TSA NEWSLETTER

VOLUME 36, ISSUE 2
JULY 2024

INSIDE THIS ISSUE

VOLUME 36, ISSUE 2

Save the Date!
TSA Annual Meeting 2024
September 5-8, 2024

TSA LIST OF EDITORS

JW Marriott San Antonio Hill Country Resort & Spa sits on 600 acres of oak-covered hills in Texas Hill Country near downtown San Antonio, TX. Visit our PGA TOUR-approved TPC courses, host of the Valero Texas Open, an adult-only pool, Lantana Spa, 6-acre water park with a lazy river, seven restaurants, TopGolf Swing Suite and 267,823 square feet of versatile meeting and event space. Stay connected, courtesy of high-speed wireless Internet available throughout the resort.

The convention room rate is $229 per night plus a $20 resort fee, single through quad occupancy plus tax per day.

2024
ANNUAL MEETING

September 5-8, 2024

Online Registration

Meeting Brochure

Coming Soon

REMEMBER TO REGISTER FOR

TSA 2024 TRANSITION TO PRACTICE PROGRAM

COMING SOON

The 31st Annual TSA Golf Tournament begins with a shotgun start at 7:30 a.m.
Contact the TSA Office at info@tsa.org


2024 TSA ANNUAL MEETING SPONSORS
The TSA extends a warm appreciation to the following supporters:
METRO ANESTHESIA
iPN Independent Physicians Network
Friday Welcome Reception
PACIRA BIOSCIENCES, INC.
Friday Non-CME Luncheon
GRAPHIUM HEALTH
31st TSA Golf Tournament

Russell K. McAllister, M.D., FASA
TSA Newsletter Editor in Chief
Professor of Anesthesiology-Baylor College of Medicine-Temple
Chair of Anesthesiology-Baylor Scott & White Health-Central Texas
Temple, TX

Lessons in Leadership

The Texas Society of Anesthesiologists (TSA) has many strong examples of leadership within our own society as well as throughout organized medicine, including within the American Society of Anesthesiologists (ASA). It is a privilege to get to learn so many lessons from those who have come before us and taken the lead in support of our specialty. Our current TSA President, Dr. Bhaskar Padakandla, has done a great job leading our society and will soon pass the torch to another experienced leader, Dr. Amr Abouleish, who is well equipped to lead our society during an important Texas legislative year. Many of you saw that our dynamic and well-spoken TSA Past President, Dr. Ray Callas, was recently installed as the President of the Texas Medical Association (TMA). He becomes only the third anesthesiologist to serve in that capacity since the inception of the TMA (Dr. Valington Fontain Borum was the first 1988-1989, followed by Betty Pearce Stephenson 1994-1995, both of whom are TSA Past Presidents!).

Dr. Ray Callas accepting the role of TMA President

At the ASA level, another TSA Past President, Dr. Pat Giam, is positioned to serve as the ASA President-elect next year and rise to the position of ASA President in the same year that the ASA Annual Meeting will be held in San Antonio (2025). Another TSA Past President, Dr. Crystal Wright, also serves as a quickly rising officer within the ASA and serves as a strong voice for Texas anesthesiologists at the national level. Other colleagues serve in important roles such as Dr. Sherif Zaafran, in his role as President of the Texas Medical Board, Dr. Tom Oliverson, in his role as a Texas State Representative, and Dr. Elizabeth Rebello, in her role on the Board of Directors of the Anesthesia Patient Safety Foundation. There are certainly many other rising leaders among our members, and I cannot name them all, but I feel it is important for our membership to be aware of the significant leadership roles that are filled by our members.

Another great example of leadership was recently recognized at the national level. On behalf of all of the TSA membership, I believe it is important to recognize TSA Past President, Dr. Tillmann Hein, who was awarded the 2024 ASA Bertram Coffer Award for excellence in advocacy. Those who know the work of Dr. Hein done on our behalf know that this award is very well-deserved. Kudos to Dr. Hein for the national recognition of his lifetime of hard work in advocacy.

As a member of the TSA, it is a privilege to get to interact with our former, current, and future leaders of this society. When you look at the history of the great leaders within the TSA, you see people who have made outstanding contributions at state and national levels. The leaders that I have mentioned will be the ones that we will look back

upon and feel proud to have worked alongside in pursuing the goals of the TSA.

We are excited to bring you another issue of the Texas Society of Anesthesiologists *Newsletter*. I have previously noted that the history of anesthesiologists in Texas is rich with many important individuals who have been great examples of leadership. The "On the Shoulders of Giants: Legends of Texas Anesthesiology" series has recognized many of the examples of lessons in leadership exhibited among our colleagues from the past. For this edition of the TSA *Newsletter*, we introduce our 14th recipient of this prestigious honor, the late Dr. Prithvi Raj, who was a pioneer in pain medicine. Dr. Raj served as a mentor to many current leaders in the field of pain medicine, including Dr. Miles Day, who delivers a very moving tribute to his mentor. This series of tributes to past leaders in Texas anesthesiology is a wonderful way to commemorate our leaders from our rich history.

Dr. Tillmann Hein accepting the 2024 ASA Bertram Coffer Award for excellence in advocacy from ASA President Dr. Ron Harter

This edition of the TSA *Newsletter* also has many other features that should be of interest to our members. In this issue, we have the pleasure of having our current TSA President, Dr. Bhaskar Padakandla, detail his year of travels across our state emphasizing the importance of advocacy for our patients and our specialty. A series of three articles were inspired by the cardiopulmonary resuscitation and "Stop the Bleed" courses held at the Texas State Capitol and sponsored, taught, and overseen by our TSA members, staff, and close colleagues. Dr. Christopher Stephens presents a very nice article on the history of Emergency Medical Services and how it was developed by anesthesiologists. Longtime TSA friend and former EMS colleague of the late Dr. Charles Cowles, Detective Jason Mitchell, presents the history of the TSA's Stop the Bleed program at the Texas State Capitol. Finally, Drs. John Zerwas and Tom Oliverson share their compelling stories of performing life-saving CPR at the Texas State Capitol while fulfilling their roles as Texas State Legislators.

Rounding out this edition, Drs. Stewart Caskey, Ben Vacula, and Tricia Meyer, PharmD offer a clinical update on promethazine hydrochloride and recommended precautions related to potentially devastating complication from its administration. A graduating resident, Dr. Collin Buerger, shares his experience of discovering passions that have reinvigorated him through his educational journey in medicine. Additionally, Drs. Harley Bordelon and Cory Russell offer a basic introduction to an important aspect of financial planning as it relates to young physicians. As always, our ASA Director, Dr. Scott Kercheville provides us an update on events that have occurred within the ASA. It is always important to have a good level of understanding of issues that affect our specialty and how the ASA is responding on our behalf.

I sincerely hope that you all enjoy reading this edition of the TSA *Newsletter* and I wish to thank the TSA staff members who worked hard to make it available for us. Special thanks to Chris Bacak, Judy Garcia-Bigger, and Tina Haggard for their contributions to producing the *Newsletter*. As always, we welcome our membership to contribute to the content of the TSA *Newsletter*. It is a great opportunity to share your expertise with our membership.

I wish you all a wonderful summer and hope to see many of you at this year's TSA meeting September 5-8, 2024 at the JW Marriott Hill Country Resort and Spa in San Antonio. ♦

Udaya Bhaskar Padakandla, MD, FACI, FASA
President - Texas Society of Anesthesiologists
Dallas, TX

The Seeds of Advocacy Must Be Planted Early and Watered Often

Since assuming presidency of the Texas Society of Anesthesiologists (TSA) last September, I have been touring many of the anesthesiology groups in the state of Texas. As of June 2024, I have visited all but one of the academic anesthesiology departments in the state. The last of these visits is scheduled for July. I have also traveled to smaller cities and met with the private practice anesthesiologists in those places. I am also scheduled to visit several more group practices in the coming months. I have made several observations as I visit these places and meet with the residents, faculty, and the non-academic practitioners. All of my meetings have been very well received and there have been cordial exchange of ideas and concerns regarding the usual political and regulatory issues concerning the practice of anesthesiology in the state of Texas.

There is a real need to take the messages generated at the TSA annual meetings in the committees and the House of Delegates home to our groups who were not at the meeting. We need to remember that only a small percentage of residents, faculty, and private practitioners are able to attend the annual meetings of the Texas Society of Anesthesiologists. For the advocacy message to reach the other members of these departments, the community practices, and the private groups, someone at the TSA leadership level needs to travel to these smaller places in the state. That is the primary purpose of my travels across the length and breadth of Texas.

Residents and medical students are the future of this profession and are the future leaders of this society. To garner their interest in advocacy matters and engage them in advocacy itself, we need to get them started early in their training. I organized my advocacy trips to these academic departments into two distinct parts, utilizing a two-day visit. On the first day, I meet with the residents and the program directors, department chairs, and any other interested faculty at a location outside of the hospital, preferably a restaurant. Over the course of a dinner meeting, I share with them a presentation filled with facts and figures pertaining to our society's perpetual battle, namely the scope of practice expansion. I also emphasize other aspects of our advocacy campaign, namely establishing relationships with local legislators, attending annual State Capitol visits, joining political action committees, and, in general, becoming advocates for our our patients and our profession.

On the second day, I deliver a Grand Rounds talk where I discuss healthcare issues in this country, namely the burden of healthcare debt and the role of the Centers for Medicare & Medicaid Services and insurance companies in healthcare delivery. Using publicly available data, I show them how the insurance companies, pharmacy benefit managers, group purchasing organizations and hospitals all align to contribute to the ever increasing cost of healthcare. It is important for the doctors in training to understand how the physicians and the patients are exploited by these entities and how the profit motive from these big players shifts the ever-increasing cost of healthcare on to the patients and their families while, at the same time, creating an ever-increasing profit margin for themselves.

My sincere plea to the residency program directors in this state is to standardize a course of up to three lectures on healthcare policy and basics of healthcare economics in the residency curriculum and introduce these lectures at the outset of the residency training. The seeds of advocacy need to be planted early and watered often.

My trips to the smaller cities in Texas have had a slightly different emphasis. While I still like to show them the data regarding healthcare debt and the health care crisis in the country, I also try to link them up with their local legislators whenever possible. The idea is to establish key contacts with local legislators so our anesthesiology colleagues will hopefully be the points of contact whenever legislative bills that have to do with healthcare come up during the legislative sessions. Establishing contact with legislators and even developing friendships with them is a great way to have impact on matters at the local levels. Make no mistake, during every legislative session there are guaranteed to be scope of practice battles. It's during the debates on these bills that the legislators are likely to call upon the physicians from their home districts with whom they have developed trusted relationships. Helping my colleagues develop key contacts with their local legislators is, therefore, my priority in making trips to these smaller cities in the state.

It is my sincere hope that future TSA presidents will continue this tradition and broaden the contacts we have with the society members across the state both by visiting them in their local communities and, as a result, fostering engagement in the political processes. Political engagement at local, state, and federal levels is very important for the survival of our profession. As longtime American Society of Anesthesiologists leader, the late Dr. Bertram Coffer, said, "What happens in the halls of Congress has a greater bearing on the healthcare of our patients than what happens in the laboratories of medicine". ♦

Udaya Bhaskar Padakandla, MD at the US Capitol

Miles Day, M.D., DABA, FIPP, DABIPP
Traweek-Racz Endowed Professor in Pain Research
Medical Director - The Pain Center at Grace Clinic
Pain Medicine Fellowship Director
Texas Tech University HSC
Lubbock, TX

On the Shoulders of Giants: Legends of Texas Anesthesiology
Phulchand Prithvi Raj, M.D.

A few weeks before Raj's passing, he called to update me on his health condition. I asked him if there were other treatments that could prolong his life and, if so, why did he not pursue them. Without hesitation he said, "Everything that I have ever wanted to accomplish in my life, I have already accomplished." And on February 27, 2016, the second of my mentors passed away at the age of 84. Those of us in the anesthesiology and pain world lost a friend, a colleague, a mentor, an innovator and an overall a true gentleman. But who was this man that we lovingly call "Raj"?

Phulchand Prithvi Raj was born on September 13, 1931, in Bagri Sajjanpur, Princely State of Jaipur of British India. He completed high school at St. Joseph's Boys High School, Bangalore, Karnataka, India with the hope of one day becoming an orthopedic surgeon. In 1958, at the age of 26, he graduated from Mysore Medical College and journeyed to Ashton at Lyne, Manchester, England to be a house officer. Four years later he completed his orthopedic surgery training and became a registrar. Deciding to embark on his career in the United States, he entered a rotating internship at St. Mary's Hospital in Waterbury, Connecticut. Unfortunately, his English orthopedic surgery training was not recognized in the United States and, if he wanted to pursue this, he would have to do another residency in orthopedic surgery. In 1963, he had two choices: start a residency in orthopedics at New York University or a residency in anesthesiology at the University of Texas-Southwestern (UTSW) in Dallas. Fortunately for us, he chose anesthesiology. Over the next six years he completed his anesthesiology residency in Dallas, then did a year of specialization in Norway, and obtained the Fellow of the Faculty of Anesthetists of the Royal College of Surgeons in Birmingham, United Kingdom. He moved back to Dallas in 1969 where he began his career as an Assistant Professor at UTSW.

Dr. Prithvi Raj as a medical student.

Over the next 35 years Raj left his impact on many institutions. After five years at UTSW, he traveled to Los Angeles where he was named the Director of Anesthesia at Wadsworth Veterans Administration Hospital at University of California, Los Angeles (UCLA) from 1974 to 1976. He left UCLA in 1976 and returned to Dallas to start the Pain Relief Center Texas Neurological Institute which, at that time, was the fourth pain clinic in the United States. He left Dallas in 1979 and joined the Department of Anesthesiology at the University of Cincinnati to start a new pain center. There, he started a one-year fellowship and chaired the program from 1979 to 1986. In 1986, he started the pain fellowship program at the University of Texas Health Sciences Center in Houston, and then moved to Atlanta in 1991 in order to organize a pain clinic as a satellite of the Medical College of Georgia. Subsequently, he returned to UCLA from 1994 to 1996 to develop a pain fellowship program. Finally, in 1996 he joined Dr. Gabor Racz at Texas Tech University HSC as Director of the International Pain Institute and Co-Director of the Pain Institute where he remained from 1996 to 2003. Fortunately for me, I was an

anesthesiology resident at Texas Tech when he arrived. Following his retirement in 2003 at 72 years of age, he eventually returned to Cincinnati, which was home for him until his death in 2016.

Raj was a prolific writer and educator. His first book "Practical Management of Pain" and future editions were a must have and served as "***the*** textbook" for many pain management fellowship programs. I used to joke that Raj was his own

Dr. Prithvi Raj and his wife Susan (on the ends) with Dr. Gabor Racz and his wife Enid (in the middle).

textbook. He could give an impromptu 30-minute talk on almost any pain medicine topic. He authored hundreds of papers and book chapters over his career. As a founding father and past president of the American Society of Regional Anesthesia and Pain Medicine (ASRA), the Texas Pain Society (TPS) and the World Institute of Pain (WIP), Raj touched the lives of thousands of current and future pain medicine physicians across the globe.

Raj was the recipient of numerous awards and honors from societies such as ASRA (Gaston Labat Award 1990, John Bonica Award 2009, Founding Father's Medal 2007), the American Society of Interventional Pain Physicians (Lifetime Achievement Award 2003, Distinguished Award and Lecture 2014, 2016), and the European Society of Regional Anesthesia (Carl Koller Award 2000). Despite all of these professional accolades, Raj remained one of the humblest people I have ever met. He never turned away a question from an inquiring mind. In my case, I had many. He would not always give me the answer outright, but instead would probe what I knew and helped me work towards the answer. My current fellows can thank Raj for this…

Raj was a family man. While he was an orthopedic surgery registrar in Darlington, England, he met and married Susan Martin in 1963. They had 3 children and numerous grandchildren. Susan accompanied him wherever he travelled and I have many fond memories of our interactions at various meetings and social gatherings. A Christmas party in 1997 at their house in Lubbock was the setting of the marriage proposal to my future wife Audra and, because of this, they hold a very special place in our hearts. Susan and Raj also had several dogs over the years, but their last ones were Scottish Terriers named Scotty 1 and Scotty 2. I could never look at the dogs and not think of the "scotty dog" seen on x-ray during a lumbar facet injection.

Dr. Raj surrounded by family at Christmas in 2005.

On a personal note, some of the most important memories of Raj were during my pain medicine fellowship at Texas Tech. I had the privilege of being trained simultaneously by him and Gabor Racz. Most fellows would feel fortunate to be trained by either one of them, but I got both. Teaching sessions, called "Professor Rounds," were always fun. We fellows would present cases for Drs. Racz and Raj to discuss. The discussions were always lively between these two and reminded me of Rafael Nadal and Roger Federer duking it out in a Grand Slam tennis tournament. I was fortunate to join Drs. Raj and Racz as faculty right out of my fellowship. I had never thought of pursuing an academic career, but Raj's enthusiasm for teaching was downright infectious. He was instrumental in my early academic career and urged me to publish as much as I could, get involved with societies, and to teach. I am eternally grateful for this.

Another Raj protege feels the same as I do. Aaron Calodney, M.D, said Raj was "not only a brilliant, physician, researcher, and teacher, but a wonderful, caring, and compassionate human being who taught us how to be better people." I can vouch that this opinion is shared by all who had the opportunity to meet Raj.

In late 2016, many of us were able to gather in Cincinnati with Raj's family to celebrate his life. Stories were told, toasts were made, pictures were shared, but, to my memory, no tears were shed. If each of us in our lives could emulate just a small part of his life, I believe Raj would be proud. I can see him smiling now! ♦

References:
1. Manchikanti L. In Memoriam of an Eminent Pain Physician: Phulchand Prithvi Raj. *Pain Physician* 2016;19:E515-E530.
2. Raj P, Hill C, Racz G, et al. The Story of the Texas Pain Society: Formation and Function of a Regional Pain Society. *Pain Practice* 2012;12:57-65.
3. Rauck R. Dr P. Prithvi Raj: A True Founding Father. *Reg Anesth Pain Med* 2016;41:427-429.

Christopher T. Stephens, M.D., FAEMS
Chief of Trauma and Professor of Anesthesiology
McGovern Medical School
Houston, TX

Anesthesiologist Pioneers Who Trained the First Paramedics in the United States

"Squad 51, start an IV D5W and send EKG. Roger, Rampart, starting IV and sending EKG now. Rampart, the patient is now unconscious and is in ventricular tachycardia! Roger, 51, go ahead and defibrillate patient now! 10-4, Rampart!" This is an all too familiar quote from the popular TV series, EMERGENCY!, which aired from 1972 – 1977. This TV program was the very first time that the work of the Los Angeles County Fire Department paramedics was shown to the general public and the medical advisors to the original series were, in fact, anesthesiologists! [1,2]

If you research the history of Emergency Medical Services (EMS) in the United States, you will learn that the origins of this unique field began with both anesthesiologists and cardiologists. These two specialties taught lay persons how to perform advanced cardiac life support and resuscitation techniques outside of the hospital in communities which lacked direct access to emergency care. The resulting "para-medic" training programs were a tremendous success. This all took place in the 1960's and 1970's. [2]

It was a young and ambitious anesthesiologist from Austria who founded, educated, and trained the very first advanced life support paramedics in the United States. The three-time nominee for the Nobel Prize in Medicine, Dr. Peter Safar, had joined the faculty at University of Pittsburgh after pioneering cardiopulmonary resuscitation (CPR) and rescue ventilation techniques for fire fighters, boy scouts, and even the lay public in Baltimore, Maryland. The pioneering Dr. Safar published his rescue ventilation techniques in the *Journal of the American Medical Association* in 1958 and was deemed the "Father of CPR". [3,4] It was after he left Baltimore and joined the University of Pittsburgh that Dr. Safar realized the lack of access to emergency health care within the neighborhoods of inner city Pittsburgh. At the time, all medical emergencies within the city were responded to by police officers driving police wagons with little to no medical supplies or equipment, let alone any medical training. Hence, the level of care en route to Pittsburgh's Presbyterian Hospital was essentially non-existent and Dr. Safar had the vision to change this. Thus, Dr. Safar, along with several key hospital and city officials agreed

Peter Safar, M.D. (third from left) demonstrates airway management techniques to paramedic trainees

to support the idea of having a city run ambulance service. Dr. Safar, Phil Hallen, and James McCoy, Jr., founder of the Hill District's Freedom House Enterprise Corporation, and the city mayor were the key stakeholders to get an organized EMS system developed from scratch. Their plan was to recruit unemployed African American men from the Hill District who had no previous medical education so they could be trained in basic life-saving measures by Dr. Safar at Presbyterian Hospital. The program launched and was successful, despite many roadblocks along the way. The fact that Dr. Safar was training these men the techniques of resuscitation within the operating rooms (OR), intensive care units, and the emergency room was extremely controversial and progressive for that time period.[5]

In April of 1967, the Freedom House Ambulance Service Committee congregated for its first official meeting. Dr. Safar graduated his first class of 20 men, who then commenced their nine months of on-the-job training using two donated used police ambulance vehicles dispatched from Presbyterian hospital. In the first year, Freedom House paramedics were dispatched to 5,868 calls and transported 4,627 patients, with an average of 15 calls per day. Hence, Freedom House crews were the very first trained paramedics in the United States and it was them who set the stage for paramedic training programs in the future. As the years progressed, Freedom House responded to more than 45,000 calls for help with five updated mobile intensive care ambulances. [6]

Another pioneer Anesthesiologist, Dr. Eugene Nagel, was instrumental in educating and training the Miami Fire Department paramedics in the early 1970's on the heels of Dr. Safar's groundbreaking work. [1] Dr. Nagel completed his residency in anesthesiology in New York before relocating to Miami, where he joined the University of Miami School of Medicine's Department of Anesthesiology. After witnessing the fire fighters' attempt at reviving a man suffering from cardiac arrest, he walked into the fire station days later and offered his expertise in training them in CPR, IV placement, medication delivery, and advanced airway management techniques. He convinced the fire chief, as well as the city council, that this training was desperately needed in the City of Miami. He won the battles and became the first medical director of the city fire department! A very interesting side note, Dr. Nagel along with his engineering colleague, developed the first telemetry "Biophone" which allowed the fire fighter paramedics to call the hospital and speak directly with physicians in the emergency room, in addition to sending the electrocardiogram rhythm strip to the physician for medication and defibrillation orders! This was groundbreaking technology invented and pioneered by Dr. Nagel. [7]

Eugene Nagel, M.D.

Interestingly, emergency medicine (EM) was not recognized as a specialty until 1979, with the first board certification exam being offered in 1980. [8] Subsequently, it is no surprise that EM physicians effectively took over the education, training, and medical oversight for paramedic programs, including medical direction for larger EMS agencies. Hence, anesthesiologists essentially stopped educating and training these motivated pre-hospital providers except for the occasional paramedic student who is sent to the operating room for the required "live" intubations to graduate from their respective program. Today, the overwhelming majority of paramedic students are teamed up with a CRNA or anesthesiologist with little to no experience or expertise in EMS and the pre-hospital environment. The result is a lack of solid education and training on the use of airway adjuncts such as oropharyngeal and nasopharyngeal airways, basic hand-ventilation skills using a bag-valve-mask, laryngeal mask airway placement, laryngoscopy skills, video laryngoscopy, and, most importantly, bougie-assisted intubations along with the physiological and pharmacological considerations

when caring for the sick and injured in the field. These are all skills that a well-educated and trained paramedic must be comfortable using when starting their career out in the field environment. Sadly, the paramedic student will graduate and likely never see the walls of an operating room again throughout their career. The hospitals where these medics transport their patients to on each shift likely have anesthesiologists in the OR performing the same advanced skills each and every day, which the paramedic rarely performs but for which they are expected to maintain expertise.

The Texas Society of Anesthesiologists now has an EMS Ad Hoc Committee to specifically address issues related to the longitudinal education and training of pre-hospital providers in the OR around the state. Goals of this committee include how best to harness our special skill set as anesthesiologists to improve the overall knowledge and skills of practicing pre-hospital providers in Texas. Over the last four decades, our specialty has essentially lost touch with the EMS community by rarely if ever taking time to have an emergency medical technician (EMT) or paramedic shadow us in the operating room, so they can observe and learn from our talented group of physicians! After completing my EMS fellowship and becoming board-certified in EMS by the American Board of Emergency Medicine, I became medical director for two busy fire departments in the Houston area. As a result, I have my paramedics and EMTs shadow me in the OR at our academic level I trauma center. They learn a tremendous amount by observing the physiology, pharmacology, and airway techniques which we manage each day. Furthermore, I educate and train every flight paramedic and flight nurse who is hired on with our busy Air Medical Service. During this full immersion training, we cover shock physiology, pharmacological considerations, rapid and delayed sequence intubations, ventilator management, and post-intubation resuscitation knowledge.

Christopher T. Stephens, M.D., in his role as EMS Director

It is one of my career goals to engage my anesthesiologist colleagues around the state of Texas, as well as the entire country, to reunite with our beloved first responders and allow them to observe our practice within the OR in order to enhance their knowledge and training in basic and advanced airway techniques, as well as resuscitation. Let's get back to our roots of educating and training our paramedics and make Drs. Safar and Nagel proud! ♦

References:

1. EMERGENCY! Behind the scene. 2012. Yokley, R and Sutherland, R. Jones & Bartlett Publishers.
2. Edgerly, D. Birth of EMS: The history of the paramedic. 2013, *Journal of EMS*.
3. Safar, P. Ventilatory efficacy of mouth-to-mouth artificial respiration. *JAMA*. 1958;167 (3):335-341
4. Safar P. Classical Article: From control of airway and breathing to cardiopulmonary-cerebral resuscitation. 1958. *Anesthesiology*. 2001 Sep;95(3):789-91. doi: 10.1097/00000542-200109000-00035. PMID: 11575555.
5. American Sirens. 2022. Hazard, K. Hachette Books.
6. Dr. Peter Safar (A Retrospective): The Forgotten Heroes of Freedom House. Department of Anesthesiology & Perioperative Medicine, University of Pittsburgh https://www.anesthesiology.pitt.edu/news/profiles-diversity-peter-safar-md Accessed May 13th, 2024.
7. White, G. Winter Haven doctor, a pioneer of emergency medical services in 1960's, dies at age 98. *The Ledger*. 2023. https://www.theledger.com/story/news/local/2023/01/12/winter-haven-doctor-pioneer-of-emergency-medical-services-dies-at-98/69797874007/#:~:text=Nagel%20died%20Tuesday%20at%20age,EMS%20Museum%2C%20along%20with%20Dr. Accessed May 13th, 2024.
8. Huecker, M, et al. Emergency Medicine History and Expansion into the Future: A Narrative Review. *West J Emerg Med*. 2022;23(3): 418-423.

Detective Jason Mitchell
Health & Risk Mitigation, SWAT/Tactical Medical Operations
Pasadena, TX Police Department

The History and Impact of the TSA's Stop the Bleed Program at the Texas State Capitol

I was introduced to the late Dr. Charles Cowles several years ago by a mutual friend. As a Special Weapons and Tactics (SWAT) team operator and tactical paramedic, I was creating a tactical medical team for the Pasadena Police Department and was interviewing potential medical directors. Dr. Cowles had a storied history as a paramedic and firefighter prior to attending medical school and anesthesiology residency. Additionally, he had the know-how and relationships to grow our team and was ultimately offered and accepted the position. I am currently employed as a detective and Health and Risk Mitigation Officer working in administration for the Pasadena Police Department.

Several years ago, pre-COVID, Dr. Cowles and I did a short Stop the Bleed (STB) class for the Texas Society of Anesthesiologists office staff. During that visit, the first combination CPR and STB courses to be held during the TSA Day at the Capitol were discussed. In true Dr. Cowles fashion, I was not consulted on this venture and unknowingly was volunteered to provide that training. After informing me of my obligation and that he would not be able to attend, I was understandably confused. I did not have visibility on that discussion or what would be required of me. This was not an uncommon practice for Dr. Cowles. I believe he thought it humorous to push me out of my comfort zone. He did eventually relieve me of my anxiety and actually showed up that day.

Since that first class, this TSA initiative has provided training to several hundred invididuals. The most recent offering, on February 27th of this year, saw nearly 90 participants learn these techniques.

Why Stop the Bleed?

In today's world, emergencies can happen anytime, anywhere. Knowing how to respond quickly and effectively can save lives. This is where the Stop the Bleed initiative comes in. Launched in 2015 by the White House, the Stop the Bleed program aims to educate individuals on how to control bleeding in emergencies before professional help arrives.

Stop the Bleed is built on the premise that bystanders are often the first on the scene of emergencies. Therefore, equipping them with basic bleeding control techniques can significantly improve survival rates, as uncontrolled bleeding is the leading cause of trauma-related death. Central to the success of Stop the Bleed is the training provided to individuals across various sectors of society. Our training sessions cover essential skills such as the importance of rapid response, direct pressure, and tourniquet application.

Reacting Quickly: In any emergency involving severe bleeding, time is of the essence. The first step is to assess the situation and ensure personal safety before proceeding to help the victim. Since we are limited as to how much lifeblood we have, it is preferred to keep as much of our blood inside our organs and blood vessels as possible.

Applying Pressure: Direct pressure is one of the most effective ways to stop bleeding. By applying firm pressure to the wound with a clean cloth or bandage, bystanders can control bleeding until medical professionals arrive.

Applying a Tourniquet if Necessary: In cases of severe bleeding where direct pressure is not sufficient, the proper application of a tourniquet may be necessary to cut off blood flow to the affected extremity. One of the important points made is to not be afraid to use the tourniquet. Our men and women in the military are using these in wartime with amazing success with little to zero negative effects on the extremity.

The training provided at the Texas State Capitol is designed to give attendees a very basic understanding of how to control bleeding. This training also challenges the individual to seek out other opportunities to further enhance this knowledge.

While the Stop the Bleed program has made significant progress, challenges remain in ensuring widespread adoption and sustainability. Access to training resources, funding, and ongoing education for instructors are essential factors that require continued attention. Additionally, overcoming barriers such as fear or reluctance to intervene in emergencies can be addressed through targeted outreach and education campaigns. By providing this training, the TSA is helping to mitigate these challenges.

Looking ahead, the future of the Stop the Bleed program lies in its ability to integrate seamlessly into existing emergency response systems and become ingrained in the public consciousness. Collaboration between government agencies, healthcare providers, and community organizations will be crucial in achieving this goal. While these training sessions were born out of lessons learned, the TSA is leading the charge at the Texas State Capitol to proactively better prepare individuals working within those walls.

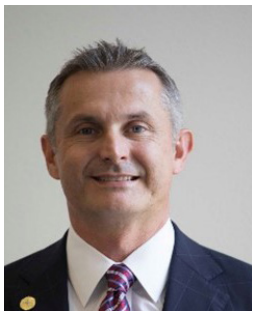
In conclusion, in an increasingly unpredictable world, initiatives like the Stop the Bleed program serve as beacons of hope, empowering individuals to take action in the face of adversity. Through these training opportunities, the TSA will undoubtedly impact the greater community in ways we hadn't considered.

On a personal note, I view instructing these classes as a gift, and through this, it allows me to honor my friend and mentor Dr. Charles Cowles. While gone far too soon, I was blessed to have had such a man in my life. I am honored and grateful to be a part of what the Texas Society of Anesthesiologists is doing for the State of Texas. ♦

References:
American College of Surgeons. (n.d.). About Stop the Bleed. Retrieved from https://www.stopthebleed.org Last accessed 5-2-2024

Jacobs LM, Rotondo M, McSwain N, Wade DS, Fabbri WP, Eastman A, Butler FK, Sinclair J, Burns K, Brinsfield K, Carmona R, Richard S, Conn A, Kamin R; Joint Committee to Create a National Policy to Enhance Survivability From Mass Casualty Shooting Events Hartford Consensus II. Joint Committee to Create a National Policy to Enhance Survivability from Mass Casualty Shooting Events: Hartford Consensus II. *Conn Med.* 2014 Jan;78(1):5-8. PMID: 24600773.

Russell K. McAllister, M.D., FASA
TSA Newsletter Editor in Chief
Professor of Anesthesiology-Baylor College of Medicine-Temple
Chair of Anesthesiology-Baylor Scott & White Health-Central Texas
Temple, TX



Thomas J. Oliverson, M.D.
Member of the Texas House of Representatives-130th District
US Anesthesia Partners
Cypress, TX

John M. Zerwas, M.D., FASA
ASA and TSA Past President
Executive Vice Chancellor for Health Affairs
The University of Texas System
Richmond, TX

The Importance of Cardiopulmonary Resuscitation: Tales from the State Capitol of Texas

This edition of the TSA Newsletter has a focus on the importance of cardiopulmonary resuscitation (CPR) and other basic lifesaving skills that can be taught to non-medical personnel. Texas anesthesiologists have been intimately involved in CPR and Stop the Bleed training at the Texas State Capitol for many years. There is a very good reason that this training began several years ago. This article is another interview style article written in order to bring to light some impressive stories that many of our membership may not have already heard. This will be an interview of Drs. John M. Zerwas and Thomas J. Oliverson, both of whom are Texas Society of Anesthesiologists members, but they also have unique experiences at our Texas State Capitol in their roles as Texas State Representatives. Interestingly, both have performed life-saving CPR at the Texas State Capitol. Please read along as we learn a bit more about their unique and memorable experiences.

RKM-*Thank you both for joining me in this discussion about the importance of CPR training at the Texas State Capitol. Before we jump into that, I would like to have you both introduce yourselves and tell us a bit about your background. Let's start with Dr. John Zerwas.*

JMZ-*As a child my family was moved rather frequently as my father was a Gulf Oil Company executive. We settled in Houston during my high school years, which is where I met my late wife Cindy Hughes, and attended the University of Houston and Baylor College of Medicine. I initially matched for general surgery at the University of Texas Health Science Center in San Antonio, but switched to anesthesiology in my second year of residency. I returned to Houston in 1984 and joined an all-physician practice affiliated with the Memorial Hermann hospital system.*

RKM-*Thank you Dr. Zerwas. Now, Dr. Oliverson, can you give us a bit of your background?*

TJO- My wife, Jennifer and I have three children. I went to undergraduate training at Sam Houston State University followed by medical school at Baylor College of Medicine in Houston. I completed an internship at Baylor College of Medicine before completing my anesthesiology residency at Washington University in St. Louis. I eventually returned to Texas and we settled in the Cypress area, where I am a partner with US Anesthesia Partners.

RKM-*Thanks Dr. Oliverson. So, now I would like to explore what your roles are or were in the Texas Legislature. Please also let us all know what made you decide to pursue these elected positions. Dr. Zerwas, you have served as a legislator in the past. Can you start by giving us some background on your experience?*

JMZ- *My experience as a legislator is truly one of the most transformational parts of my life. I never had true ambitions to serve as a legislator and politician, but as many things go "the opportunity found me". But another one of my anesthesia partners, Dr. Kyle Janek, was an elected state representative and state senator, who made it very clear regarding the importance of public service. Once I was convinced of the support I needed to succeed, my family and I became fully engaged in campaigning and subsequent service in the Texas House of Representatives for district 28. My first campaign was in 2006 competing against 6 others in the Republican primary, and after winning the general election I served my freshman session in 2007 (80th legislative session). Much of my time in the House was focused on Appropriations, which allowed me to "touch" everything the State of Texas does. In 2019 after my 7th Session, I chose to leave my position as a state representative and join the University of Texas System as the Executive Vice Chancellor for Health Affairs which oversees all of UT's health related institutions.*

RKM-*Thanks Dr. Zerwas. Now, let's hear a little bit more from Dr. Oliverson with regards to his path to become a state legislator. Of note, Dr. Oliverson was chosen as the 'Best Freshmen Legislator' of the 85th legislative session by his Republican colleagues in 2017. In addition, Texas Monthly named him one of the 'Best Legislators of the 86th session' in 2019.*

TJO- *Thanks. I became involved in the state legislature because of a desire to serve. In my legislative role, I represent Texas' 130th State House District in northwest Harris County, including the communities of Tomball, Cypress, Waller, and Hockley. I was selected by Speaker Phelan to chair the Committee on House Insurance and I also serve on the Public Health and Health Care Reform committees. In addition, I have had the honor to be selected as the vice-chair of the House Republican Caucus.*

RKM-*Great! Thanks for the bit of background into the paths of your careers in medicine and politics. I would like to now move to what we are here to discuss. As mentioned before, both of you have had unique and memorable encounters in the Texas State Capitol where your medical knowledge has resulted in life-saving CPR being delivered in a timely fashion with great results. Dr. Zerwas, if you wouldn't mind telling us a bit about that day from years ago when you were called into action to help a colleague.*

JMZ- *Thank you, and as you can imagine the memory is quite vivid! It was about 10 pm and I was on the floor of the House as we were having a late night when one of my colleagues yelled at me from the back to "come quickly, it's Edmund Kuempel, he's collapsed in the elevator." As I arrived at his side, he had been pulled from the elevator by one of our sergeants, clearly unresponsive, pulseless, apneic, and cyanotic. An AED was being applied while I began chest compressions, and a member of the DPS provided intermittent respiratory support. A heart rhythm was identified on several occasions which prompted subsequent defibrillation but never a sustained rhythm with a pulse. We continued CPR until EMS arrived about 15 minutes after CPR efforts were started. An interosseus line was placed immediately in the left tibia while another team member intubated Mr. Kuempel. After administration of various meds and defibrillation a rhythm, pulse and blood pressure was obtained. The patient was promptly transferred to Brackenridge Hospital and placed in a hypothermic coma for 48 hours. He fully recovered after a few more days in the hospital and was able to join us on the House floor several weeks later.*

RKM-*Wow! That is a compelling story. I recall hearing about it soon after it occurred. I am sure that was a life changing event for you.*

JMZ- *Anesthesiologists typically are involved in many resuscitations, but those are typically in a very controlled setting with everything you need to effectively treat the patient. But actually doing CPR, where we don't have all the tools we need, is definitely a different experience. It brought home our motto, "Vigilance & Persistence," and made me a firm believer in creating an army of people trained in CPR.*

RKM-*Dr. Zerwas, if you wouldn't mind, can you share with our members how the events of that day led to the TSA beginning CPR training at the Texas State Capitol?*

JMZ- *In the spirit of Mr. Kuempel, who subsequently died about 18 months later, we passed a bill requiring all high school graduates to complete a CPR training. (The Edmund Kuempel Act) We also asked the TSA to be an annual sponsor for this training in the state capitol for anyone who desires to be trained. This is all in that ambition to create an army of people who can administer this basic life-saving intervention.*

RKM-*Thanks for sharing that great story and how it motivated action on the part of the TSA members. Dr. Oliverson, I recently heard that you had a similar experience while you were at the Texas State Capitol. Can you tell us about what happened recently when you were called to action for a health event at the Capitol?*

TJO-*This past fall, we were doing our work on the house floor and there was a gentleman who collapsed at the West entrance to the Capitol. My good friend, Representative Cody Harris came to me and said, 'Hey, we need a doctor downstairs.' So, I ran down there to find a gentleman who was almost purple and clearly not breathing. I checked for a pulse and didn't feel one, so I started CPR. About that time, Representative Greg Bonnen, who is also a physician, came down and saw me doing CPR. I looked at him and our eyes met, and I said, 'We need the AED!' We got the AED and defibrillated him twice and got him back to a sinus rhythm. He woke up in the hospital after his ambulance ride and said, 'Where am I and why does my chest hurt?'*

RKM-*That is an amazing story. Thanks for sharing it. I understand that this topic also hits home on a personal level for you. Don't you also have a family member who has benefited from CPR in the past?*

TJO- *Yes, that's right. In 2019, when I was in my second session of Congress, we were doing our work at the Capitol in January, and I got a call from my mother that my father had collapsed. He had collapsed in an airport in Birmingham, Alabama, and God was with him that day because, as it turns out, as he was standing in line to get on the airplane to come home from Birmingham, there was a nurse standing behind him in line. She was actually supposed to be in Chicago, but her flight got cancelled, so now she was trying to go to Houston to get to Chicago. She wasn't supposed to be there, but ended up there. She saw my father hit the floor and immediately recognized what was going on. She immediately checked for a pulse and realized there wasn't one, and started CPR and kept the blood moving. About that time, there was a young man getting off an airplane in the same area of the terminal who was a paramedic. He saw people gathered around. He saw someone doing CPR. He knew what to do. He immediately grabbed the AED off the wall. He brought that over and hooked up the pads. The machine told him exactly what to do next. They shocked my father, and they got him back. He woke up in the ambulance on the way to the hospital and he also said, 'Where am I and why does my chest hurt?'*

RKM-*That is a great story. Thanks for sharing such a personal testimony of the benefits of bystander CPR. Both of you have very dramatic stories to tell of successful CPR in a non-medical setting. I have personally had my own experience while dining at a restaurant when a customer became unresponsive during his dinner. I was able to pull him to the floor outside of the booth and begin CPR for about 5 minutes until he became responsive again and appeared to be doing much better. Emergency Medical Services arrived soon after and it appeared to be a very positive outcome, although I was unable to get any follow up on the eventual outcome. I would like to ask for any additional thoughts that either of you may have regarding the importance of learning CPR, even for non-medical persons.*

JMZ-*These basic skills can be quickly attained and are clearly life-saving as demonstrated in my resuscitation of Mr. Kuempel. I would urge everyone to take the short amount of time to learn these life-saving skills.*

TJO-*Studies show that for every minute that your heart is not beating, you are losing 10% of your brain function. If you are out and about and suffer a cardiac arrest or if someone near you does, consider that the typical EMS response time is about 7-10 minutes in a city such as Austin, so that means that by the time they arrive, a person may be mostly brain dead. So, what that really means is, in order to save somebody's life, we depend on the persons who are in the room, or sitting next to them at lunch, or are down the hall from them that knows CPR. Because that is what it takes to save someone's life. It is so important to teach and learn bystander CPR because it can clearly save lives. It really is the most powerful life-saving tool that a lay person can have at their disposal. By teaching this to others, it gives them a chance to save a life. Nothing else can substitute for that. They can provide CPR for a person when it is needed and no one else around them is trained in CPR. That is why it is so important to teach this to others.*

RKM-*Thank you both so much for sharing your thoughts and experiences on this extremely important topic. You both have remarkable stories to share, and I am glad that our members have access to the stories now to emphasize the importance of always being prepared, even outside of the hospital. But also, the importance of teaching CPR to non-medical populations so that they can increase the likelihood of a positive outcome from acute cardiac events that they may witness. Because we know that prolonged downtime from a cardiac event frequently leads to death or devastating neurologic outcomes, the stories that you tell of meaningful recoveries from these events are really inspiring. I hope that these stories will motivate others to consider how they will respond in such emergencies. In addition, it is a great idea to always notice where automated external defibrillators are located in buildings that you are visiting. Your stories may also motivate other colleagues to become more involved in the TSA CPR and Stop the Bleed efforts at the Texas State Capitol. I found it to be a very informative and rewarding experience. Thank you both for all that you have done and continue to do for our TSA members.*

JMZ-*My pleasure, and thanks for taking the time to facilitate this conversation with Dr. Oliverson and myself.*

TJO-*Thank you for letting us share our stories.*

Stewart D. Caskey, D.O.
PGY-3 Anesthesiology Resident
Baylor-Scott & White Medical Center - Temple
Temple, TX

Tricia A. Meyer, PharmD, FASHP
Adjunct Professor of Anesthesiology
Texas A&M School of Medicine
Co-Chair-Anesthesia Patient Safety Foundation-Medication Safety
Temple, TX

Benjamin B. Vacula, M.D.
Clinical Professor of Anesthesiology
Baylor College of Medicine-Temple
Director of Medical Informatics-Baylor Scott & White-Temple
Temple, TX

Russell K. McAllister, M.D., FASA
TSA Newsletter Editor in Chief
Professor of Anesthesiology-Baylor College of Medicine-Temple
Chair of Anesthesiology-Baylor Scott & White Health-Central Texas
Temple, TX

Practice Updates with Regard to Intravenous Promethazine Hydrochloride

Promethazine and Tissue Injury

Promethazine hydrochloride is a phenothiazine derivative and a frequently administered medication among anesthesiologists for prophylaxis and management of post-operative nausea and vomiting (PONV) as well as for its histamine H1-blocking, anti-cholinergic, and anti-motion sickness effects. Intravenous (IV) administration is a common practice within many institutions and is in accordance with its labeling. However, with an acidic pH between 4.0 and 5.5 and formulation with the vesicant phenol, promethazine poses significant risk to the tunica intima of vasculature. This is of particular risk with high concentration injections and may result in severe tissue injury and ischemia with IV infiltration secondary to its vesicant properties. In the setting of peripheral IV extravasation, subcutaneous injection, or accidental arterial injection, promethazine may cause a vast range of complications from mild irritation on injection and local erythema to thrombophlebitis, paralysis, and tissue necrosis requiring fasciotomy or amputation.[(2)] While the frequency of injury is unknown, many reports of serious harm have been collected, prompting recent evaluation and amendment to the Food and Drug Administration's

(FDA) administration guidelines. Intramuscular injection of promethazine appears to be safer, but itself is not without risk of tissue injury. While promethazine is an effective medication for the prophylaxis of PONV, risks and benefits as well as route of administration must be considered to enhance safe use and decrease the risk of adverse outcomes.

Tissue Injury Prevention

With accordance to the Institute for Safe Medication Practices (ISMP) and FDA recommendations, alternative medication use is a first line approach to prevent harm secondary to promethazine use. There are many options of available alternate medications to use from a wide variety of drug classes in place of promethazine. These include antiemetics from the same phenothiazine drug class (prochlorperazine) or from other drug classes such as 5-hydroxytryptamine antagonists (ondansetron), antihistamines (diphenhydramine), butyrophenones (droperidol, haloperidol), corticosteroids (dexamethasone), anticholinergic drugs (scopolamine), and neurokinin-1 antagonists (aprepitant).

When using IV promethazine, tissue injury prevention is of utmost importance. Adequate and confirmed patent IV access, preferably in larger or more central veins, is vital to keep patients safe and decrease risk of harm. Having the IV site in clear view during infusion can assist with early recognition of infiltration and avoidance of potential problems.

According to an August 2006 article by the ISMP, many tissue injury related adverse events following IV administration have been reported, prompting a suggested change in practice. Similarly, in 2009 and again in December 2023, the FDA released updated package inserts and a statement regarding the safety margin of intravenous promethazine hydrochloride administration and provided updated recommendations for its usage.

Both the ISMP and FDA's recommendations include significant overlap regarding methods to minimize risk when using IV promethazine. In combination, they overall recommend:

- Alternative medication use whenever clinically feasible
- Alternative routes of administration when appropriate
- Limitation of total parenteral dosing to 6.25mg to 12.5mg
- Dilution in only 0.9% sodium chloride to reduce vesicant effects
- Administration via larger and central venous sites to avoid the risk of extravasation or arterial injection
- Use of an IV port that is more proximal to the venous access point
- Slow administration over ten to forty minutes.[1,2]

Additional recommendations by the ISMP highlight the value of education and communication with patients prior to administration, with instructions for patients to verbalize any pain on injection to allow for discontinuation of the infusion if present. Further, in an effort to create halts in workflow and prompt consideration of treatment options, they recommend creation of updated package instructions for administration and an alert system to be integrated into medication administration records (MAR) to highlight risks when dispensing promethazine for parenteral use. This electronic medical record alert would include a message which recommends considering alternative medication use and alerting the provider to potential hazards of intravenous administration. Other recommendations include hospital-wide removal of parenteral formulations of promethazine.[2]

In accordance with the above guidelines, the FDA adds recommendations to avoid mixing promethazine with other drugs as well as avoiding concentrations of greater than 1mg/mL. Their dilution recommendations for the pediatric population include up to 25mg promethazine hydrochloride in 25mL 0.9% sodium chloride.

If giving an increased dose of 25-50mg promethazine hydrochloride, this should be diluted in 50mL 0.9% sodium chloride. Regardless of these concentrations, the recommended maximum rate of infusion is 1.25 mL/minute. With regard to the adult population, 12.5mg to 50mg promethazine hydrochloride should be diluted in 50mL 0.9% sodium chloride and infused at a maximum rate of 2.5 mL/minute. This will allow for a safer concentration to be given and for prevention of severe injury if extravasation does occur.[1]

Overall, the combined recommendations by the ISMP and FDA suggest using the lowest effective dose, a slowed infusion rate, administration via a central venous catheter, and a dilute concentration to minimize the risk of adverse events if an IV route of administration must be used.

Tissue Injury Treatment

If IV promethazine is used and tissue injury is suspected, there is no official manufacturer recommendation for treatment. However, if this occurs, first, stop the infusion and then work to diminish harm from extravasation by vasodilating vasculature in the affected area. Treatment options may be modeled after the suggested treatments for accidental intra-arterial injection of harmful medications (e.g. epinephrine), as the treatment goals are similar. Therefore, treatment considerations include local injection of heparin to decrease the risk of thrombus formation and giving direct vasodilators (e.g. papaverine) as well as alpha adrenergic blockers (e.g. phentolamine). Further management includes local anesthetic infiltration in the area to prevent reflex vasospasm, and, finally, sympathetic blockade (e.g. stellate ganglion block). Since the damage can be rapid and severe, these treatments should be undertaken with urgency.[3]

Summary

With the known risks, it is important for the anesthesiologist to consider alternative routes of promethazine administration or even alternative medications when clinically reasonable. With accordance to the above guidelines, patient harm may be minimized and adverse events reduced. Patient safety and vigilance remain important considerations for anesthesiologists and, while each decision we make is with consideration of the risk of harm weighed against potential benefits, following these guidelines can decrease the risk of a devastating necrosis or ischemic injury in patients treated with promethazine. ♦

References:

1. *FDA requires updates to labeling for promethazine hydrochloride injection products*. U.S. Food and Drug Administration. 27, December 2023. https://www.fda.gov/drugs/drug-safety-and-availability/fda-requires-updates-labeling-promethazine-hydrochloride-injection-products#:~:text=FDA%20recommends%20health%20care%20professionals,administration%20instead%20of%20intravenous%20administration
2. Action Needed to Prevent Serious Tissue Injury with IV Promethazine. (10, August 2006). Institute for Safe Medication Practices. https://www.ismp.org/resources/action-needed-prevent-serious-tissue-injury-iv-promethazine
3. Sen S, Chini EN, Brown MJ. Complications after unintentional intra-arterial injection of drugs: risks, outcomes, and management strategies. Mayo Clin Proc. 2005 Jun;80(6):783-95. doi: 10.1016/S0025-6196(11)61533-4. PMID: 15945530.

Collin S. Buerger, M.D.
CA-3 Resident
Baylor Scott & White Medical Center-Temple
Temple, TX

Notes to Self: Thoughts on Medical Training and Burnout

An Analogy. Have you ever seen a wild animal with its leg caught in a snare? Expressions of panic, bewilderment, and fear give way to anguish and defeat as the creature succumbs to the ironic hope that their trapper will return to either end their suffering or free them. Either would be a welcome option.

I would not say that I have struggled with overt mental illness; however, my time in medical school was likely the closest to clinical depression I have come. It should not have been surprising. You take someone who has always played sports with the seasons, enjoyed daily home life, and picked up various extracurriculars to inject variety, and you strip all that away and stretch their neural bandwidth from one test day to the next. It is no wonder people feel disillusioned with their medical journey. Melodrama and embellishment aside, it is safe to say that I felt trapped.

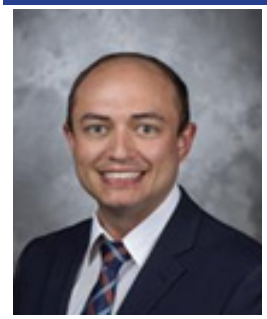
An Example. Small town sports teams do not typically have the luxury of an elite pool of athletes from which to choose; therefore, participation was not necessarily optional. Early on we were indoctrinated with the idea that involvement was the purest form of contribution. If you wanted to play football in the fall, you were required to run track in the spring. Tennis was your favorite? Well, you better pay the basketball tax, etcetera. That was my life for as far back as I can remember. Every activity and experience informed the next. Every effort elevated the next pursuit. It was fun. It was challenging. It was diverse. And - although it was my choice to pursue medicine, and I take full responsibility - it was physically painful to sacrifice the only way of life I had known to be on such a seemingly linear path that is medical training.

A Remedy. Opportunity cost is difficult to calculate under the most ideal of circumstances. It is even more difficult to consider and calculate the cost of inaction. It is a fortunate few who get to weigh these costs because they have just that . . . opportunity. During medical training, I have been blessed by marriage and early family life. I have often thought about what my life would look like had I not been chained to the cycle of endless clerkships. I told myself to seize opportunities that felt right . . . not to spite medicine, but to attempt to find synergy and avoid resentment that would ultimately arise should major life events be frozen in time with no hope of progression. The reward has been well worth the cost.

I have always had a desire to fly. In second grade, when asked what I wanted to be when I grew up, my answer was practical, “a bird,” written in juvenile print. However, it took years of blind hopefulness before I stepped toward my pilot training. Just as there was a high cost of not at least trying to become a physician and living with regret, the fear of not fulfilling the goal of being in the sky pushed the scale toward action. Fast-forward five years, a large commitment of effort, and the satisfaction of branching out beyond medicine and family, I recently acquired my private pilot license. I was lucky. I had opportunity. And the crossover between flying and medicine - particularly anesthesiology - is undeniable. Synergy strikes again. Interestingly, the anticipatory rush of mixed emotions regarding finishing residency soon is quite similar to that of piloting a single-engine plane solo.

Even more recently, the opportunity to participate in a medical mission trip to Central America arose. Admittedly, medical mission trips have not been at the top of my priority list. However, gentle nudging is all it took. Consider this: a chance to visit a foreign country, practice anesthesiology in a potentially challenging environment, witness varied pathology, and participate in life changing surgeries for extremely grateful patients alongside incredible volunteers. It is hard to imagine a better cure for burnout. And I find it hard to not feel selfish when I have been a recipient of such benefits.

A Challenge. How do we avoid feeling trapped with no opportunity in sight, destined to continue in perpetual inaction? Maybe that is the trick? Be a bit selfish with your time away from medicine? Leverage past and present activities to enhance and preserve our own unique objectives? And if not selfish, then be at least a bit self-indulgent? This has been part of my blueprint to become unfettered. With the examples above, there is a level of growth, accomplishment, and freedom that can only come from oneself. There is no longer life before medicine and life after medicine. There is life ***with*** medicine, which sounds and feels significantly better. So that is the charge: be slightly self-serving, feel the feels, find synergy within your life, let go of inhibition, do hard things. Always give the best of yourself to be your best self. I bet your life, and your family’s life and patients’ lives, will be better for it. ♦



Harley J. Bordelon, M.D.
PGY-3 Anesthesiology Resident
Baylor-Scott & White Medical Center - Temple
Temple, TX

Ryan Cory Russell, M.D.
Staff Physician
Baylor-Scott & White Medical Center - Temple
Clinical Assistant Professor of Anesthesiology-Baylor College of Medicine
Temple, TX

Choosing Wisely: The Impact of Pre-Tax and Post-Tax Contributions to Retirement Savings for Residents

Residents who are about to begin their final year of training view the prospect of transitioning from resident to staff anesthesiologist as an exciting time. Years of training, hard work, and numerous call shifts have led to this point. Yet, many decisions still need to be made. An important one is developing a financial plan, a topic often overlooked in medical training. In our specialty, it is crucial to formulate a safe and effective anesthetic plan that considers numerous patient, surgery, surgeon, and environmental factors. In our clinical care, we always have multiple contingency plans to deal with the potential for unexpected situations. It is also important to give similar attention to our individual financial plans. These plans will allow us to adequately care for ourselves and our families in retirement, long after our clinical responsibilities have ended.

Financial literacy has been an interest of ours since medical school and we have continued reading and researching since those early days. Given the numerous options, rules, regulations, account types, and tax implications in the financial world, we wish to focus on a specific area of retirement as it relates to resident physicians. It is important to understand and decide whether retirement contributions are made with pre-tax or after-tax dollars, as residents can expect a significant increase in compensation and taxation once training is complete. Although we are not financial advisors, we believe that there are simple elements of financial literacy that we can share with our colleagues to allow them to benefit from information that we have learned over the years.

We will begin with a discussion of pre-tax contributions to investment accounts, which include any funds to an investment account made before federal taxes are deducted. Particularly, these accounts are tax-deferred, (also known as tax-advantaged) retirement accounts that are often employee sponsored. Examples include traditional Individual Retirement Account (IRA), 403(b), Health Savings Accounts (HSA), Flexible Spending Accounts (FSA), and most 401(k) plans. An individual will not be able to completely avoid those taxes. They are just deferred until that individual begins to withdraw from their account in retirement (or when certain conditions are met). Advantages to pre-tax contributions include reducing taxable income (which ultimately means less income tax upfront, allowing investments to grow tax-deferred until withdrawal in retirement), increased take-home income, and the ability to take advantage of employer match programs (which match a certain percentage of contributions to your retirement account). Arguably, the most important consideration with pre-tax contributions is understanding how those deferred taxes will be paid in retirement and at what rate. This is especially noteworthy in situations where the expected retirement income is significantly higher than present income, resulting in the retiree being in a higher federal income tax bracket. Additional considerations include those general to most retirement accounts, such as early withdrawal penalties, limited account specific contribution amounts set by the Internal Revenue Service (IRS) and required minimum distributions which must be taken once you reach a certain age (historically 72 years of age).

Post-tax contributions, also known as after-tax contributions, are made into investment accounts after taxes are deducted. As with pre-tax contributions made into tax-advantage accounts, the money can come from payroll. However, these accounts are often specifically classified as Roth accounts and have strict rules. A Roth account invests after-tax funds, which means the investment return can be withdrawn tax-free in retirement (or when money has been held in the Roth account for at least 5 years). Both Roth IRAs and 401(k) s exist and many employers offer a Roth 401(k) and/or allow rollovers of an existing 401(k) into a Roth 401(k). There are instances where you can make post-tax contributions to non-Roth 401(k) plans which are not subject to contribution limits, but, for simplicity, this discussion will be limited to Roth accounts. As an aside, anytime money is transferred from traditional IRA/401(k)s into their

Roth counterpart, federal taxes at your current tax rate are paid on those conversions, as it is considered income. Unlike a Roth 401(k), which does not have income limits, Roth IRAs have specific income limits in which earners are not eligible to contribute and phases out between $146,000-$161,00 for single/head of household, $230,000-$240,000 for married filing jointly, and $10,000 for married filing separate. There is an option to contribute to a Roth IRA if you make over these income limits via a process known as backdoor Roth IRA. Furthermore, the annual contribution limit for a Roth 401(k) is $23,000 while a Roth IRA is $7,000 for 2024. An entire discussion can be made regarding Roth IRAs, but we will focus on employer-sponsored Roth 401(k)s. Since those contributions are taken after tax, your initial tax burden is higher, which typically results in a smaller paycheck. However, given those contributions have already been taxed, any future growth can be withdrawn tax free, even if you are in a higher tax bracket later in life. Additionally, you often benefit from employer matched contributions which further compounds your tax-free earnings.

So, is it better to contribute pre-tax or after-tax to your retirement account? Let's look at an example. As with all investment calculations, there are many assumptions, and some may not hold true for everyone. Our goal is to provide a simplistic model using real salary figures seen by residents. The average Texas resident physician's yearly gross income is $67,362 or $5,613 per month before taxes. If the resident contributes 5% of their salary pre-tax to a retirement account, that equates to $280 per month. Thus, their taxable income per month decreases from $5,613 to $5,333. Extrapolated to an annual salary, their taxable gross income decreases from $67,362 to $64,002, and their federal income tax decreases from $12,223 to $11,237, a savings of $986. Residents understand the importance of extra cash at a time when expenses are high, and income is low. When looking at post-tax contributions to Roth accounts, the $280 is deducted after taxes have been paid, thus, the resident will see no immediate income savings (the benefit will be realized much later). Now let us assume the resident only contributed to their Roth retirement account during training (total contribution of $13,440) and then allowed the account to grow for 30 years at the average annualized real rate of 7.5% (taken from the historical average S&P 500 return since the 1950s). The $280 per month contribution would grow to about $117,700, a gain of $104,260. If the same resident instead contributed pre-tax to a 401(k) plan, they would owe taxes on the entire $117,700 which would be deducted once they begin to withdraw money in retirement (the tax rate depends on retirement income and is likely in a higher bracket than during residency, resulting in a higher tax burden overall). If you contributed post-tax to a Roth 401(k), you do not owe any taxes on your distributions from this account in retirement. Realistically, most would continue to contribute to their retirement accounts throughout their career, thus, it is safe to assume these numbers will compound to an even larger degree.

Therefore, the consensus is that post-tax contributions are advantageous to low-earners (particularly when large increases in salary or higher tax brackets at retirement are expected) and pre-tax contributions are advantageous to high-earners (who reap the benefits of lowering their gross income and their tax burden). Of course, contributing both pre- and post-tax to different retirement accounts facilitates options for withdrawing your money in retirement and deciding what percentage you will pay taxes on. Given Roth contribution limits on an attending salary, you may find yourself contributing the maximum amount to both pre- and post-tax fund options. The decision to make pre-tax versus post-tax contributions will depend on individual needs and financial situations. It is important to talk with tax experts and discuss the unique considerations of your own tax and retirement goals. Numerous free calculators exist online that can facilitate these decisions. There appears to be a benefit for residents to convert an existing employee 401(k) plan into a Roth 401(k), despite having to pay taxes on the converted money, since residents are typically in their lowest tax bracket as a resident when compared to their time as a staff anesthesiologist (when they will likely be in a much higher tax bracket).

Finally, one of the biggest advantages a resident can use, regardless of whether pre- or post-tax contributions, is time in the market. Time allows investments to benefit from compounding interest where investment earnings generate additional earnings and boost your overall returns. Additionally, in the short term, markets are volatile, constantly going up and down; however, over the long term, these fluctuations generally trend in a positive direction. By contributing early and consistently as a resident, time can be used to a tremendous advantage.

Hopefully, this article sparks resident interest in learning more about financial planning. The proper individualized selection of retirement accounts is an important aspect of a resident's overall financial plan to ensure a stable future retirement. Just as we make careful clinical plans for our patients, we must also make careful financial plans to protect the future for ourselves and our families. ♦

Suggested reading:

IRS.gov
Smartasset.com
Investopedia.com
Dahle, J. M. (n.d.). The White Coat Investor: A Doctor's Guide to Personal Finance and Investing.
Bryniarski, B. (2023). Roth IRAs: Are they right for your client? Journal of Accountancy.
Westley, R (2022). When is a Roth conversion beneficial? Journal of Accountancy.
Yam, A. (2023). Roth 401(k) vs Roth IRA. physicianonfire.com

Proposed Bylaws Changes

The TSA Bylaws Committee will be submitting the following proposed additions and revisions to the TSA House of Delegates in September.

New

9.200 TSA Meeting Organizing Committee

9.2001 Composition:

Chair
Vice Chair
Second Vice Chair
Immediate Past Chair
President Elect
Chair of the Education Committee
Treasurer
Member of the Governmental Affairs Committee
Chair of the Committee on Resident and Medical Student Education
Member of the Long Range Planning Committee
Chair of the Resident Component
Three Members at Large
Ex Officio:
Immediate Past President
Speaker of the House
Vice Speaker of the House
Assistant Treasurer
Executive Director
Director of Governmental Affairs
TSA Social Media Associate
TSA Executive Associates

9.2002 Duties of the TSA Meeting Organization Committee: The committee will be responsible for every element of the Annual meeting, including but not exclusive to meeting planning, fiscal oversight and quality improvement. The committee shall maintain an Administrative Procedures document that details responsibilities and oversight for each of these elements of the annual meeting as well as the overall function of the committee. Changes to this Administrative Procedures document will be presented to the board at its next meeting whenever they are made. The annual report of the Committee will include meeting locations and dates for at minimum the next two Annual Meetings. The annual report will also include a summary of the prior year's Annual Meeting financials as well as a pro-forma for the current year's and subsequent year's Annual Meeting budget. The Chair of the TSA Meetings Organization Committee shall update the President immediately should the projected budget for a specific meeting alter by more than 25,000 dollars.

9.2003 Duties of the TSA Staff: The Executive Director and the Society staff shall assist in all aspects of the Society's meetings at the direction of the Chair of the TSA Meeting Organization Committee.

New

9.222 Practice Management Committee

9.2221 Composition: 5 or more members, at least two of whom were members during the previous year.

9.2222 Duties: To solicit and review input from TSA members regarding contemporary practice management issues relevant to members. To make recommendations to the Board of Directors on plans of action deemed appropriate regarding these issues.

New

9.223 Regional Anesthesia and Pain Medicine Committee (RAAPM)

9.2231 Composition: Five or more members, at least two of whom were members of the committee during the previous year.

9.2232 Duties: To increase the connectivity and collaboration of RAAPM specialists in Texas; to develop targeted and stratified RAAPM learning opportunities for the membership; to advocate for adequate payment of RAAPM practices; and to establish physician anesthesiologists as the definitive resource for perioperative pain management.

Revised

Article 6 Board of Directors - Section 6.200 General Powers – Sub sections 6.2003, 6.2004 and 6.2005

6.200 General Powers

The Board of Directors shall have:

6.2001 The power to acquire, manage, control and dispose of the Society's property and to authorize all contracts on behalf of the Society;

6.2002 The power to delegate such authority to the officers of the Society or to the standing committees of the Society;

6.2003 The power to institute, with the approval of the House of Delegates, such administrative procedures as it deems necessary; ~~and~~

6.2004 The power to make public statements on behalf of the Society; and

6.2005 Such other authority as prescribed for it in these Bylaws.

Revised

Article 6 Board of Directors - Section 6.3 Meetings – Sub section 6.33

6.33 Voting Members

Each member of the Board shall have one vote. ~~except the Chair of the Editorial Board and the Vice Speaker who shall be members without vote.~~ Ex-Officio members shall not be entitled to a vote.

Revised
Article 6 Board of Directors - Section 6.4 Executive Committee – Sub section 6.41

6.41 Composition
The Executive Committee is composed of: the President, the Immediate Past-President, the President-Elect, the Secretary, the Treasurer, the Assistant Treasurer, the Speaker, and the Director representing the 19th District of the American Society of Anesthesiologists.

Revised
Article 9 Committees – Section 9.3 Special Committees

9.3 Special Committees

Special Committees of this Society may be appointed by the President for specific purposes during his or her term of office.

~~Provided, however, that such~~ Special committees may not be given assignments conflicting with or duplicating the functions of any standing committee.

An **Ad-Hoc Committees** will be a special committee appointed by the President for an assignment that has an indeterminant conclusion. Ad-Hoc committees will automatically dissolve at the conclusion of the term of the President creating them unless they are specifically given continuance by the next President before the conclusion of the first Board of Director's meeting of his term.

A **Taskforce** will be a special committee appointed by the President that will exist until its specific charge has been completed. This charge may transcend the term of the President appointing it. A Taskforce may be dissolved by the President at any time prior to the completion of its charge. A Taskforce will automatically dissolve upon the completion of its charge.

A **Sub-committee** will be a special committee convened to support the work of a standing committee. Sub-committee's may be dissolved at any time by the President, but otherwise will continue to exist beyond the term of a President. Members of a sub-committee may be appointed by the President or Chair of the Standing Committee under which they exist.

SUMMARY OF ACTIONS
TSA BOARD OF DIRECTORS
May 05, 2024

1.) Took a moment of silence for recently deceased members Drs. Franklin C. Rembert and Martha A. Anderson.
2.) Approved recommendation to move forward with eSEOspace as the new TSA website hosting company and to increase the website budget line by $5,000.
3.) Recognized Dr. Jaime Ortiz, Judy Garcia-Bigger, Tina Haggard and Christina Bacak for their efforts and the numerous hours spent reviewing and interviewing potential hosting companies.
4.) Recognized Dr. G. Ray Callas as he begins his role as President of the Texas Medical Association.
5.) Accepted February 23-25, 2025 as option one and February 16-18, 2025 as option two for TSA Anesthesiologists Days at the Capitol.
6.) Approved $50,000 to host a Texas reception to be held in conjunction with the ASA 2025 Annual Meeting, scheduled to take place in San Antonio.
7.) Approved proposed annual meeting registration fees for speakers, moderators, workshop presenters, anesthesiologist assistants, medical students, residents/fellows, out-of-state residents/fellows, business only attendees and a reduced fee for medical student externs. The fees will be effective at the 2024 TSA Annual Meeting.

IN MEMORIAM

Martha A. Anderson, M.D. (Dallas, TX)
Passed away on April 19, 2024

Franklin C. Rembert, M.D. (Dallas, TX)
Passed away on May 16, 2023

NEW MEMBERS

Since January 1, 2024 the TSA Board of Directors approved the applicants below for the membership categories indicated:

ACTIVE MEMBERS
Abraham, Binu R.
Aladdin,, Dima
Amanchukwu, Chiamaka N.
Amin, Sapan
Atkinson, Megan E.
Boyd, Kendra N.
Buenning, Jason C.
Curbelo, Jacqueline A.
Danciu, Jessica L.
Durgempudi Tripura, Sundara R.
Elhefnawi, Ehab K.
Fairchild, Robert L.
Fan, Zhaoxiang
Farias Kovac, Mario
Fisher, Daniella
Fleming, Keith A.
Foster, III, Harris E.
Goto, Rudo M.
Gunn, Clint
Hedin, Riley J.
Henderson, Brian P.
Hu, Zhaohui
Jain, Parag N.
Jue, Lenny Quan
Lai,, Emily A.
Loberman, Melanie R.
Luu, David
Martin, Vanessa L.
Pang, Jason M.
Patel, Sunny
Reed, Jessica Z.
Sachse, Kaylyn A.
Sheikh, Maria
Shevchenko, Yevgeny
Shults, Russell
Sohn, Jacqueline
Sumner, Keith N.
Thompson, Rebecca E.
Thornton, Katherine B.
Tran, Tony
Van Wisse, Francis W.
Velten, Markus
Verheeck, Amanda
Warters, Robert D.
Weltge, Craig W.
Zurovec, Jennifer C.

AFFILIATE MEMBER
Knuf, Kayla M.
Pennycuff, Jenny E.
Peterson, Thomas J.
Spaulding, Francis M.

ANESTHESIOLOGIST ASSISTANT MEMBERS
Chemnitz, Kerry E.
Garza, Rebecca
Leggett, Samantha A.
Mathew, Jibie E.
Mills, Talasha A.
Morales, Brooke
Truong, Jasmine P.
Umoren, Ukeme
Clintsman, Lee M.
Eckel, Tyler J.
Jenkins, Tyra Pauala M.
Lawrence, Isabelle
Shafiey, Farahnaz

RESIDENT MEMBERS
Abrokwa, Michelle O.
Adams, Zachary E.
Akabogu, Sidney N.
Bae, Mi Sun
Bryant, Iain R.
Cafferata, III, Joseph T.
Cervantes, Eduardo
Chuang, Justin R.
Flores, Alan
Galbo, Alexandra
Hall, Delton D.
Hall, Julie M.
Hernandez, Andrea E.
Ho, Jacquelyn L.
Howells, Madaleine C.
Ighofose, Onoriode P.
Kauppinen, Danielle L.
Kilpatrick, Connor B.
Kim, Karen
Knight, Andrew S.
Kosigi, Krishna C.
Le, Diana T.
Lin, Lin
Lush, Dallon B.
Nguyen, Alexandra A.
Nguyen, Christopher
Nguyen, Linh T.
Nwosu, Okechukwu
Paul, Lauren M.
Phung, Katie N.
Rahat, Haseeb
Rasic, Keaton C.
Spell, Casey A.
Stevens, Kaleb F.
Thai, Charlie
Thomas, Vijai S.
Wiemers, Blaine M.

MEDICAL STUDENTS MEMBER
Bowman, Katelyn
Bui, Charles
Carter, Isaiah
Chow, Brandon
Cruz, Melissa
Emma Ezeala, Chinanuekpere P.
Gifford, Daniel
Goh, Josh T.
James, Evan S.
Karimighovanloo, Farnaz
Kent, Catherine T.
Khurshid, Bilal
Li, Anne M.
Little, William
Luddington, Jacob
Marks, Garrett
McAuliffe, Dominic L.
Meghani, Kinza
Mohan, Namaratha
Mousa, Victoria
Myers, Matthew D.
Norris, Dominique
Ossimetha, Ashley
Philip, Megha
Phung, Hoang Anh Dinh
Pratka, Holden W.
Qadri, Syed A.
Rosa, Marissa N.
Terrillion, Ryan
Thompson, Jordan A.
Toumajan, Dany D.
Turner, Alexander C.
Vasilev, Viktor R.
Vazquez, Ericka
Wong, Ally Hoi Ying
Xue, Daniel

RETIRED MEMBERS
Gates, Stephen I.
Hagemeister, Brent B.
Knox, S. Lynn
Murphy, Jr., Gerald D.
Parks, Jr., Robert I.
Shalev, Daniel

FUTURE TSA MEETING DATES

2025 ANNUAL MEETING
SEPTEMBER 4-7, 2025
JW MARRIOTT SAN ANTONIO HILL COUNTRY
SAN ANTONIO, TX

2026 ANNUAL MEETING
SEPTEMBER 10-13, 2026
JW MARRIOTT SAN ANTONIO HILL COUNTRY
SAN ANTONIO, TX

---

www.facebook.com/TXSocAnes

TSA DISTRICT DIRECTORS

District 1	Joseph F. Bryan, II
District 2	Christopher T. Miller
District 3	Brian D. Dewan
District 4	Diane I. Havalda
District 5	Jeffrey S. Richards
District 6	Allison F. Wells
District 7	January Y. Tsai
District 8	Sherif Z. Zaafran
District 9	Kristina L. Goff
District 10	Stephen A. Sarmiento
District 11	John Y. Ok

TSA DISTRICT BOUNDARIES

The Districts of this Society shall be composed as follows:

District 1. The District will include the counties of Andrews, Armstrong, Bailey, Borden, Brewster, Briscoe, Carson, Castro, Childress, Cochran, Coke, Collingsworth, Cottle, Crane, Crockett, Crosby, Culberson, Dallam, Dawson, Deaf Smith, Dickens, Donley, Ector, El Paso, Fisher, Floyd, Gaines, Garza, Glasscock, Gray, Hale, Hall, Hansford, Hartley, Hemphill, Hockley, Howard, Hudspeth, Hutchinson, Irion, Jeff Davis, Kent, King, Lamb, Lipscomb, Loving, Lubbock, Lynn, Martin, Midland, Mitchell, Moore, Motley, Nolan, Ochiltree, Oldham, Parmer, Pecos, Potter, Presidio, Randall, Reagan, Reeves, Roberts, Schleicher, Scurry, Sherman, Sterling, Stonewall, Sutton, Swisher, Terrell, Terry, Tom Green, Upton, Val Verde, Ward, Wheeler, Winkler, and Yoakum.

District 2. The District will include the counties of Archer, Baylor, Callahan, Clay, Cooke, Denton, Eastland, Foard, Hardeman, Haskell, Jack, Johnson, Jones, Knox, Montague, Palo Pinto, Parker, Shackelford, Stephens, Tarrant, Taylor, Throckmorton, Wichita, Wilbarger, Wise, and Young.

District 3. The District will include the counties of Bastrop, Bell, Blanco, Bosque, Brown, Burnet, Coleman, Colorado, Comanche, Concho, Coryell, Erath, Falls, Fayette, Freestone, Gillespie, Hamilton, Hays, Hill, Hood, Kimble, Lampasas, Lavaca, Lee, Leon, Limestone, Llano, Mason, McCulloch, McLennan, Menard, Milam, Mills, Robertson, Runnels, San Saba, Somervell, Travis, and Williamson.

District 4. The District will include the counties of Atascosa, Bandera, Bexar, Caldwell, Comal, DeWitt, Dimmit, Edwards, Frio, Gonzales, Guadalupe, Karnes, Kendall, Kerr, Kinney, LaSalle, Maverick, Medina, Real, Uvalde, Webb, Wilson, and Zavala.

District 5. The District will include the counties of Aransas, Bee, Brazoria, Brooks, Calhoun, Cameron, Chambers, Duval, Galveston, Goliad, Hardin, Hidalgo, Jackson, Jefferson, Jim Hogg, Jim Wells, Kenedy, Kleberg, Liberty, Live Oak, Matagorda, McMullen, Nueces, Orange, Refugio, San Patricio, Starr, Victoria, Willacy, and Zapata.

District 6. The District will include the counties of Austin, Brazos, Burleson, Fort Bend, Grimes, Madison, Montgomery, Walker, Waller, Washington, and Wharton; and that portion of Harris County that is outside Loop 610.

District 7. The District will include that portion of Harris County defined by the following: North border, Highway I-59; East border, Highway 288; South border, Old Spanish Trail; West border, Main Street.

District 8. The District will include that portion of Harris County inside Loop 610, excluding the area with the following boundaries, which is District 7: North border, Highway I-59; East border, Highway 288; South border, Old Spanish Trail; West border, Main Street.

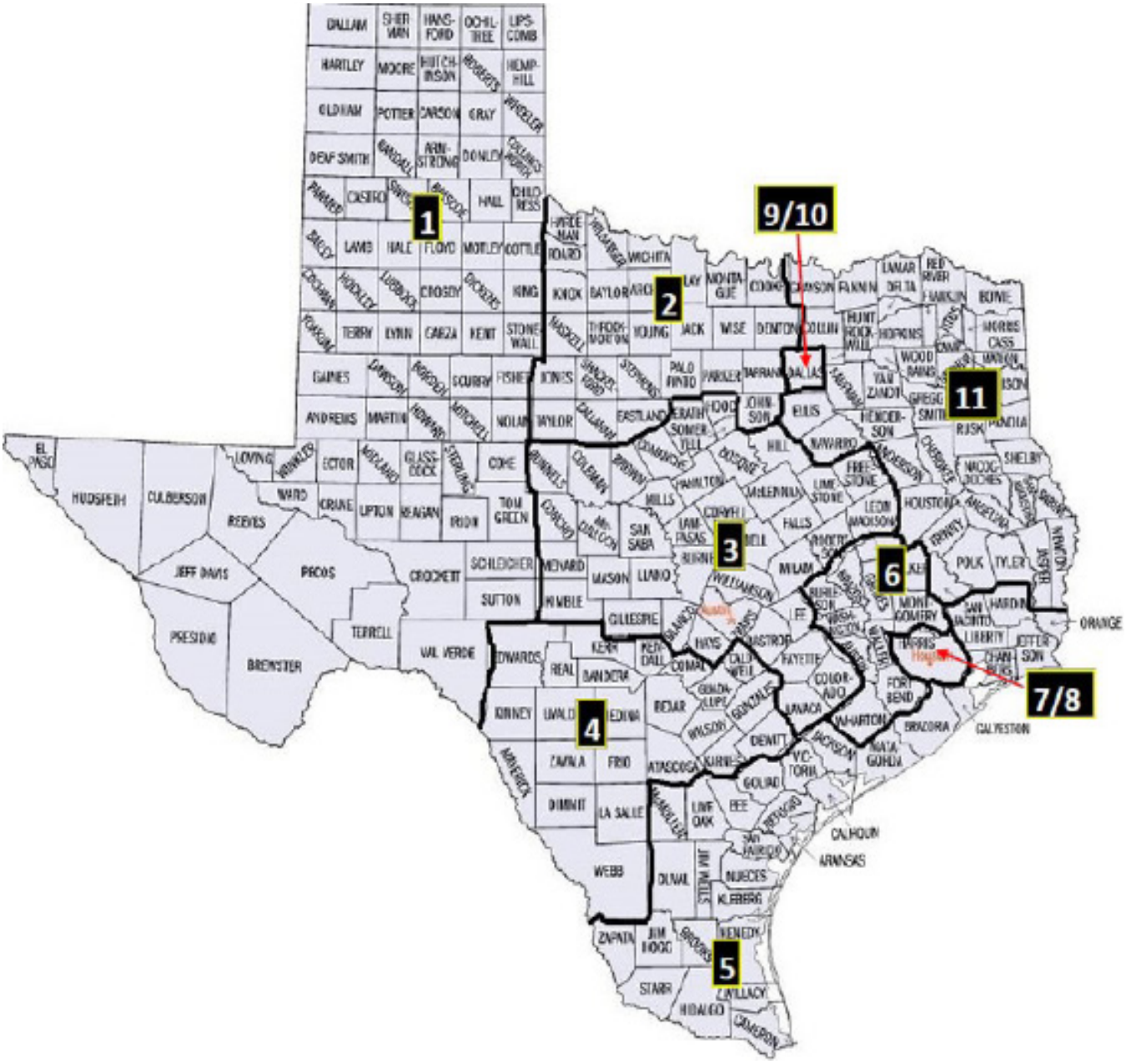
District 9. The District will include that portion of Dallas County west and south of the following boundary line: from the north border of Dallas County, south on the Dallas North Tollway to the intersection of the Dallas North Tollway with I-35E, south on I-35E to the intersection of I-20, east on I-20 to the intersection of I-45 and south on I-45 to the south border of Dallas County.

District 10. The District will include that portion of Dallas County east and north of the following boundary line: from the north border of Dallas County, south on the Dallas North Tollway to the intersection of the Dallas North Tollway with I-35E, south on I-35E to the intersection of I-20, east on I-20 to the intersection of I-45 and south on I-45 to the south border of Dallas County.

District 11. The District will include counties of Anderson, Angelina, Bowie, Camp, Cass, Cherokee, Collin, Delta, Ellis, Fannin, Franklin, Grayson, Gregg, Harrison, Henderson, Hopkins, Houston, Hunt, Jasper, Kaufman, Lamar, Marion, Morris, Nacogdoches, Navarro, Newton, Panola, Polk, Rains, Red River, Rockwall, Rusk, Sabine, San Augustine, San Jacinto, Shelby, Smith, Titus, Trinity, Tyler, Upshur, Van Zandt, and Wood; and that portion of Dallas County east of the 635 Loop and North of I-30.

Adopted September 9, 2011

TSA DISTRICT MAP



DISTRICT 1: Panhandle/West Texas

DISTRICT 2: Fort Worth (Cow Town)/North Texas

DISTRICT 3: Central Texas/The Hill Country

DISTRICT 4: San Antonio (The Alamo City)
South Texas (The Brush Country)

DISTRICT 5: Gulf Coast/Rio Grande Valley
(The Hurricane Magnet)

DISTRICT 6: (The Historic) Brazos Valley

DISTRICT 7: Houston Texas Medical Center

DISTRICT 8: Metro Houston

DISTRICT 9: (Big D) Dallas West

DISTRICT 10: (Big D) Dallas East

DISTRICT 11: Piney Woods/NE Texas