



Nov-Dec 2021 Residency Times

Faculty Spotlight: Sandeep Krishnan, Program Director
Anesthesiology Program, St. Joseph Mercy - Oakland, Pontiac

RT: Where did you grow up, and when did you first become interested in medicine as a career?

SK: I grew up in the Metro Detroit area and attended Detroit Country Day School. I became interested in medicine very early on in my life. My mother is a pediatrician and took great pleasure from helping her patients. Seeing the happiness she derived from practicing medicine encouraged both my sister and I to pursue careers in medicine. My mother retired from her practice a few years ago, but she continues to see patients a few days a month because she enjoys it so much. My sister is currently a practicing allergist in the Philadelphia area.

Where did you complete your medical training, and how did you become interested in anesthesiology?

I participated in the 6-year BS/MD program at Pennsylvania State University and Jefferson Medical College, now called the Sidney Kimmel Medical College at Thomas Jefferson University. I graduated from medical school in 2004 and completed my transitional year at Western Pennsylvania Hospital in Pittsburgh. I began an anesthesiology residency at Rush St. Luke's Presbyterian Hospital in Chicago and then completed a cardiothoracic anesthesia fellowship at Mount Sinai Hospital in New York. I subsequently worked at the NYU Langone Medical Center for 4 years as a cardiothoracic anesthesiologist before returning to Michigan to be closer to family.

I chose this specialty because of my experience during my first anesthesiology rotation in medical school. I did not really know what to expect, but as it happened I was fortunate to train with a few extremely talented anesthesiologists; their calmness under pressure and their in-depth understanding of cardiac and respiratory physiology really captivated me. Additionally, a few friends from college and medical school were anesthesiology residents at my rotating hospital; we chatted about their residency experiences, and they felt strongly that my personality was well suited for the specialty.

What's your current research program like?

Most of my current clinical research focuses on the investigation of regional anesthesia in various surgical subspecialties. I am particularly interested in analyzing how the addition of various medications to local anesthetics in regional anesthesia can improve patient pain management and satisfaction while decreasing opioid consumption. Being cardiac-trained and certified in advanced perioperative transesophageal echocardiography, I am also very interested in cardiac and specifically echocardiographic research, with a focus on the mitral and tricuspid valves. Currently, I am the

principal investigator on 5 randomized controlled trials (RCT), with a manuscript for one completed study under review for publication and another in the manuscript stage now. In the ongoing trials, we're investigating various medications in regional blocks for different types of surgeries: serratus anterior plane blocks for lung operations, superficial parasternal intercostal plane blocks with transversus abdominis plane blocks for cardiac surgery, and adductor canal blocks for knee replacements. I am researching the effects of specific medications in these regional blocks on patients' pain and pain medication use after surgery. I also have a manuscript about blunt trauma to the heart that is scheduled for publication in the *Journal of Cardiothoracic and Vascular Anesthesia*, and I'm currently writing another review article on upper gastrointestinal injury associated with transesophageal echocardiography.

How does your research inform your teaching and mentoring of anesthesiology residents?

As a trainee, I chose not to participate in any research projects, and I believe that this lack of research experience held me back early in my career. Luckily, my mentor in cardiothoracic anesthesiology, who was a junior faculty member at NYU, was heavily involved in research, with multiple National Institutes of Health grants and over 100 publications. He guided my early research endeavors and is still an advisor to me today.

As a result, our residents are heavily involved in all aspects of my scholarly activities, including project creation, grant applications, patient enrollment, data collection, manuscript writing and editing, and manuscript submission. I feel very strongly that our trainees should be familiar with how to conduct research as well as quality improvement projects, since this gives them a foundation and basic understanding of all aspects of clinical research. Residents also have opportunities to present their research at national conferences and meet and collaborate with residents and faculty from other institutions.

Any advice for aspiring clinical researchers in anesthesiology?

Strive to cultivate the novel ideas that they have! Residents are brilliant people and filled with ideas on how to provide better care or a better patient experience, but they often don't fully grasp how to develop these ideas into formal research projects or quality improvement projects. Trainees frequently see clinical management of patients through a different lens than their attendings do, and this gives them a very unique perspective. Look to your faculty mentors for help bringing your research ideas to fruition!

What do you like to do during your off hours?

My main interest outside of work is spending time with my wife and two children (3 years old and 4-1/2 years old). My greatest accomplishment in life is being a father, and I absolutely adore sitting back and watching my children do the simplest of things. I also love to play golf and have worked my handicap down to a 4 which, for those who know golf, means that I definitely play too much golf.