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President 2012–2013

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How did you decide to pursue a career in general surgery and then trauma and critical care? I would also like to hear about significant mentors and their specific influence on your decisions.

Dr. Robert C. Mackersie

I would describe my path into surgery and trauma as a little bit of a 'Forrest Gump' type of experience. I was a young medical student who, having previously begun the PhD program in bioengineering at UC Berkley, wanted to come back to the Bay Area to do a little bit of work. As luck would have it, my PhD mentor, a fellow named Bob Eberhart, knew a young surgeon at San Francisco General Hospital by the name of Frank Lewis. Frank was looking for some computer programming expertise for a project of his, and one thing led to the next and I ended up coming out to San Francisco in the summers of 1975 and 1976 to work for Dr. Lewis doing some computer modeling.

I had previously been considering a career in pulmonology because where I went to medical school, the pulmonologists were the smartest of the bunch, took care of sick patients, and also did procedures. It seemed like a good fit. The surgeons could do technical things, but they didn't seem to me to be the "brightest lights" in the field like the pulmonologists.

So imagine an impressionable young medical student finding himself in the midst of the surgical faculty at San Francisco General Hospital [SFGH] at that time. You have Bill Blaisdell,

Don Trunkey, George Sheldon, Frank Lewis, Bob Lim, Art Thomas, Jack McAninch, and others. What a group that was—the experience turned my head, that's all I can say. I had no idea I was rubbing elbows with what was one of the most accomplished groups in American surgery.

These guys were smart, they had a broad range of interests, they could operate, and they had fun. After working for two summers at SFGH, I came for an externship on the trauma service at SFGH as a fourth-year medical student. One thing led to the next and I was fortunate enough to match at UCSF for my surgical residency.

That got me interested in surgery. It wasn't until probably half-way through my residency that the same group of faculty at San Francisco General Hospital got me interested in a career in trauma. Like several residents in my year, I had become enamored of Paul Ebert's practice in pediatric cardiac surgery, but recognized that only a small handful of surgeons would be doing this. I had a fleeting interest in vascular surgery, but became drawn more to curative versus palliative surgery.

Luchette

So, at that time at UCSF, is it fair to say that that group of friends and mentors were the leaders of the department?

Mackersie

They were. But the department of surgery at UCSF had and continues to have a very well-rounded and distinguished faculty. It had leaders in the field in just about every area of surgery. All of them were a draw for residents in their own way. I think I still became more attached to the camaraderie and the well-roundedness of the faculty at SFGH.

Luchette

Well, what did your peers think of your choice to pursue a career in trauma surgery?

Mackersie

I don't think there was any particular judgmental feeling one way or another. You know, there had been several people, including Tony Meyer and Chip Baker, that had preceded us in that area who went on to have very successful careers.

Luchette

At that time would you consider all of those individuals that you mentioned in the trauma group at San Francisco General Hospital as initially mentors and then friends?

Mackersie

I think it's always a blessing when someone who is a mentor becomes a lifelong friend as well, and I would say that was certainly true of Frank Lewis. I've kept in close contact with Don Trunkey and have felt the watchful support of Dr. Blaisdell, Dr. Sheldon, and Dr. Lim as well. Jack McAninch has an office right next to mine and so I see him on a regular basis. Of the

SFGH faculty at that time, probably Drs. Lewis and Trunkey have played the greatest role in guiding my career.

Luchette

Any other folks that were influential in your career?

Mackersie

Well, it turns out that I had a second 'Forrest Gump' experience—landing my first faculty position at UC San Diego with these two guys named Steve Shackford and David Hoyt. What a time we had, and I learned what a fantastic thing it was to work with individuals who also were good friends. San Diego had a new trauma system and we were always pushing the envelope a little. Jim Davis was recruited and completed our group in 1987. It was a very special time clinically, academically, and professionally.

Luchette

So when you look back on your career, which of your scientific contributions are you most proud of and also tell me how it influenced patient care?

Mackersie

Well, it is hard to know. We chip away at problems over time and make small contributions. My interests have covered a wide range of clinical topics. I first got started investigating some of the elements involved with inflammatory lung dysfunction, ARDS, following traumatic injury, and went on to study a variety of other things, including epidural analgesia, some of the first analyses of errors made in a mature trauma system, one of the first papers using logistic regression, one of the first papers de-bunking the myth of the MAST suit, and some early work in organ procurement.

Some of the more impactful work I was involved with was not even recognized in the peer-reviewed literature. I had the privilege of participating, at its inception, with the development of the federal guidelines for trauma systems structure and development back in the mid 2000s. This work eventually became a federal document and has influenced the way trauma systems have developed throughout the United States.

Luchette

Was there anything that you were endorsing or teaching the surgical residents 20 years ago and today you look back and say that was the wrong message?

Mackersie

There are probably a lot of things. You know, reading back over some of the Milestones sections that are a part of this commemorative book, you realize how much our thinking has changed, and many things that were regarded as state-of-the-art are not being done any more. Diverting colostomies for everything; closing every abdomen regardless of how difficult

or tight it was; high volume, high pressure mechanical ventilation; exploring almost every abdomen with a penetrating wound; resuscitating patients with massive amounts of crystalloid—the list goes on. We're much smarter about a lot of things now, but no doubt still have a lot to learn.

Luchette

As you look back over your many years of practicing trauma surgery, what do you feel are the two or three advances in patient care or the sciences that have occurred during your career and significantly changed the way we care for patients?

Mackersie

If you go back to when I was in training, there was pioneering work being done regarding the use of CT imaging in the diagnosis of blunt trauma. This allowed for a much more selective approach to blunt abdominal trauma, and less operating. Having been trained in an era where abdominal exploration was, to quote Don Trunkey at the time, simply "completing the physical examination," this was quite a change.

I think the other thing that has changed the mortality curve dramatically is the combination of damage control laparotomy coupled with the open abdomen. I can remember those patients who would have major abdominal hemorrhage, usually with a vascular injury. They'd get massively transfused and would also receive far too much crystalloid. They'd blow up tight, but we'd close their abdomens despite the tension. They'd be admitted to the ICU and develop ARDS then renal failure and eventually die. That clinical scenario has all but gone away now. The open abdomen has revolutionized the survivability for many of these patients.

So those would be two things. The third is probably tied to that and has been a little more recent but the concept of hemostatic resuscitation. Crystalloid administration has been greatly de-emphasized and we now replace blood loss with packed cells and factors. The whole concept of hemostatic resuscitation I think has reduced abdominal compartment syndrome and also changed our practice.

Luchette

I'd like to hear your thoughts about changes in practice patterns that have occurred and impacted care.

Mackersie

Well, the most dramatic change at a teaching hospital, of course, are the work hours restrictions. But along with that has come a cultural shift, a generational shift, which is not a bad thing. There is more attention paid to balance, lifestyle, family, where you live, etc., than there was in my generation and in the generation that preceded me. We grew up with 110–120 hour work weeks, every-other-night call, and lifestyles completely centered around professional commitments. That's all changed now. While the change has a number of salutary aspects, I think it has compromised training and that the residents finishing their training now are sim-

ply not as experienced or confident as we were.

Another change that has been a satisfying one is the recognition that trauma and, more recently, acute care surgery is a legitimate specialty area of its own. Trauma has a realm of knowledge and experience that is increasingly unique. It is certainly a component of "general surgery," but a general surgeon from a typical general surgery residency today, with their increasingly limited exposure to trauma, is not going to be able to practice confidently at a Level I or II trauma center without additional training.

Luchette

During your tenure on the COT, you were the chair of the Trauma Systems Planning and Development Program and promulgated the activities of the committee with evaluation of state trauma systems. So from a 30,000-foot view of trauma systems, haven't they had a role in improving care?

Mackersie

Unquestionably. The ongoing development of our trauma systems represents an enormous change that goes way beyond institutions. Trauma system development is not as easy as it sounds, but we've made steady progress by educating our legislators, our EMS colleagues, and the public about these systems of care. The growing recognition that trauma centers are an essential public service has gradually permeating the EMS culture, and this is very satisfying to see. The fact that stroke and STEMI programs have been modeled after trauma systems speaks volumes about the perceived efficacy of this model for emergency care.

What we do in our service to surgical organizations is to take on a project or program that we have a keen interest in, work hard at developing it, hopefully make it a little, and then pass it on to a colleague. I inherited the American College of Surgeons Trauma Systems program from Brent Eastman, who began it. I worked to improve it and passed it on to Mike Rotondo, who improved it further and then he passed it on to Bob Winchell who is doing the same. So it goes. With help from many others, it becomes a chronological team effort and is how we sustain progress. It's also a source of great satisfaction for most of us.

Luchette

You've had many gratifying experiences throughout your career. At the end of the day, what do you find to be the most rewarding activity that brings you the greatest joy at the end of the day?

Mackersie

I'll call it "the company you keep." There is not a day that goes by where I don't feel grateful for being able to work alongside people like yourself, like some of the AAST past presidents and members, and others in this business. This community of ours, of trauma surgeons, is such an extraordinary group of people. They're are smart, they're accomplished, they're committed, they are not self-aggrandizing, and they have good hearts. It's the fabulous group of people

that I work with. I often tell the residents when they are considering a career to look very carefully at the people you are going to be spending the rest of your professional life with, because it can be a source of frustration or a source of enduring joy and pleasure.

I have and will always relish the teaching of young surgical residents and fellows. They keep us young—and honest. Some of the operations we perform are perhaps not quite as thrilling as they once were, particularly at 3:00 in the morning. But the thrill of looking at a resident performing their first splenectomy or repairing a hole in the heart—wow, their feet don't touch the ground for the next few days. The patient then leaves the hospital in five days with their whole life ahead of them—what could be better in the world than that? Helping a resident or fellow to give someone their life back and watching these young surgeons grow and develop is incredibly rewarding. They come in a little green or a little bit gun shy and they walk out the door a couple of years later as confident, mature, seasoned trauma surgeons. What a great way to make a living.

Luchette

With all the changes going on in health care, what kind of things keep you up at night?

Mackersie

Well, I practice in kind of a bubble I suppose. Although I practice at a public hospital with all of its own attendant problems, I don't worry about referrals or patient volume, and I don't worry about not having a job. As I've gotten older, I worry less about administrative issues. The one thing that keeps me up at night is a serious or unexpected complication. I think we all worry about that. In this business, you intervene to try to help people, and most of the time things work out and the results are good. But on occasion things don't work out and patients suffer. I find this fundamentally disturbing.

Luchette

You mentioned your fellows—you've been training residents and fellows for at least 25–30 years now. If you were going to give some life coach advice to the readers of your interview in the commemorative book, what words of wisdom would you give them about a career in academic trauma/acute care surgery practice?

Mackersie

For the residents interested in surgery and having trouble picking a specialty I tell them pay close attention to both who your future colleagues will be as well as the type of work they'll be involved with, and the satisfaction of walking out of the hospital each day.

In terms of an academic practice, I recommend that they seek out persons that they enjoy working with in a very close practice, including patient care and research. There's nothing better than a trauma practice where your colleagues get along well and are like-minded in the way that you care for patients. It doesn't always work out that way, but when it does, it is a beautiful thing. I tell the fellows to identify role models and committed mentors. I will some-

times steer them away from faculty positions where it's apparent that this situation does not exist. That's vitally important, perhaps even more so now than it used to be, since there is a lot of on-the-job training still in a trauma/acute care surgery practice.

In terms of "life balance," I think it's going to get easier. The combination of the generational changes and the work hour restrictions has created a cultural environment where people are not necessarily going to stick around the hospital doing cases after a night on call. They're not going to put in 80-plus hour work weeks as a faculty member. They are going to have a better balance with more discretionary time—probably not a bad model, considering.

Luchette

Speaking of challenges, you've been intimately involved with the development and roll-out of acute care surgery. What do you see are the greatest challenges and opportunities for the future of ACS and trauma care?

Mackersie

I am hopeful that we're past the "hump" now, and recruitment of young surgeons to a career in trauma/acute care surgery appears to be on the increase. There was a period of time where many of us were becoming quite concerned about the lack of ongoing recruitment to our field due in part to an increasingly non-operative practice. There was a discernible manpower void trailing us. David Hoyt as the chair of the Committee on Trauma was one of the first to identify this threat and take action at the national leadership level.

Now I am gratified to see that the number of applicants to acute care surgery (trauma, critical care and emergency surgery) fellowships are increasing. There seems to be a buzz out there that says this is an exciting specialty. I still see the challenges in recruitment and retention: getting these young people to structure a career track, and giving the field the recognition, status, and satisfaction it requires to retain surgeons for an entire career. The special expertise involved with providing definitive care to critically ill or injured surgical patients, and the scope of practice this entails is the essence of acute care surgery that encompasses trauma, complex emergency general surgery, and surgical critical care. This is quite distinct in my mind from the so-call "surgical hospitalist" or "nocturnist" or "call-taker" whose practice may be largely limited to providing coverage for basic emergency general surgery. This is not to say that these practitioners are not important or serve a need—they are and they do—but they do not represent the model for who we are trying to train, and will not meet the training and practice needs related to critical surgical illness.

We have not done a good job of distinguishing practice pattern from training paradigm. To help firmly establish the trauma/SCC/complex EGS training paradigm, I think that formal, well-recognized certification in trauma, and maybe complex EGS as well, will be critically important. Whether or not this means certification by the American Board of Surgery remains to be seen, but some formalized mechanism is needed to ensure that the next generation of trauma, surgical critical care, complex emergency surgery (acute care) surgeons are adequately trained and appropriately recognized and credentialed. I believe that this is the only way to

guarantee the future of our specialty.

There are many opportunities that go along with a trauma/acute care surgical practice, and this is probably one of the most job-secure areas of practice in American medicine. Access to trauma and emergency surgical care will be a growing problem. There is a cohesiveness of the trauma and acute care community I think that is a huge strength in approaching these problems.

Luchette

I'd like to ask you to look forward 20 years into the future and tell me what you think acute care surgery and the practice of trauma surgery will look like in 10–20 years?

Mackersie

Well, I think some of the trends have become self-evident. There is a strong trend away from individual or small group practices and towards hospital-based practices. Physicians will be increasingly employed by hospitals, and I suppose the trauma/acute care surgeons are a kind of vanguard in that regard. Along with this change in practice pattern will come increasingly regular (and perhaps regulated) work hours as we discussed a few minutes ago.

Another challenge for us will be incorporating newer techniques into a trauma/acute care surgery practice. The role for laparoscopy has probably been under emphasized and under sold, a trend that will need to change. The incorporation of endovascular techniques into a trauma practice has already begun, but the role of the trauma/ACS surgeon in utilizing these techniques on a regular basis has just begun to be explored. Most trauma practices are characterized by a higher volume of less acute, simpler cases and a lower volume of critical, complex cases. Problems with skill acquisition and maintenance have yet to be addressed, and in many practices, this will be a big challenge.

Finally, I'm going to make a prediction that eventually there will be a trend towards regionalizing not just trauma but all complex emergency surgical care. I think the driving forces of limited physician availability, limited expertise and experience, and outcomes analysis is going to eventually overwhelm the obstacles of competing health care plans. Designated Level I and II trauma centers should be the hubs for this broader regionalization.

Luchette

When you look back over your career, is there anything you would change in your professional career?

Mackersie

I feel extraordinarily fortunate—fortunate to have been provided the opportunities I was provided, fortunate to have had sense enough to take advantage of them, fortunate to have had the colleagues and friends and guidance I've had, and fortunate to have been in the right place at the right time. Of the things I would change, I would have made more of an effort to become proficient at another language. It seems I am surrounded by polyglots, with many of the resi-

dents and medical students speaking several languages. I am highly envious of this.

Another element I would have changed would have been to pursue more formal grounding or perhaps even a degree in research methodologies. When I came through doing my research fellowships, those kind of programs didn't really exist, so this may be just wishful thinking. For people that are seriously interested in a career involved in clinical research, it is something I would strongly encourage. A masters in public health might be an option for some, but a structured educational program that provides formal grounding in some of the methods and technologies that are going to be increasingly applicable in the performance of clinical and outcomes research and for the conduct of multi-institutional trials in the future.

Luchette

Is there anything you would change outside the hospital in your personal life?

Mackersie

I've been conscious of maintaining a balance, which has been more difficult this past year, but overall I don't have many regrets (Katherine may differ with me on this one).

I would have enjoyed improving skills in areas I began in younger years. I did a lot of things when I was growing up. I skated, I played tennis and golf, swam, rode horses, and I still enjoy skiing. I learned to fly during my research fellowship, and I took studying the piano pretty seriously at one point. Most of these skills have suffered from disuse atrophy. Our day jobs can be pretty all-consuming. It would be nice to have more time to devote to these other things, and is something I am looking forward to as I start to gradually wind down the level of intensity of the professional activity over the next 10 years.

Luchette

Tell me about your plans clinically, academically and personally for the next 10–20 years?

Mackersie

At 62, I still consider myself to be reasonably young—maybe 70 is the new 50—but also recognize that I won't have the physical stamina to sustain the energy output I did when I was 35 or 40. I would prefer not to be working at this pace beyond another five years or so. Today I'm post-call, and although I wasn't up the entire night, I didn't sleep much and the recovery period lengthens as one ages. It just isn't as easy as it was 25 years ago. While I don't think the psychological stress is particularly high in this job—we're all pretty comfortable doing what we're doing—I think we underestimate the physiologic stress.

I hope to stay clinically active at least into my late 60s, assuming that I stay sufficiently healthy and maintain all my faculties. What I don't want to do is to stay on past my ability to be safe and meticulous in the operating room and safe in the care of patients.

Luchette

In closing, is there any particular comments that we haven't touched on that you would like to

leave for the readership on the 75th anniversary of the AAST?

Mackersie

I would hope that as we celebrate the anniversary of the AAST, we also celebrate the fact that we're surrounded by colleagues of such high caliber and commitment exemplified by the membership of this great organization. We share in the privilege of being able to affect people's lives in such a profound way, and in an academic career we are afforded the additional satisfaction of being able to contribute and serve in the realm of teaching, scholarship, and leadership. It's a great life and a great career—I'd recommend it to anyone with the skills, commitment, and interest.