioperative optimization** *PERIOPERATIVE MEDICINE*
Archer, T., Maddy, E., Macario, A.
Saunders/Elsevier.2020; 2nd
- **Clinical practice profiles of anesthesiologists certified in or after the year 2000 participating in maintenance of certification in the United States.** *Journal of clinical anesthesia*
Sun, H. n., McLoughlin, T. M., Macario, A. n.
2020; 64: 109810
- **First-Year Results of the American Board of Anesthesiology's Objective Structured Clinical Examination for Initial Certification.** *Anesthesia and analgesia*
Warner, D. O., Lien, C. A., Wang, T. n., Zhou, Y. n., Isaak, R. S., Peterson-Layne, C. n., Harman, A. E., Macario, A. n., Gaiser, R. R., Suresh, S. n., Culley, D. J., Rathmell, J. P., Keegan, et al
2020; 131 (5): 1412–18
- **The American Board of Anesthesiology's Staged Examination System and Performance on the Written Certification Examination After Residency.** *Anesthesia and analgesia*
Zhou, Y., Sun, H., Macario, A., Martin, D. E., Rathmell, J. P., Warner, D. O.
2019; 129 (5): e159-e162
- **Development of an Objective Structured Clinical Examination as a Component of Assessment for Initial Board Certification in Anesthesiology.** *Anesthesia and analgesia*

- Warner, D. O., Isaak, R. S., Peterson-Layne, C., Lien, C. A., Sun, H., Menzies, A. O., Cole, D. J., Dainer, R. J., Fahy, B. G., Macario, A., Suresh, S., Harman, A. E.
2019
- **Predictors of post-anaesthesiology residency research productivity: preliminary report.** *British journal of anaesthesia*
Haight, E. S., Chen, F., Tanaka, P., Brock-Utne, J. G., Macario, A., Sun, E. C., Tawfik, V. L.
2019
 - **Association Between Participation and Performance in MOCA Minute and Actions Against the Medical Licenses of Anesthesiologists.** *Anesthesia and analgesia*
Zhou, Y., Sun, H., Macario, A., Keegan, M. T., Patterson, A. J., Minhaj, M. M., Wang, T., Harman, A. E., Warner, D. O.
2019
 - **Assessing the Workplace Culture and Learning Climate in the Inpatient Operating Room Suite at an Academic Medical Center.** *Journal of surgical education*
Tanaka, P., Hasan, N., Tseng, A., Tran, C., Macario, A., Harris, I.
2019
 - **Evolving Board Certification - Glimpses of Success.** *The New England journal of medicine*
Macario, A., Harman, A. E., Hosansky, T., Post, M. E., Sun, H., McMahon, G. T.
2019; 380 (2): 115–18
 - **Repeated Cross-sectional Surveys of Burnout, Distress, and Depression among Anesthesiology Residents and First-year Graduates.** *Anesthesiology*
Sun, H. n., Warner, D. O., Macario, A. n., Zhou, Y. n., Culley, D. J., Keegan, M. T.
2019
 - **Operating Theatre Management in the United States** *Practical Operating Theatre Management*
Goldenberg, E., Macario, A.
Cambridge University Press. University Printing House.2019; 1st
 - **The American Board of Anesthesiology's Standardized Oral Examination for Initial Board Certification.** *Anesthesia and analgesia*
Sun, H. n., Warner, D. O., Patterson, A. J., Harman, A. E., Rathmell, J. P., Keegan, M. T., Dainer, R. J., McLoughlin, T. M., Fahy, B. G., Macario, A. n.
2019
 - **The American Board of Anesthesiology Staged Examination System and Performance on the Written Certification Examination After Residency.** *Anesthesia and analgesia*
Zhou, Y. n., Sun, H. n., Macario, A. n., Martin, D. E., Rathmell, J. P., Warner, D. O.
2019
 - **Analysis of Milestone-based End-of-rotation Evaluations for Ten Residents Completing a Three-year Anesthesiology Residency.** *Cureus*
Chemtob, C. M., Tanaka, P., Keil, M., Macario, A.
2018; 10 (8): e3200
 - **Association between Performance in a Maintenance of Certification Program and Disciplinary Actions against the Medical Licenses of Anesthesiologists.** *Anesthesiology*
Zhou, Y., Sun, H., Macario, A., Keegan, M. T., Patterson, A. J., Minhaj, M. M., Wang, T., Harman, A. E., Warner, D. O.
2018
 - **What Makes for Good Anesthesia Teaching by Faculty in the Operating Room? The Perspective of Anesthesiology Residents.** *Cureus*
Wakatsuki, S., Tanaka, P., Vinagre, R., Marty, A., Thomsen, J. L., Macario, A.
2018; 10 (5): e2563
 - **Development of an Objective Structured Clinical Examination Using the American Board of Anesthesiology Content Outline for the Objective Structured Clinical Examination Component of the APPLIED Certification Examination.** *A&A practice*
Tanaka, P., Adriano, A., Ngai, L., Park, Y. S., Marty, A., Wakatsuki, S., Brun, C., Harrison, K., Bushell, E., Thomsen, J. L., Wen, L., Painter, C., Chen, et al
2018
 - **Commentary: How Should Hospitals Respond to Surgeons' Requests to Schedule Overlapping Surgeries?** *Neurosurgery*
Morris, A. J., Mello, M. M., Sanford, J. A., Green, R. B., Wald, S. H., Kadry, B., Macario, A.

2018; 82 (4): E91–E98

- **Cost-benefit Analysis of Maintaining a Fully Stocked Malignant Hyperthermia Cart versus an Initial Dantrolene Treatment Dose for Maternity Units.** *Anesthesiology*
Ho, P. T., Carvalho, B. n., Sun, E. C., Macario, A. n., Riley, E. T.
2018
- **Prehabilitation Before Gastrointestinal Cancer Surgery: What Is the Evidence?**
Macario, A.
<https://www.medscape.com/viewarticle/890589>.
2018
- **Vaporizers** *The Anesthesia Technologist's Manual*
Esaki, R., Macario, A.
Lippincott Williams & Wilkins .2018; 2nd
- **Management of staffing and case scheduling for anesthesia outside of the operating room** *Anesthesia Outside the Operating Room*
Macario, A., Sharma, D.
Oxford University Press.2018; 2nd
- **Advances and challenges in postgraduate anesthesia education** *Journal of Head & Neck Anesthesia*
Tanaka, P., Macario, A.
2018: 1-3
- **Overlapping Surgery: A Case Study in Operating Room Throughput and Efficiency.** *Anesthesiology clinics*
Morris, A. J., Sanford, J. A., Damrose, E. J., Wald, S. H., Kadry, B. n., Macario, A. n.
2018; 36 (2): 161–76
- **Cancellation of Elective Cases in a Recently Opened, Tertiary/Quaternary-Level Hospital in the Middle East.** *Anesthesia and analgesia*
Morris, A. J., McAvoy, J., Dweik, D., Ferrigno, M., Macario, A., Haisjackl, M.
2017
- **Comparing Anesthesiology Residency Training Structure and Requirements in Seven Different Countries on Three Continents.** *Cureus*
Yamamoto, S., Tanaka, P., Madsen, M. V., Macario, A.
2017; 9 (2)
- **Implementation of a Needs-Based, Online Feedback Tool for Anesthesia Residents With Subsequent Mapping of the Feedback to the ACGME Milestones** *ANESTHESIA AND ANALGESIA*
Tanaka, P., Merrell, S. B., Walker, K., Zocca, J., Scotto, L., Bogetz, A. L., Macario, A.
2017; 124 (2): 627-635
- **Occupational Radiation Exposure of Anesthesia Providers.** *Seminars in cardiothoracic and vascular anesthesia*
Wang, R. R., Kumar, A. H., Tanaka, P., Macario, A.
2017: 1089253217692110-?
- **Implementation of a Needs-Based, Online Feedback Tool for Anesthesia Residents With Subsequent Mapping of the Feedback to the ACGME Milestones.** *Anesthesia and analgesia*
Tanaka, P., Berekyei Merrell, S., Walker, K., Zocca, J., Scotto, L., Bogetz, A. L., Macario, A.
2017; 124 (2): 627-635
- **Robotic Technology** *in Perioperative Management in Robotic Surgery*
Ho, P., Macario, A.
Cambridge University Press.2017
- **How Do Patients Choose a Surgeon?** <http://www.medscape.com/viewarticle/874533>
Macario, A.
2017
- **Is Fibrinogen Useful in High-Risk Cardiac Surgery?** <http://www.medscape.com/viewarticle/877718>
Macario, A.
2017

- **Historical overview of Robotic Assisted Surgery** *Perioperative Management in Robotic Surgery*
Saffary, R., Kadry, B., Macario, A.
Cambridge University Press.2017; 1
- **Operating Room Management, Measures of OR Efficiency, and Cost-Effectiveness.** *Surgical Patient Care: Improving Safety, Quality and Value*
Vig, S., Kadry, B., Macario, A.
Springer.2017: 313–325
- **Does Faculty Follow the Recommended Structure for a New Classroom-based, Daily Formal Teaching Session for Anesthesia Residents?** *Cureus*
Anwar, A., Tanaka, P., Madsen, M. V., Macario, A.
2016; 8 (10)
- **Mapping of Primary Instructional Methods and Teaching Techniques for Regularly Scheduled, Formal Teaching Sessions in an Anesthesia Residency Program.** *A & A case reports*
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PRESENTATIONS

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