

Pursuing Answers to Challenging Cases: Why Research Is Our Silver Lining

Denham S. Ward, M.D., Ph.D., President and CEO
Foundation for Anesthesia Education and Research

"I deeply appreciate the opportunity given to me to conduct this research. Being awarded my FAER grant was a critically important part in my academic career as a physician scientist and it definitely paved the way toward getting NIH funding. Your support of young anesthesia researchers is immensely valuable. Thank you very much."

– Arun Prakash, M.D., Ph.D., University of California, San Francisco, 2012 FAER Mentored Research Training Grant Recipient; 2015 NIH Grant Recipient

Learn your lesson. Look on the bright side. Search for the silver lining.

When faced with a medical situation that results in a bad outcome, a complication or even a mortality that we did not expect, physicians seek answers. How do we avoid and handle complications, prevent medical errors and manage unexpected outcomes? Was there something different that might have given us a better outcome? We review and reflect on what happened. By discussing a case, we identify ways to improve the quality of care and outcomes.

The real-life scenarios that result in morbidity and mortality can, through case reports and M&M conferences, not only lead to clinical improvements, but they also often result in questions that can best be answered through scientific discovery. This is our silver lining. The connection between research and clinical care is a two-way street: Research improves our clinical care, and the experiences of our patients suggest important research problems.



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ARUN PRAKASH, M.D., PH.D.

Take, for example, traumatic lung injury. "Lung injury following trauma is a major cause of morbidity and mortality," Arun Prakash, M.D., Ph.D. writes in the abstract of his NIH-funded study. "Severe trauma can often generate conditions of ischemia reperfusion (IR) and result in sterile inflammatory injury directly or indirectly affecting the lung. The situation can then be worsened by the later onset of infection."

Dr. Prakash is an Assistant Professor in Residence in the Department of Anesthesia and Perioperative Care at the University of California, San Francisco, who received an NIH career development grant in 2015 after having completed a FAER Mentored Research Training Grant.

"We are currently unable to predict the strength of the inflammatory response within the lung to severe trauma and individual patients' likelihood of developing lung injury, pneumonia and long-term multi-organ dysfunction," his abstract states. "Moreover, we are unable to effectively influence these processes therapeutically."

Intrigued by these questions, Dr. Prakash has focused his research on the interface between sterile and infectious inflammation and how the innate immune system is able to distinguish between the two and respond appropriately. "Given my clinical interest in trauma anesthesia, and specifically airway, respiratory and hemodynamic management of critically-ill trauma patients, my research focuses on lung injury in trauma and the pathophysiology of lung ischemia reperfusion (IR) injury," he says.

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Apply for Research Grant Funding

Summer/Fall Application Cycle Opens June 1, Due August 15

The following grant funding opportunities are available to anesthesiologists and anesthesiology trainees.
The application website for the summer/fall 2015 grant funding cycle opens June 1.

Mentored Research Training Grants

Research Areas: Basic Science (MRTG-BS), Clinical and Translational (MRTG-CT), Health Services Research (MRTG-HSR)*

Purpose: To help physician anesthesiologists develop the skills and preliminary data to become independent investigators

For Whom: Faculty members who completed core anesthesiology residency within the past 10 years

Funding: \$175,000

Duration: Two years

Percent Research: 75%

**The MRTG-HSR is jointly sponsored by the Anesthesia Quality Institute (AQI).*

Research Fellowship Grant

Research Areas: Basic Science, Clinical and Translational, Health Services or Education

Purpose: To provide significant training in research techniques and scientific methods

For Whom: Anesthesiology trainee after the CA-1 year

Funding: \$75,000

Duration: One year

Percent Research: 80%



Foundation for Anesthesia
Education and Research

Research in Education Grant

Research Areas: Education Research

Purpose: To improve the quality and impact of anesthesiology education research

For Whom: Faculty member of any rank (junior or senior faculty)

Funding: \$100,000

Duration: Two years

Percent Research: 40%

RESEARCH GRANT APPLICATION DEADLINES

Summer/Fall Funding Cycle

Online application opens June 1, 2015

Applications due August 15, 2015

Award notifications made by November 15, 2015

Project start date January 1, 2016 or July 1, 2016

Visit **FAER.org/research-grants** for more information and to apply.



Three years ago, Dr. Prakash received a Mentored Research Training Grant – Basic Science from FAER for his project, “Investigating the Role of Innate Immune Cells and Pathways in Ventilated Lung Ischemia Reperfusion (IR) Injury.” While working on his FAER-supported project alongside his mentor, Judith Hellman, M.D., Dr. Prakash found that sterile inflammation resulting from lung ischemia reperfusion is regulated by specific cell types (alveolar macrophages), pathways (TLR4, inflammasome, and ERK), and most intriguingly by commensal microbiota. “These results advance the topic of the role of the microbiome and specific signaling pathways in immune and inflammatory processes in patients,” he said.

“If successful, the proposed studies will benefit public health by identifying targets for therapies that can prevent unnecessary lung damage early in trauma while preserving the immune system’s ability to fight off infections.”

Work from the FAER grant period directly led to Dr. Prakash’s successful application for grant funding from the National Institute of General Medical Sciences. He received an NIH K08 in 2015. The funding is allowing him to continue this research.

“If successful, the proposed studies will benefit public health by identifying targets for therapies that can prevent unnecessary lung damage early in trauma while preserving the immune system’s ability to fight off infections,” he states.

Dr. Prakash is an example of how to use research to examine questions that arise in complicated medical cases we routinely encounter and discuss. The FAER Mentored Research Training Grant was a catalyst for him to pursue answers and an academic career.

To read more about Dr. Prakash and his research, visit <http://arunprakashmdphd.wix.com/the-prakash-lab>.

Calling All Innovators!

Register for the Patents and Commercial Assessment Workshop hosted by FAER – June 6

As part of its Anesthesiology Innovation and Entrepreneurship Program, FAER is hosting a workshop series in 2015. The first event, the Patents and Commercial Assessment Workshop, will be held June 6, 2015 at ASA headquarters in Schaumburg, Illinois.

After attending the Patents and Commercial Assessment Workshop, participants will be able to:

- Explain patents and why they are critical to product protection
- Compare different types of patents
- Identify the patent application process
- Summarize how companies evaluate technology
- Identify effective ways to work with offices of technology licensing in an academic environment
- Recognize the importance of commercial assessment to the due diligence process

ASA members can register at the early-bird rate of only \$100.

Learn more about the workshop and register today at FAER.org/innovate/patents.

Accreditation Statement

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of ASA and FAER. ASA is accredited by the ACCME to provide continuing medical education for physicians.

ASA dedicates this live activity for 6.5 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.