

# The Med Tac Training Program



## Our Mission

Med Tac is short for “Medical Tactical” and is an advanced first aid training and certification platform. Our goal is to teach anyone the critical bystander care skills that can save lives during the critical first 10 minutes of a life threatening emergency before professional first responders and then support them when they do.

Through its online and on-site Certificate Program, Med Tac is the only integrated training addressing the most common preventable causes of death of otherwise healthy children, youth, and adults in the work force.

## Our Platform

Med Tac has developed the first and only blended learning program in the world combining online training and local instruction that teaches students the “know how” to save lives in the vital 10 minutes before professional first responders arrive. The program can be delivered to any mobile device that can access the internet, and a Med Tac Certificate is awarded at the end of the course (total training time ranging from 10 to 15 hours).

We are taking Med Tac to scale using a “team of teams and network of networks” approach by partnering with the great first responders on the ground in the communities where we will first serve. We work with the existing networks and teams in academia, public health, law enforcement, local government, and membership organizations such as scouts and faith based institutions. We have launched multiple pilot programs in collaboration with law enforcement, caregivers, scout troops and camps, and schools in Texas and California. The State of Hawaii is in development as a global R&D test bed based following a very successful feasibility study.

## Our Team

The core team includes subject matter experts from leading organizations such as the University of Texas Police Department at MD Anderson Cancer Center, Mayo Clinic, Stanford University, and the University of California at San Francisco. The team has worked with the World Health Organization to deploy high impact training innovations and broadcast documentaries globally and will host a global summit in Geneva in Q4 of 2019.

## Progress To Date

More than \$4.5 million has been invested in Med Tac to date by its founders, and more than \$20 million has been invested into the online learning management content and risk information analytics system which Med Tac employs. Ongoing grade school and law enforcement training in California and Texas. The Med Tac Emergency Preparedness Family Program began in 2017 with Boy Scout training including AHA *Heartsaver*® CPR-AED training and *Stop the Bleed* training accredited by the American College of Surgeons. Our university program was launched at Stanford early in 2018 followed by a program at the University of Florida. Our program at Harvard will be early in 2019. The online learning management content and risk information analytics systems are being refined and produced for our research test bed communities in Texas, California, and the State of Hawaii. They were presented at a NASA innovation summit and the Med Tac team are recipients of the 2018 *Pete Conrad Global Patient Safety Award*.

Active Shooter / Terrorism

Anaphylaxis

Cardiac Arrest

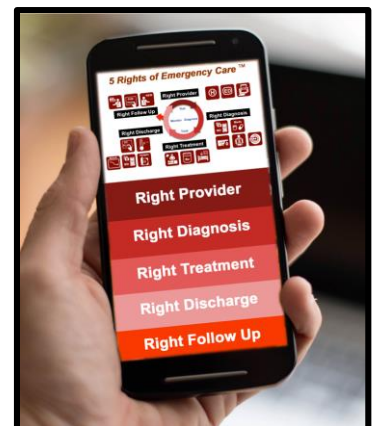
Opioid OD & Poisoning

Choking & Drowning

Transportation Accidents

Common Accidents

Bullying





## Our Story

**A First Critical Need:** In 2015 while our founders were working on a major project at the *Texas Medical Center* in Houston, they discussed the frequency of active shooter events, and lamented that professional caregivers were ill equipped to deal with such issues. They lacked the specialized trauma related knowledge and tactical skills to deal with such events. The team set out to develop the processes to help caregivers and law enforcement leaders.

After consulting with a leading threat expert who had undertaken detailed analyses of all major mass shootings at schools, they realized that no one was addressing the other leading causes of death of children that are extremely common. After a detailed study of the literature and confirmation of this observation, the team set out to create Med Tac, the first integrated program addressing the eight leading preventable causes of death of children, youth, and adults which required surprisingly complimentary skills that can save lives.

Our founders have formal fellowship training in critical care, simulation, law enforcement experience that provides the critical tactical and threat safety science expertise, and have also previously developed an approach to ensure “competency currency” taken from high performance aviation training methods.

## Med Tac In Brief



- The Problem – WE are the real First Responders:** The average EMS response time to a medical emergency is about 10 minutes. Significant organ damage begins without blood flow at 3 minutes. Bystanders really are the first responders. No integrated Bystander Care training program currently exists targeting all of the most common preventable causes of death to children, youth, and adults in the workforce years at the same time.
- Our Solution:** We have developed, piloted, and taking to scale, a blended e-learning system through existing networks that can reach almost any community in the world. Lifeline Behaviors that can be learned in a matter of hours can impact the most frequent, severe, measurable, and preventable causes of death. The medical literature supports, and we have confirmed that the critical knowledge and skills can be effectively taught to those 10 years of age and older. Our solution is mobile, evidence-based, and taps qualified local experts for verifiable competency training. Since we are developing a comprehensive continuous medical education program for professional caregivers, our content his continuously updated.
- Local Collaboration and FREE Delivery:** Med Tac’s online content is designed to be accompanied by onsite competency instructors that are paid locally and directly so that all expenditures remain in communities we serve. Local leaders must comply with the requirements of competency training and our code of conduct in order to receive the free training. Funding of the free services will be provided by philanthropy and grants with no funding to be provided by an entity directly or indirectly selling healthcare pharmaceuticals or devices, thus avoiding any and all conflicts of interest. We have created the lowest adoption barriers possible.
- Local and Global Standard Compliance:** Med Tac delivers solutions in alignment with local US health organizations. Globally, we are aligned with the *World Health Organization* endorsed methods and intra-country networks of competency training and testing.
- Return on Philanthropy:** The potential impact is enormous. The first life was saved after the 7<sup>th</sup> week of an afterschool program at our pilot program in Orange County, CA. One of our law enforcement students saved a life after his first course. We forecast many more.

## Focus Areas for Med Tac Training

### Cardiac Arrest



**Sudden Cardiac Arrest:** There is an epidemic of SCA with one quarter of the SCA events in children and youth occurring at sporting events. CPR and AED use have a dramatic impact on survival.

**Possible Lives Saved in the US:** 2 every hour and 3 children per day at a sporting event – 25% of SCA deaths in children occur at such events.

### Major Trauma



**Major Trauma & Bleeding:** Bystander care especially for major bleeding using Stop-The-Bleed techniques of wound pressure, bandages, and tourniquets can have an enormous impact on survival.

**Possible Lives Saved in the US:** 1 per hour

### Choking & Drowning



**Choking:** More than 100,000 lives have been saved with the Heimlich Maneuver. Most choking deaths are preventable.

**Possible Lives Saved in the US:** 13 per day

**Drowning:** By population, drowning and near drowning events are very common. Since much of the OC population is near water, the numbers are likely much greater.

**Possible Lives Saved in the US:** 8 per day

### Common Accidents



**Common Accidents, Gravity Accidents, and Falls:** The incidence of common accidents varies by age; however prevention and bystander care can have a significant impact. Prevention of gravity accidents and treatment of common injuries can have a terrific impact on survival.

**Possible Lives Saved in the US:** More than 100 per day including falls.

### Opioid OD & Poisoning



**Opioid Overdose and Poisoning:** An exploding opioid OD crisis is gripping our nation with a great toll on families. Narcan opioid reversal agents, rescue breathing and positioning, and rapid EMS response saves lives. Awareness drives prevention.

**Possible Lives Saved in the US:** There are 197 OD deaths per day. Up to 8 lives may be saved per hour.

### Transportation



**Non-traffic Related Vehicular Accidents:** The incidence of non-traffic related drive-over accidents near schools and home is greater than 50 per week. More than 60% of the drivers are a parent or friend.

**Possible Lives Saved in the US:** Including adults, there are 1,900 deaths per year; many are preventable.

### Anaphylaxis



**Anaphylaxis & Life Threatening Allergies:** Many events are unreported; however 22% occur in children without a prior diagnosis of allergies. More than one in twenty adults will have an anaphylactic event in their lifetime. Epinephrine auto-injectors save lives within minutes.

**Possible Lives Saved in the US:** 1 per day

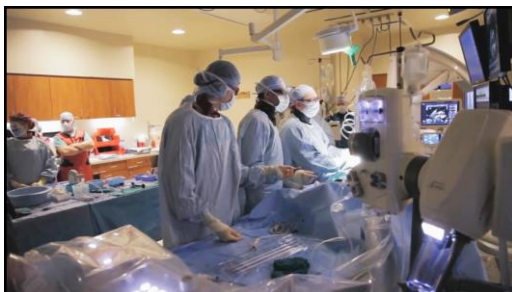
### Bullying



**Bullying & Workplace Violence:** Bullying and abuse of power in schools and at work can lead to suicide, workplace violence, violent intruders, and active shooter events.

**Possible Lives Saved in the US:** Difficult to estimate, however the consensus is that they are likely to be very significant.

## Med Tac Training Programs:



## Schools K – 12 and College Programs

- **K Through 12<sup>th</sup> Grade Programs:** We will provide all of the teaching materials necessary to teach the entire course in person or online as well as educator mentorship through webinars and teleconferences for free. We will provide linkages to the instructors of the *American Heart Association Heartsaver*® CPR and *American College of Surgeons Stop the Bleed*® programs who will be paid directly by the schools. No funding will be received by the Med Tac organization.
- **College and University Programs:** Carefully designed content and online course work addressing the specific needs of today's young adults will be provided for free as we do for schools. This program includes typical college threat scenarios of sudden cardiac arrest, alcohol and edible marijuana poisoning, hazing, and active shooter events. We help coordinate access to local instructors including collegiate EMTs.

## Scout Groups

- **Cub Scout Programs:** Our program started with helping Cub Scouts attain their first aid requirements. We will continue to provide content to help them achieve them.
- **Boy and Girl Scout Programs:** Our programs have been designed to help Boy Scouts earn their First Aid and Emergency Preparedness merit badges as well as certain advancement requirements. We will provide the equivalent to Girl Scouts.
- **Eagle Mentorship Network:** A "shovel ready" Eagle Scout package is being developed to help Eagle candidates launch an Eagle Scout project in their community. Eagle Scouts who are now in college and workforce will provide direct mentorship support. As with all Med Tac scout programs there will be zero cost.

## Faith-based and Family Programs

- **Faith-based Programs:** We have designed programs to address the specific needs of faith-based organizations convening large assemblies of members at one time and also address the threat issues their security officers need to deal with at facilities. All faith-based and family programs below will be delivered online at zero cost.
- **Family Emergency Preparedness:** In compliance with *Boy Scouts Emergency Preparedness* merit badge requirements, we have developed a family centered weekend course. It delivers all of the Med Tac training in addition to helping families assemble a Family Care Pack that contains what they may need in emergencies such as storms and floods, earthquakes, traffic accidents, and serious home accidents.

## Law Enforcement & Aviation

- **Healthcare Law Enforcement Programs:** Developed and refined at the MD Anderson Cancer Center, this full Med Tac program includes all of our core elements in addition to concepts, tools, and skills necessary for professional first responders to possess including advanced training for gun shot wounds and severe trauma.
- **Med Tac Instructor Opportunities for First Responders:** We are developing a Med Tac Train-the-Trainer Program for those Law Enforcement Officers, Emergency Medical Technicians, Nurses, Nurse Practitioners, and Doctors to become Med Tac Trainers. They are required to be AHA certified CPR and *Stop the Bleed*® instructors. We are developing Med Tac programs for flight crews on commercial airliners and for private pilots who have a medical emergency while airborne.

## Professional Caregivers

- **Med Tac for Professional Caregivers:** Our most comprehensive program is a full weekend course of two full days with extensive knowledge testing and competency verification. It covers the pathophysiology and latest evidence-based medical research supporting the best practices for detection, intervention, and monitoring of our High Impact Care Hazards. This course delivers professional continuing education credits for Emergency Medical Technicians, Nurses, Nurse Practitioners, and Doctors.
- **Official Risk Education Credit Qualified:** The program is being designed to satisfy *University of Texas Risk Education Credits* requirements and those for major insurers.

## Our Founders and Leaders



**C.R. Denham II, MD**  
Chairman, TMIT  
Founder CareUniversity  
Austin, TX,  
Laguna Beach, CA



**Charles (Charlie) R. Denham III**  
Founder of Med Tac  
Scouts Program  
7th Grade Student  
Boy Scout  
Laguna Beach, CA



**Gregory H. Botz, MD, FCCM**  
Professor Anesthesiology  
& Critical Care, Univ. of Texas  
MD Anderson Cancer Center  
Adjunct Clinical Associate  
Professor, Department of  
Anesthesiology,  
Stanford University School of  
Medicine



**William Adcox, MBA**  
Chief of Police and  
Chief Security Officer  
The University of Texas  
MD Anderson Cancer Center  
The University of Texas  
Health Science Center  
Houston, TX

Dr. Denham has funded Med Tac and leads its development. He has served hundreds of innovation teams during his 35 year career. While in practice as a radiation oncologist, he taught biomedical engineering and product development. He has taught innovation adoption, technology transfer, and commercialization in both academia and industry. He has been an adjunct Professor of Health Services Engineering at the *Mayo Clinic College of Medicine*, and had teaching appointments as an Instructor at the *Harvard School of Public Health* and as a Lecturer with the faculty of *Harvard Medical School*. He was a *Harvard Advanced Leadership Initiative* Fellow in 2009 and a senior Fellow in 2010 and 2011. His work there led to the production of a series of global documentaries on the *Discovery Channel*. He has served as Editor-in-Chief of the global *Journal of Patient Safety*, and has more than 100 works including peer-reviewed papers and multimedia productions. He has been ranked in the top 50 Most Influential Physician Executives by *Modern Healthcare* in multiple years, and he has served as a regular columnist for *The Wall Street Journal* program [The Experts: Journal Reports](#). Dr. Denham is an advisor to and collaborator with a number of *Stanford University* programs. He founded HCC Corporation, a for-profit innovation incubator, and TMIT, a non-profit medical research organization, in the early '80s. The companies work collaboratively on common innovation programs. He developed *CareUniversity* which is the content engine and learning delivery system for consumers and caregivers which serves Med Tac. It provides training in association with accredited institutions of higher education. He is a scout leader and a certified PADI Rescue Diver.

Dr. Denham's 12-year old son Charlie co-founded Med Tac while pursuing his Cub Scout first aid requirements. His school in Southern California has piloted and fully adopted the Med Tac innovations. The first life was saved in the first school program which Charlie helped lead. He participates in all Med Tac programs and leads the scout education initiatives with his troop. An avid waterman, Charlie is an Advanced Open Water Scuba diver who is certified as one of the youngest Rescue Divers in the nation. He is a Junior Med Tac Instructor and helping develop the Med Tac Divers and Lifeguard-Surf Programs.

Dr. Botz is the medical content leader for Med Tac. He is a Professor of Anesthesiology and Critical Care at *The University of Texas MD Anderson Cancer Center*. He inspired the initial focus of the team on active shooter events which led to the development of Med Tac. He completed an anesthesiology residency and critical care medicine fellowship at *Stanford University* in California. He has served on the faculty at *Duke University School of Medicine*, and is an Adjunct Clinical Associate Professor of Anesthesia at *Stanford University School of Medicine*. Dr. Botz serves as regional faculty for the American Heart Association Emergency Cardiovascular Care training programs, and he is a national consultant for the Society of Critical Care Medicine training programs. He was a senior editor for the American Board of Anesthesiology Joint Council on Anesthesiology Examinations, program director for the UTHSC-Houston Anesthesiology Critical Care Medicine Fellowship, and a member of *The University of Texas System Health Care Components ICU Quality Improvement Collaborative*. He and Dr. Denham have been the lead Med Tac instructors for the program for Stanford students. The Care Huddle Checklist was envisioned by Dr. Botz who is the clinical content leader for the team. He leads the Med Tac Aviation pilot program R&D.

Chief William H. Adcox is a national leader in threat solutions development and threat safety science. It was his advisory input to the team that allowed them to expand their focus to the top eight causes of death of otherwise healthy people. With 37 years in municipal and campus policing, he serves as the Chief of Police at *The University of Texas MD Anderson Cancer Center* and *The University of Texas Health Science Center*. Chief Adcox holds an MBA degree from UTEP and is a graduate of the PERF's Senior Management Institute for Police and the *Wharton School ASIS Program for Security Executives*. The Med Tac Law Enforcement and Security Officer course has been developed and is undergoing R&D at MD Anderson under his leadership. Along with Dr. Denham and Dr. Botz, Chief Adcox will be a co-author of the *International Med Tac Handbook* in 2018 and will be featured in a Med Tac Documentary.

In the summer of 2018, the Med Tac Team members above won the **Pete Conrad Global Patient Safety Award** following presentation of the program at a NASA innovation summit. The team have multiple research projects underway including a feature length documentary entitled **3 Minutes and Counting** which makes the case for positioning AEDs and Stop the Bleed supplies in schools and institutions so that lifesaving care can be provided within three minutes of an emergency event. They are working with lifeguards, dive instructors, and scouts in California and Hawaii and will be studying how to improve the care of emergency victims on beaches and in participation of water sports.

## Prior Similar Work with Major Organizations



Developed and helped lead 4 global Communities of practice with Google Food Group. Google funded "Saving Babies" research project, a major component of *CareMoms* Med Tac Program.



Multiple projects with multiple divisions including CT – PowerLoop® development, infection prevention devices, and GE co-funded *Discovery* Documentary *Surfing the Tsunami: Bring Your Best Board*.



Co-founded Premier Innovation Institute with Roche who invested \$2M. Undertook evidence based value proposition and analytics development of consumer anti-coagulation measurement device.



Collaborated with WHO and documented work in two *Discovery* films. Collaborated on multiple projects including reducing radiation to children using CT scans. Work on driving adoption of WHO Surgical Checklist globally.

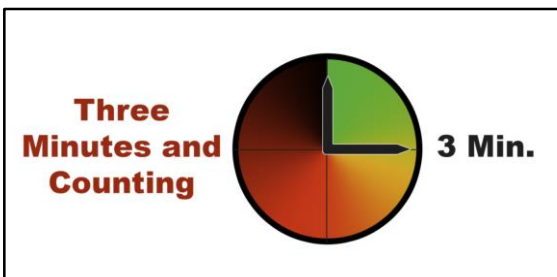
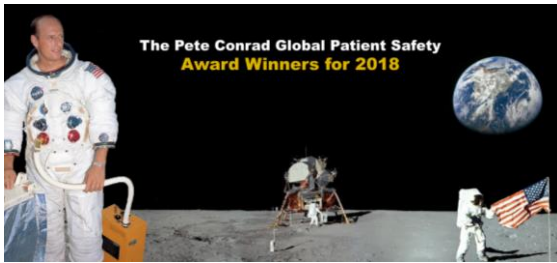


Co-founded *Premier Innovation Institute* with J&J who invested \$2M. Undertook evidence based value proposition and analytics development of *Biopsy* breast cancer biopsy device used for image guided biopsy of breast masses.



Many global projects totaling more than \$20M. Developed and licensed *Siemens Solution Science®* to Siemens for new products. Incubated most successful I.T. product in their history. From zero to \$50M (10 x ROI).

## 2018 Progress



**Pete Conrad Global Patient Safety Award:** The founders of Med Tac were honored by being 2018 Pete Conrad Global Patient Safety Award winners. This innovation award was made to the team after the program was presented at the Kennedy Space Center. Prior winners include the former head of the Centers for Medicare and Medicaid and other federal agency leaders, an astronaut who led patient safety for the Veterans Administration, caregivers, and patient advocates who have had national and global impact.

**Campus Safety Publication:** The Med Tac Program story was the cover and feature article of the December 2018 issue of *Campus Safety*, a publication with reach to hospital, school, university, and religious organization leaders. The article provided the background and a review of the multiple initiatives of the program. The response from universities, faith-based organizations, and healthcare institutions has been substantial. It immediately generated community leader interest.

**3 Minutes and Counting Documentary:** Our leadership team has produced two award winning documentaries that were globally broadcast by *Discovery Channel*. Our next documentary in the series will be entitled 3 Minutes and Counting which will powerful patient and caregiver stories to make a call to action for the public to learn Bystander Care that can save lives in the first 3 minutes after a medical emergency. It will also be used as a recruitment vehicle for community instructors from the professional caregiver sector, lifeguards, dive instructors, and EMTs at colleges. We will be funding film competitions at leading film and cinematic arts schools to generate messages that will reach and motivate children, youth, and young adults.

**3 Minutes and Counting R&D Projects:** We have initiated programs at schools, with lifeguard programs, and a mega-church to take a systems approach to making sure emergency bystander care can be administered within 3 minutes. By the combination of our Care Packs and Care Cases which contain the emergency supplies, proper signage, and the use of golf carts to get medics to victims; we believe it can be proved that a dramatic survival improvement is within reach. We have sponsored lifeguard organizations with Stop the Bleed supplies, provided training, and have provided golf carts that are equipped with the gear needed to save lives as part of what we are calling our 3 Minutes and Counting initiative. One component is the development of "rapid response teams" for schools and faith-based organizations by building on their success in healthcare when they are used for deteriorating patients. We have committed to sponsor multiple events, train-the-trainer programs, and coordinate a community service initiative with the Orange County Council of the Boy Scouts of America to reach the 19,000 scouts and 10,000 volunteer leaders in Orange County. OC will become a learning laboratory to drive scale.

**Hawaii Lifeguard Train-the-Trainer Program:** The Med Tac Team undertook a Train-the-Trainer program with the leaders of the Waikiki Lifeguard Association. They received their Stop the Bleed certifications and were taught how to teach the program as part of our Med Tac Certification Course. Our team is assisting them with full certification as instructors of Stop the Bleed sponsored by the American College of Surgeons. They will undertake the final training to be full Master Med Tac Instructors in the first quarter of 2019. They will then be able to teach the onsite component of the Med Tac Program to Schools, Scout Groups, and other membership organizations. They will also assist us in training the Oahu North Shore Lifeguards followed by expansion to Maui and the big Island of Hawaii. The ultimate goal is to then impact all of the islands.