"Pay it Forward" Eastern Association for the Surgery of Trauma 2017 Presidential Address

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The Eastern Association of Trauma (EAST) is truly an organization like no other. It has been my professional home since I attended my first meeting over a decade ago, and I hope for all of you, particularly if this is your first EAST meeting, that you have that same sensation that I had back then. It has been such an honor and a privilege to serve as your President this year. Before I begin my talk, there are so many individuals who have helped me along this journey. Without their love and support, I certainly would not be standing here today. My parents took a leap of faith when they moved their young family an ocean away from their home. Their insistence that we always do our best meant that in their eyes, we could achieve anything as long as we worked hard enough. This is certainly an idea that continues to resonate with my older sister Veronique and me. Our family owes a tremendous debt of gratitude to Dr. David King and his partners at the Massachusetts General Hospital (MGH). About 2 years ago, shortly after the EAST annual assembly, I got a phone call from my mother that my father was acting a little bit confused. They went to MGH to make sure everything was okay before leaving for their home in the Catskills. Knowing my parents and their tendency to minimize situations, I obtained David King’s cell phone number from Heena Santry to see if he could check in on them. Dave called me only a short time later to let me know that my father had a subdural hematoma. He ended up in the neurointensive care unit at MGH and required a decompressive craniotomy, after being in status epilepticus from the subdural that was putting pressure on his temporal lobe. I have never been so happy to be part of this trauma family because I knew that I could worry just a little less, because my trauma family had my family’s back.

My surgical journey began at the University of Chicago, where Dr. John Alverdy showed me the heart of what it means to be a surgeon. I use many of his Alverdy-isms today. If I can impart even
half of what he and the other faculty, particularly Dr. Roger Hurst and Dr. Edwin Kaplan, imparted on me, then I have done a good job. Although the University of Chicago may have been where I found my heart, my surgical soul was definitely born at Cook County Hospital. Doctors Kim Nagy, Roxanne Roberts, Kim Joseph, and John Barrett showed us how to do trauma right. All of us who have passed through there have shared in their magic. They are surgical magicians, societally conscious, and unfailingly supportive. Although it is no longer in the original building, the essence of Cook County remains the same. So many of us in the audience today have come through those hollowed halls and found our surgical soul. At the University of Louisville, Doctors Hiram Polk, J. David Richardson, Frank Miller, and David Spain taught me how to be an academic surgeon. As David Spain would say, “It is not just about learning how to do surgery and critical care. Our purpose is to train you to how to succeed in your career.” With my co-fellows James Lukan, Jason Hoth, and Melanie Scott, we made writing a group journey, and the product was always better when we stayed in a groove and not a rut, as Frank Miller would say. Mary Fallat accompanied me on my first trip to a regional COT meeting. It was in Jackson, Mississippi, a place I had never been, where Dr. Polk hails from, and so just a little bit of pressure, and she has served as a role model to me ever since. To this day, my Louisville family contains some of my greatest backers, and having them here today is just incredible.

It is in Louisville where I met my husband Aaron. He is really the glue that keeps our family together. His unwavering support makes my life and work possible. My children have the ability to make a good day great and a terrible day just a little bit better because a running jump hug as they call it truly can really cure any ill. I think we should bottle it up and bring it to our trauma bays. I am so proud of them as individuals, with all the work they do and the people that they are becoming.

My work family, my partners, Paul Bankey, Mark Gestring, Julius Cheng, Ayodele Sangosanya, Yanjie Qi, and our advanced practice providers both on the floor and in our intensive care unit are the constants in my workday. My assistant, Rebecca, keeps my work world organized. When I was a resident, Dr. Alverdy told me that when I looked at my practice partners that I should look at them at least as closely as I would look at a potential spouse because, in many ways, they would affect my daily happiness more than my spouse would. I am very glad to say that I would not trade my work spouses for anyone else. The residents and fellows that have come through our portals inspire and encourage me. Paul Bankey has been my boss for the last decade. He never gets the recognition that he deserves. He has made it possible for all of us in our division to do what we have needed to do to expand our horizons, often times at a cost to himself, and we are incredibly indebted to you, Paul.

I have the greatest respect and admiration for all of the EAST Presidents (Kimberly Davis, Scott Sagraves, Patrick Reilly, Stanley Kurek, Erik Barquist, and Jeffrey Salomone) that I have served under in various roles over these past years. I often tell folks that one of the best things that I ever did was get to know Dr. Michael Rotondo when I actually turned him down for a job when I was finishing my fellowship. He has been one of the greatest supporters of my professional life. I am so pleased that he has come back home to Rochester, and I cannot put into words what that support means to me. He will always make time, no matter how busy, whether he is in town or not, when you need him.

I cannot say enough about the Executive Committee, the Directors At-Large, and all the EAST Section Chairs. The talent in this group of individuals is unbelievable. I get to stand here as their face, but each and every one of these individuals has impacted the growth of our organization this year in so many ways, and I cannot thank you enough for all the work that you have done this past year for EAST. Our EAST Central Office, headed by Christine Eme, now in her tenth year, is one of a kind. The support that these intelligent and talented women provide for our organization is nothing short of amazing. Christine, Rachel, Kinga, and Katie are so dedicated and hardworking and really miracle workers.

Now, for our topic at hand. Pay It Forward. Pay, from the Latin pax, for peace, is defined by Webster as to make due return for services rendered.1 Forward is derived from the old English word “foreward,” defined as toward the front, relating to or concerning the future.1 When put together, it refers to responding to a person’s kindness by being kind to someone else. It is not a new concept. Benjamin Franklin spoke about it in 1784, in his essay to Benjamin Webb, where he stated that you must pay me by lending the sum to him and joining him to discard the depth by another like operation.2 In 1841, Emerson wrote, in his essay “Compensation,” that the benefit we receive must be rendered again to somebody.3 It has found its way into science fiction, in the novel Between Planets by Robert Heinlein.4 So, why pay it forward and EAST? Well, pay it forward is EAST. It is where we started, it is where we are, and it is the embodiment of this entire organization.

Our founding members, Kimball Maull, Lenworth Jacobs, Howard Champion, and Burton Harris, had found success with the guidance of their mentors, but trauma in the 1980s, there was not really a vehicle that adequately nurtured young surgeons into the field of trauma. What the surgeons really needed, much like Harold Abrahams in Chariots of Fire, was a Sam Mussabini, somebody who had a new paradigm, somebody who could help them find that extra stride. So with wings on their heels and hope in their hearts, they began planning what would become known as EAST. After a myriad of phone calls between Howard Champion and the three other founding members, they had their first organizational meeting in 1986 in Boston, Massachusetts.5

Our founding members were joined by Raymond Alexander, for whom our resident paper competition is now named, Andrew Burgess, Tom Gennarelli, the indelible Norman McSwain, Michael Rhodes, and William Schwab to form our original EAST Board. By October 1986, they had their articles of incorporation approved, and by November of that year, the original EAST charter was filed in the State of Tennessee, the home of Kimball Maull. By January of 1987, only 6 months after the original meeting, the bylaws were reviewed, membership solicitation was started, our first meeting was planned, and our letterhead with the rising sun was developed. By September of 1987, the first Program Committee meeting was held and EAST was truly off to the races. The first Scientific Assembly took place at the Colony on Longboat Key in 1988, with 142 attendees.5 Although the Colony was just demolished this past July,6 EAST
has gone in a completely opposite direction, with this meeting having nearly 900 attendees.

In his Presidential Address, founding member Kimball Maull highlighted that this organization was built on congeniality and concern, concern for our patients, concern for each other, and concern for the future of trauma surgery.7 Burton Harris, in the second Presidential Address, stressed our organization’s pay it forward foundation when he said that we are only the current link in a long chain that goes back through generations, a chain which we have the solemn obligation to perpetuate.8 So, why pay it forward? It is who we are. Every EAST member and particularly every member of the Board of Directors since that original board are beneficiaries of EAST’s pay it forward philosophy. Nobody on the EAST Board today knows a trauma world without EAST, not even our Senior Member At-Large. Bill Chiu, our Senior Member At-Large, was a resident when EAST was formed. Now, imagine that. Most of you in this audience do not know a trauma world without EAST, and it is certainly not a world in which I would want to be.

Kimball Maull stated that the legacy from the formative years of EAST would be to summon those who follow, again paying it forward, to continue to search for solutions to the trauma program, through good science and good-spirited exchange of thoughts and ideas, and so how will we continue to pay it forward to the next generation?9 There are a myriad of challenges that remain for our specialty. The need for comprehensive education of our residents and making sure that we are containing and keeping the word “surgery” in trauma surgery, as Dr. Richardson spoke about in his Orien’s Keynote Address. Continued optimization of patient care, as Dr. Michael Rotondo highlighted in his Frame Lecture. The patient is at the root of everything. Resilience, which Dr. Stan Kurek spoke about last year in his Presidential Address.9 Certainly firearm injury has been at the forefront of the news, as well as discussed in multiple forums at the EAST annual assembly this year. In Dr. Maull’s inaugural EAST Presidential Address, he stated that we must be activists for firearms violence.10 I would like to change that to firearms injury, but we must be activists.

In 1993, in Bill Schwab’s Presidential Address, he spoke about America’s own Civil War.10 Is that war completed? He noted that murder was the tenth leading cause of death in the United States, that homicide ranked third among 15- to 34-year-olds, that a majority of those deaths resulted from handguns, and that there were seven firearm homicides per 100,000 people, a sobering thought. His vision for the future was that homicide rates would decrease, by approaching violence in the same way, with the same principles that we had approached so many health problems to date, like TB and smallpox, and even seatbelt usage in cars. He even had a vision, although he states himself in his Presidential Address that he just picked the year, that in 2015 that handguns would be banned.10

Have we achieved that goal? Well, handguns are certainly not banned, and when you watch the news, it sure does not seem so, right? Since his address, we have had the deadliness mass shooting in a school. It was, at that point, the third deadliest shooting by a single person in United States history and with a town that is now irrevocably changed. Even in my own town, Rochester, New York, Christmas Eve will never be the same, after the events of that night took the lives of several of our firefighters from firearm injury. A calm August night at the Boys and Girls Club was irrevocably changed after a gunman opened fire and shot seven individuals. Our own colleagues in Orlando were called upon to treat the victims of the Pulse Nightclub Shooting. One of the most poignant visuals, a pair of bloody shoes, from that event on social media was by Josh Corsa, the 2014 EAST Orien’s Essay Resident Award Winner, and now a senior resident at Orlando Regional Medical Center. How many of us have shoes that look like these? EAST Board Member Alex Eastman, Joe Minei, Brian Williams, and their team at Parkland found themselves, on a summer night in July of this year, again with blood on their shoes. All of our teams’ medical training was called upon again just this past week, when, a few miles from where we sit today, lives again were irrevocably changed and ended at the Fort Lauderdale Airport.

Mass shootings, as horrific as they are, are but the tip of the iceberg in firearm injury. When looking at firearm deaths, the minority actually occur in mass shootings.11 Interpersonal violence plays a significant role, as seen in a city that is close and near and dear to my heart, Chicago, where this year there were 762 homicides, but it is not limited to just Chicago. Although the rate of homicide in Chicago is still high, it is significantly decreased from the early 1990s, when Dr. Schwab gave his address. This decrease was seen in Los Angeles and New York City as well.12 We have certainly made a lot of progress, but there is still significant work to be done. The rate of homicide by firearm is significantly higher in Chicago than in New York City. Why? We do not know. We have theories, but we have no research to prove or disprove any of it. It is not even just the homicide rate. The rate of injury from firearms is stunning, where, even in New York City, it is near 20 per 100,000 individuals.12

When looking at our top three causes of injury mechanisms in trauma of motor vehicle collisions, falls, and firearms, the mortality per 100,000 population is similar. When you take into account that falls and motor vehicle collisions are significantly more common than firearm injury, it is sobering. What is even more sobering is that the majority of these are not homicides. It is individuals taking their own life. The homicides sure get a lot of press, but what about the others? They are still affected by firearms.13

The National Violence Death Reporting System (NVDRS) is a Center for Disease Control’s (CDC) reporting system that has collected data on violent deaths since 2002. It does, however, have some significant shortcomings. It is a voluntary system. Up until 2014, only 17 states participated. The CDC has now received funding, in this past year, to go up to 42 states, but the last time I checked, I believe we have more than 42 states in this great nation. The NVDRS collects data from death certificates, coroner reports, medical examiner reports, and secondary sources. When we look at the NVDRS homicide data, we do see there is a bit of a downturn, where now, as opposed to 7 homicides per 100,000 in 1993, we are down to 3.1 homicides per 100,000 in 2013.14 The majority of these are the result of handguns. Although rifles get a significant amount of attention, they are not nearly as common as handguns. National Vital Statistics (NVS) data looking at firearm homicide shows the national rate or homicide to be a little bit higher, at 3.56 per 100,000, than what we see from the NVDRS.15
In comparison, where we have seen somewhat of a decrease in the rate of homicide, the rate of suicide is actually increasing. The overall rate is 6.53 per 100,000 in 2013 per the NVDRS. Again, handguns are significantly more common than other firearms. The national rate of suicide from the NVS is more similar, with the rate here being 6.65 per 100,000. The monetary cost of suicide in this nation is $44 billion, 50% of which is from firearms. When you look at homicides, it is $22 billion, of which 70% is from firearms.

A 2014 study by Lee et al. from MGH examined the economic impact of nonfatal firearm-related injuries in the United States based on publicly available data including the Nationwide Inpatient Sample, the National Emergency Department Sample, and the Kid Inpatient Database. When you look at the databases queried, certainly all of you who work with those understand the limitations that come with those databases. There was a slight downward trend in emergency department and hospital admissions over the study period, but the downward trend was from 79,000 visits in 2006 to 75,000 visits in 2010. That is still unacceptably high, and the economic costs were never changed between those two periods. Firearm injuries, in conglomerate, from 2006 to 2010, cost $88 billion. That is just in direct acute care costs, with $29 billion of that coming from admitted patients and $59 billion coming from patients who were only seen in the emergency department. According to PIRE, the cumulative cost in 2010 for both fatal and nonfatal victims of gun violence in the United States was approximately $174 billion. We spent more on that than we spent on education and homeland security combined. That is quite a sobering thought.

Robert Kennedy said, “There are those who look at things the way they are and ask why. I dream of things that never were and people kill and guns do not kill and the rhetoric that goes along both sides. Acknowledging that opposing views are respected, with the understanding that a different point of view may still have validity, is important. We must create a united conversation that bridges the disunion that encompasses firearm injury prevention. If we continue conversation along the lines of where we are now, in parallel, we will never make progress.

The American College of Surgeons Committee on Trauma surveyed their membership and found that we are gun owners with 43% percent of COT members owning at least one firearm. There is a geographic distribution among COT members who own firearms that mirrors the nation. Sixty-three percent of us fall in the middle ground, where guns have some value and maybe there is something that we can do with it. It is that common ground that we need to exploit. Eight-eight percent of COT members felt the American College of Surgeons should give the highest or high level of priority of reducing firearm injuries. We need a way to do that, and it is our responsibility, all of us, as EAST members, if not now, then when? If not us, then who? It is our job.

We also must continue to pursue and promote firearm injury education. Certainly, at our annual assembly this year, we have had significant programming on firearm injury. On Tuesday night, we screened the Newtown documentary. Its message that a firearm event is a stone that creates a wave of ripples throughout an entire community was incredibly powerful and on that we need to remember. We had two amazing plenary sessions, one on firearm injuries, the public health crisis, and one on firearm research. They were incredibly well done, with take-home points for everyone to take home and utilize.

We have had scientific abstracts, outside of the Cox-Templeton Paper Competition, on injury prevention. Dr. Templeton charged EAST with “Understanding how injury occurs, and, through science, identify effective interventions and empower the country through this knowledge.” That is more important than ever. Dr. Templeton was an amazing man, and if we could only do as well as he expects.

Our community outreach program had an active shooter simulation and Stop the Bleed training, where innumerable trainers were trained, which will now promulgate more effective injury management in the field. Community education, through our Injury Control and Violence Prevention Committee, and also the Injury Control and Violence Prevention Committee Twitter feed, is absolute vital, but it is that outreach at the grassroots level that each of us can do that are important.

We have EAST traumacasts on firearms policy and, of course, our practice management guidelines. They were brought to EAST in 1994 by then President Michael Rhodes, who was a gentleman ahead of his time, who really understands that only through the compilation of data and formation of guidelines and management strategies can we move science forward. We as an organization are recognized in the NASEM Report as leaders in the development of hospital-based trauma care guidelines. We need to do more on firearm injury prevention guideline development.

Drs. Marie Crandall and Alexander Eastman did just that with their group when they looked at evaluating the effect of legislalitve efforts to curb gun violence in the United States, with regard to the effect of restrictive licensing and concealed carry laws on the prevention of firearm injuries. As they went through,
they found studies, but certainly, they were of limited quantity. It is not like splenic injury, where we have 7,000 articles to go through. What they found was that, through multiple population-based studies, they demonstrated an association between more stringent firearm purchase and ownership restrictions and firearm injuries, and so we recommend the use of restrictive licensing, or appropriate licensing, of firearms to decrease the incidence of firearm injuries. When looking at concealed carry laws, however, the data at this time do not support a crime-suppressive effect of those laws, and so we cannot, based on the data we have today, in 2016, recommend against the use of concealed carry laws as the sole strategy to decrease incidence of firearm injuries within populations. One of the things they found in their conclusions was that there was varied quality in this evidence, and there is a significant information gap, making research on firearm injuries even more important.23

The current status of firearm injury research is that we lack critical information on the epidemiology of firearm violence and on the effectiveness of various strategies to prevent it. We need the research to know what works to prevent firearm injuries when and with whom and how. We do not have any of those answers. In the COT survey, 96% of COT members say that, yes, the CDC, the NIH, and other sources of research funding should be allocated and allowed to fund research for the epidemiology and prevention of firearm injury.20 So why do not we have it? Well, there was the Dickey Amendment in the mid-1990s, where it was added to an appropriations rider that none of the funds made available for injury prevention and control at the Center for Disease Control and Prevention may be used to advocate or promote gun control.24 That is a big statement. How do you know what your research is going to show before you do it? This came on the heels of a CDC-funded study by Kellermann et al. that showed that having a firearm in the home for protection was more likely to result in homicide or a firearm injury in a family member or an acquaintance than it was to protect.25 Since 2012, the same language, through consolidated appropriations acts, also applies to the NIH.24 In January of 2013, shortly after the Newtown tragedy, President Obama issued 23 Executive Orders related to firearm violence, to look at causes of firearm violence, to look at interventions that might prevent it, and strategies to minimize this public health effect. As you saw in some of the sessions over this week, none of that funding has come to pass. It has not been appropriated. The White House, even at that time, came up with a primer on how to help protect our children and communities from firearm violence.26 So where are we today? In searching the NIH studies website, there are 13 studies currently that have firearm injury components, 13. There are only four in the National Institute of Justice.27,28 If they were a person, together they are not even old enough to drink alcohol or vote.

In a viewpoint put together by Kim Davis, Bill Cioffi, and Tim Fabian, it is not only firearm injury research that is underfunded but it is all trauma research. It is the lowest per mortality rate.29 Just in this past 2 weeks, in JAMA, there was a review by Stark et al. that looked at research dollars spent per mortality finding it is extremely low for gun violence. If you look at the number of publications and compare it to mortality rate, again, gun violence is low. Two other areas fall below that mean line. What are they? Falls and motor vehicle collisions.

Our three main mechanisms of injury are both underfunded and under-researched.30 Even Jay Dickey, the Arkansas congressional representative, the eponymous writer on the appropriations act, in 2015, said, “It is my position that we should slowly, but methodically, fund research on gun violence.” In an editorial, he, in combination with Mark Rosenberg, who was the CDC Director at the time of the Dickey Amendment, put forth that both of them strongly believe that federal funding for research into gun violence prevention should be dramatically increased, and that sounds fantastic, right? We are going to solve all of these problems, but, if you keep reading, the other thing that is in that editorial is that the language accompanying such appropriations should mirror the language already in the law, that no funds should be used to advocate or promote gun control.31 I again point out to you that you do not know the results of your study before, and so can no study be done that may show a deleterious effect to owning a handgun or size of missile cartridge or what have you? I do not know. It is open to interpretation.

With federal funding certainly not being rife with riches for firearm injury prevention research, we do have EAST scholarships, the Trauma Research Scholarship, the Templeton Injury Prevention Research Scholarship, and the Multi-Center Junior Trial Investigator Award that certainly could provide seed money to start some of these things, but they certainly are not enough to control everything. However, if we collaborate with all of our partners who care for the injured, together we can solve this problem.

There are so many areas with insufficient data, which are very elegantly described in the IOM report in 2013 looking at firearm injury as a public health issue.32 Our overarching challenge right now is that we have weak data on firearm injury. We lack data about gun possession, distribution, ownership, and storage. There are challenges in characterization of firearm injury, where we do not have the data. There are challenges in identification of risk factors for firearm injury and prevention of firearm injury. Never mind that, within the challenges in prevention strategies, we have manifestations of firearm injury that vary based on firearm type and intended use. There are disparities in overall injury and mortality rates that exist. Interpersonal violence, unintentional injury, and suicide all many require different strategies.

To paraphrase John F. Kennedy, we stand today on the edge of a new frontier, a frontier of unknown opportunities and perils, a frontier of unfilled hopes and threats, and certainly we have had hope for a long time. The new frontier of which I speak is not a set of promises. It is a set of challenges, and this is most certainly true with regard to firearm injury. We must continue to work on reframing the firearm injury issue. If we stay disparate and divided, we will fail. We must continue to promote firearm injury education and firearm injury research. We do not have data. We could not mandate seatbelts without data. We could not mandate cellphones not being used in a car without data. If you want to use the corollary that we did not take away cars to decrease injury, we did add responsibilities. We cannot stand still, and we have many roads to go forward on.

We need to continue our public health approach to firearm injury with prevention and research to identify risks and patterns. A multidisciplinary collaboration is needed to address
the issues at hand because we cannot do it all in isolation. We must remember that what works for self-directed violence may not work for interpersonal violence and may not work for unintentional injury, but that does not make any of them less important.

We have many challenges, and firearm injury is not the only challenge facing our specialty. However, if we continue to pay it forward, we can truly achieve anything. As our founding member, Dr. Burton Harris stated, “With a clear vision of where we want to go, no matter how dark the night, sooner or later we will get there.”10 I know that EAST is in great hands with our next President, Dr. Bruce Crookes, and President-Elect Andrew Bernard. In the words of Robert Kennedy, “Few will have the greatness to bend history itself; but each of us, can work to change a small portion of events and in the total of all these acts will be written the history of this generation.”

In closing, it has truly been an honor to serve as your President this past year. It has been the highlight of my professional life. May each and every one of you continue to pay it forward to our specialty, our families, our patients, our partners, ourselves, and most definitely our communities because we are EAST.

DISCLOSURE

The author declares no conflict of interest.

REFERENCES