

The Cardiac Cath Lab, U.S. Naval Air Training, and Operational Excellence



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I know you're wondering how the cath lab relates to the Navy, but I think you'll find this story compelling. Quite unexpectedly, I found an interesting article in

the *Texas Heart Institute Journal*, entitled "U.S. Naval Air Training and Operational Excellence" by Admiral William G. Sizemore.¹ This article was part of a symposium, the "9th Current Trends in Aortic and Cardiovascular Surgery and Intervention," directed by Dr. Joseph S. Coselli of Baylor College of Medicine, in Houston, Texas. Dr. Coselli repaired Admiral William Sizemore's lower abdominal aortic aneurysm with a graft procedure in September 2012 as reported in initial part of the article. Having admiration for Dr. Coselli, Admiral Sizemore described his experience with naval aviation and how it related to the practice of medicine. His description of his profession, its mission, service requirements, and specific skills is truly enlightening. That these traits are acquired via "sacrifice, commitment and hard work," to quote Admiral Sizemore, is inspiring. On a personal note, I am grateful to our men and women in uniform who serve our country with such devotion.

The parallels of principles

I was keenly struck by the parallels of naval air training and operational excellence to the training and practice that occurs (or should) in the cath lab. While it may appear that our two professions are

widely disparate, the underlying principles of each have some remarkable and valuable parallels. After speaking with Admiral Sizemore via email, I wanted to share his insights, and with his permission, I will quote some of his text directly to enlighten us in how his long experience in naval aviation applies to the cath lab. Lessons from his training and experience helped him and his naval aviators support their missions, just as the training and experience of the cath lab team supports ours.

Protection as a mission

The Navy provides safety and protection for all of us in our great country. It is a never-ending mission. While of considerably smaller scope than the U.S. Navy, the mission is same for the cath lab. Patients who come into the cath lab expect safety and protection, and we endeavor to achieve it with excellence as patients undergo their procedures. The high level of task performance by the naval aviator is required to maintain readiness within the extraordinary stressful environment of an aircraft carrier as it patrols the world's oceans. The specialized aircraft and their reliable operation provide flexibility and

continued on page 8



Figure 1. Admiral William G. Sizemore after flying an F/A-18 Hornet.

EDITORIAL

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Table 1. Principles of Operational Excellence in Navy Aviation*

| Principle | Metric |
|--------------------------|---|
| 1. Integrity | Do the right thing; adhere to the high standards at all times. |
| 2. Procedural knowledge | Know your job and procedures. Never stop learning. |
| 3. Procedural compliance | By the book procedure, no short cuts, fight complacency. |
| 4. Formal communications | Use clearly stated and standardized language that minimizes misunderstanding. |
| 5. Question attitudes | Speak up, ask and investigate when you are unsure of when you sense or know something is not right. |
| 6. Forceful backups | Speak up, ask, and act when you know something is wrong. |
| 7. Risk management | Identify, understand, mitigate, and manage risks. |

*From William G. Sizemore, II Rear Admiral (Ret.), U.S. naval air training and operational excellence. *Texas Heart Institute Journal*. 2013; 40(5): 562-563.

U.S. Naval Training

Continued from page 6

rapid responses in an unparalleled fashion. In a similar manner, working in the cath lab, at times a stressful environment also requires flexibility and rapid responses. Admiral Sizemore notes that “aviation is extraordinarily complex and requires enormous commitment both in materials and in the individuals” with highly specialized training backgrounds. One could easily substitute ‘medicine’ for ‘aviation’ in the

preceding sentence without changing the meaning.

In naval aviation, the requirements to maintain proficiency are part of everyday life. In the cath lab, with the near continuous introduction of new devices and procedures, becoming proficient and maintaining proficiency is necessary to assure safety and quality. It is noteworthy that the duration and levels of naval aviation training, from flight school through Navy Fleet squadron operations, and finally, to real-world mission flying, are similar to those required for training of the cath team, beginning in medical/technical school through internship/residency/

fellowship, and lastly, working in the cath lab. A pilot enters his/her training period at age 23 or 24, and is committed to the Navy for the next 8 years; there is a similar time frame for cardiologists. While the prolonged training period is quite daunting, it is required, because the consequences of unsatisfactory performance either in the air or in the cath lab can carry life-and-death consequences.

The support team

Naval pilots could not fly without the superb support personnel providing the specialized expertise to monitor and make ready the F/A-18 Hornet strike fighter flown by Admiral Sizemore and his colleagues. For the cath lab, the physician operators cannot function without their team. The weak team, either on board a carrier or in the lab, may have problems ultimately resulting in an unsafe environment, i.e. critical mission failure.

Quality improvement and peer review

The investment in human performance improvement initiatives in naval aviation is also a priority. The performance improvement programs are another example of parallel behaviors working to better function, outcomes, and the mission. The quality improvement performance initiatives proposed by the Society for Cardiovascular Angioplasty and Interventions (SCAI) and American College of Cardiology (ACC), like naval aviation, involve use of peer review and group assessment in an “open and transparent environment”, as Admiral Sizemore tells us. Peer review is one of the most important teaching tools available in the Navy and should be so in cath lab. Both systems (Navy and Cath Lab) adhere to this

principle with initiatives directed at improving quality through focused review and reeducation as needed.

In their daily work, Navy pilots undergo peer review in detail. All procedural (flight) data are identified from recorded events, followed by daily post flight debriefings where each flight performance (take-off/landing) is graded, the videotape reviewed, and then a formal peer debriefing conducted. However, in the cath lab, it is uncommon to review procedural detail unless there is a concern about the care that was delivered or there was an adverse event. In this area, we could probably do a better job. While peer review remains challenging, we should consider the review process within the cath lab in more detail, similar to what is described for Admiral Sizemore’s teams.

Principles of operational excellence

After reading this article and increasing my understanding of naval aviation, I feel Admiral Sizemore’s closing comments are worthy of repeating. I certainly can recommend the cath lab “to anyone looking for an ultimate combination of rewarding challenge and [at rare times] adventure [in cardiovascular disease]”. The principles of operational excellence in naval aviation are summarized in Table 1. We can easily apply these to our work in the cath lab.

I want to thank Admiral Sizemore for sharing his experience, and on behalf of myself and of every cath lab team that I know, thank you, Admiral, for your service to our country. ■

Reference

1. Sizemore WG. U.S. naval air training and operational excellence. *Tex Heart Inst J*. 2013; 40(5): 562-563.