DHR Health Institute for Research and Development
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Trauma Bulletin

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A Christmas Story

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It is Christmas night at your house at 2100 hours. Everyone is all sitting around the house lounging, enjoying themselves after a long well deserved Christmas feast. Giggling erupts from the living room, where all the children of the extended family are watching holiday cartoons. Frank Sinatra sings for his supper on the radio in the distant kitchen, while a large crackle erupts from the beautifully cut logs in the fireplace. Suddenly there is a loud boom, boom, and thud. The crash is heard from the front stairwell. After quickly placing your glass of port down, you rush to the front of the house only to find your beloved 80-year-old uncle on the hardwood floor face down. After you carefully roll him over, you note a swollen right face and very deformed nose. Your astutely peel open his right eye and note that he does not have full motion of his right eye. Feeling the effects of the alcohol, you ask your brother, who does not drink, to drive both of you to the hospital immediately. You assist your uncle to the car and have him hold an ice pack to his face the entire ride. At the hospital emergency room (ER), the emergency physician and trauma surgeon on call examine your uncle. After examining him and performing a CT they share the news that your uncle has a severely deformed nasal fracture, a severe right orbital fracture, and real concern for nerve entrapment. He also has a small subdural hematoma that needs to be watched. The trauma surgeon then shares the dreaded news with you: There are no appropriate surgeons on call that night; they are going to prepare to transfer your uncle 250 miles to San Antonio, where the appropriate trauma team and surgeons will be waiting to receive him.

You, as a healthcare worker, will you demand that they keep your uncle here? Will you stamp your feet and demand they call each surgeon and find someone willing to come in? Will you call the physician administrator on-call, complain that this is unacceptable, and demand they find a surgeon? Will you, yourself, retrieve your cell phone from your jacket and call your colleagues demanding that one of them come to the hospital immediately to operate on your family member. Despite trying all, your uncle is loaded on a helicopter and is gone. You share your frustration with your family.

Unfortunately, we and many others are faced with this awkward scenario. But why should this occur in 2020 in one of the more advanced countries in the world? The answer lies in an understanding that trauma is a disease, and the trauma patient requires the appropriate care from the appropriate facility as quickly as possible to treat their disease. That is the case for myocardial infarction and a cerebral bleed. The same is true for the trauma victim; why should they be treated any less? For this to occur, we need to have the level of care near the trauma patient with the resources to care for the victim 24/7 completely. Trauma, like all other diseases, knows no limits!

Your family asks you, "What should our uncle really get?"

"He needs a 'level one' here!"

"A what?" they ask.

"A level one Trauma Center. Let me explain:"

Trauma centers in the United States are identified in two fashions: A designation process and a verification process. The different levels (i.e. Level I, II, III, IV or V) refer to the resources available in a trauma center and the number of patients admitted yearly. These are categories defined by national standards for trauma care in hospitals. The categorization area is also unique to both adult and pediatric facilities. The Trauma Center designation is a process outlined and developed at a state or local level. The state or local municipality identifies unique criteria in which to categorize Trauma Centers. These categories vary from state to state and are typically outlined through legislative or regulatory authority. Trauma Center Verification is an evaluation process done by the American College of Surgeons (ACS) to evaluate and improve trauma care. The ACS does not designate trauma centers; instead, it verifies the presence of the resources listed in Resources for Optimal Care of the Injured Patient. These include commitment, readiness, resources, policies, patient care, performance improvement, education, and research. Verification is a voluntary process by the Trauma Center, and if verified, it lasts for a 3-year period. Let me outline the common criteria for a Level One Trauma Center as verified by the ACS and also designated by states.

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Level I Trauma Center is a comprehensive regional resource that is a tertiary care facility central to a trauma system. A Level I Trauma Center is capable of providing total care for every aspect of injury – from prevention of the injuries through to the rehabilitation. In fact, rehabilitation is the key to the victim making a complete recovery.

The key resources of a Level I Trauma Centers include 24-hour in-house coverage by trauma (general) surgeons and prompt availability of care in specialties such as orthopedic surgery, neurosurgery, anesthesiology, emergency medicine, radiology, internal medicine, plastic surgery, oral and maxillofacial, hand surgery, cardiac surgery, thoracic surgery, vascular surgery, obstetrics and gynecology, ophthalmology, urology and critical care. They are a referral resource for communities in nearby regions. They provide leadership in the prevention, public education to surrounding communities, and continuing education to their trauma team members. Level one trauma centers incorporate a comprehensive quality assessment program to keep their trauma care at a high level of performance. They provide organized teaching and research effort to help direct new innovations in trauma care particularly unique to the community they serve. Importantly they have programs for substance abuse screening and patient intervention. Finally, they need to meet a minimum requirement for the annual volume of severely injured patients to keep their trauma team experienced and always ready.

In our uncle's case, he is best served in such a center with all the resources listed above available to him. He has multiple injuries and an ongoing injury of concern. He will require surgery and maybe even a second surgery. Then he will need post-operative care and rehabilitation to get him back to his quality of life. He needs an experienced team that can provide his trauma care immediately and not far from his home. Sadly we don't have that here.

Critical Care In The Air – When Seconds Matter Airmed South Texas

Jonathan Allua,RN,LP,CCRN,CFRN,CMTE

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There are a "few" adages in emergency medicine, "time is muscle" referring to a heart attack, "time is brain" referring to a stroke, referring to a stroke, and the pinnacle, "the golden hour" referring to a trauma patient, and the importance of reaching a trauma facility within the first hour from injury. What do they all have in common? They all specify that time is of the essence.

AirMed 1 is a medical helicopter serving the Rio Grande Valley (RGV). Cruising at 155mph, AirMed 1 can rendezvous with EMS units and transport to the hospital in a fraction of the time it would take by ambulance. For example, traveling from Edcouch to DHR Health by ambulance takes an estimated 30 minutes. AirMed 1 can make the trip in only 6 minutes. The same is true for most of the region where the helicopter can transport to the tertiary care center more rapidly compared to ambulance transport saving valuable minutes that could impact a patient's clinical outcome.

AirMed 1 is not only a fast ride, but it is also the biggest benefit bringing the critical care transport team directly to the patient. Staffed with a Critical Care Transport Nurse and Critical Care Transport Paramedic, the team brings an advanced level of knowledge, training, and equipment to complement the care being provided by the EMS crew. For example, blood loss is one of the biggest threats to a trauma patient in the field. To combat this, AirMed 1 carries whole blood and liquid plasma on every flight. The ability to replace blood loss with whole blood rather than just IV fluids alone significantly increases a patient's chances of survival. AirMed 1 also transports patients from one facility to another. Often, patients are diagnosed with a life-threatening condition requiring specialized care that is provided at another facility. This results in an interfacility transfer. The Critical Care Transport Team has the capabilities and equipment required to continue the level of care initiated at the sending facility while simultaneously initiating care that will be provided at the receiving facility.

AirMed 1 is a valuable resource available to the entire RGV. Our mission is to provide the residents and visitors of the region with the highest quality and most advanced clinical care available. Our goal is to be a partner with every EMS, Fire Department, Law Enforcement Agency, and Healthcare facility in the region to assist with the care and transport of your most critical patients.

What Does a Level 1 Trauma Center Mean for the Valley?

Megan Molina, BSN, RN, TCRN

Trauma Prevention & Outreach DHR Trauma Services

As a new nurse I didn't understand what the different levels of trauma meant, I just knew that patient's came into the ER and we did everything we could to take care of them, this was 6 years ago.

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As I grew as a nurse so did my understanding of the trauma system. There were times that a patient had an injury that required a special service to see them, for example an eye injury, and the specialist wasn't available to see them, so the patient had to be transferred to another hospital, often times outside the valley.

After 3 years of working at a level 3 trauma center I was accepted into a trauma nurse fellowship in San Antonio at a level 1 trauma center. It wasn't until I started working there that I fully understood what it meant to function as a level 1 trauma center. I learned that every patient that came through our doors would be able to receive all the care they needed in one place, there would be no need to transfer to another facility or city. While working at this level 1 facility I also learned that we received a large amount of transfer patients from surrounding towns and cities.

One transfer I remember so clearly was an older man who had sustained an eye injury while working in his yard, he was flown in by helicopter from Edinburg, Texas. The patient expressed that he was worried about the cost of the flight, his wife driving the 4 hour drive alone at night, and where she would stay while he was in the hospital in SA. Although retired he worked a few days a week at a local business and he also voiced concern about missing his work days. Had this patients' needs been met by his local hospital in the Rio Grande Valley he would have forgone the extra expense of transfer and lodging for his wife. Furthermore the emotional stress he suffered due to the worry he had for his wife's travel and missed work could have been avoided.

To me a level 1 trauma center in the valley means that our community can receive all the care they need in one place, without having the extra financial and emotional burden that a transfer causes.

Aside from this, a level 1 trauma center also brings so many resources to community. Hands on training for EMT's, community education, injury prevention, and a higher level of care for our patients are all opportunities that a level 1 trauma center brings.

Although it was a sacrifice leaving the Rio Grande Valley, my home, my family, and friends the experience I gained and have now been able to bring back and apply for the benefit of my community makes it all worth it.

DHR Health Trauma Services: Providing the Critical Care the Rio Grande Valley Deserves

Jennifer (Arriaga) Volcy, MS, RN, TCRN

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The Rio Grande Valley (RGV) lies in Texas's southernmost tip, bordering Mexico, with a population of 1,377,8611. It is an area of flat land with a subtropical climate and a very reasonable cost of living.

I call this the hidden gem of the United States of America. Having grown up in the Rio Grande Valley (RGV), I am aware that it has been known to lack the development of other established cities across the Nation. This also entails advancement in the health care industry. Living in one of the most impoverished communities in the entire Nation has made it difficult for valley locals to receive the proper health care they need. With the median household income being $36,0001 many people do not seek health care in this area. Instead, they cross the border into Mexico to treat their medical needs at an affordable price.

Joining the military shortly after high school and working as an Aerospace Medical Technician allowed me to experience health care inside the U.S. Military. While stationed in San Antonio, TX, and working at a major military hospital, I was able to see and treat multiple patients with minor to severe injuries. One case I remember clearly was a patient involved in a severe motor vehicle accident. I happened to have attended high school with the patient's family member. Knowing the individual was from the "Valley," I continued to make conversation and informed them that their family was on their way to San Antonio to see them. At that time, I knew they were getting the best trauma care they could receive as the military offered many physician specialties that were not available in the RGV.

After completing my military tour and later becoming a registered nurse, my first job was to work in the Nation's first trauma center. Having the honor of working at The University of Maryland R Adams Cowley Shock Trauma Center was an eye-opening experience. It was a prestigious trauma center, and those living in the area were aware of its reputation. If you were involved in an accident and were flown to "Shock Trauma," your chances of survival were much greater. It had a state-of-the-art trauma tower with dedicated trauma resuscitation units, trauma operating rooms, specialty trauma intensive care units, step-down units, and an acute care unit. Shock trauma was always ready for any injury that arrived through the door anytime – day or night. The hospital is located in the inner city of Baltimore, Maryland, where the crime rate is high; there were many instances where we received patients injured from gun violence. Two of the most common mechanisms encountered were injuries sustained from car accidents and falls, both of which are also the leading mechanisms of injury in the RGV. Motor vehicle accidents can lead to different types of injuries depending on where the blunt trauma to the body has occurred. Injuries from a fall usually led to either a hip fracture for the elderly or a spinal cord injury where the patient either lost sensation or movement to a portion of their body. We treated many people with paraplegia and quadriplegics who needed special care, which increased their length of stay. Traumatic brain injuries also resulted from either of those two mechanisms. Traumatic brain injuries were treated in the Neurointensive or intermediate unit depending on the severity of the injury. Those with severe brain injuries needed close monitoring and were often intubated with monitors attached and drains draining extra fluid to relieve cranial pressure. Other types of treated patients also included patients who may have sustained carbon monoxide poisoning and needed to be treated using the hyperbaric chamber to allow for increased oxygen delivery. Patients with existing comorbidities such as cardiovascular disease, diabetes, amongst others, made the trauma patient all the more complex to treat.

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Why the Rio Grande Valley? "Why not," I ask myself. Gaining the knowledge and experience in trauma care from the military to working in the Doctor's Hospital Trauma Services Department has increased that desire to serve my community and help this region achieve what it deserves. When our patients need to be transferred north of the RGV for appropriate trauma care, most of these families cannot accompany them. Many are fearful of crossing the checkpoint. In addition, they deal with a hefty medical bill for the transfer. All of this is simply because the region does not have adequate resources to care for their loved ones. I believe this is unacceptable. This hidden gem in the United States of America should not lack in trauma care to its natives. Having a Level 1 Trauma Center will increase medical resources for several professions, for example: a helicopter/prehospital team, a trauma tower with multi-trauma units, state of the art equipment, specialty rehabilitative services, injury prevention and education for the community, a trauma survivors' network to help survivors and their families cope with life post-trauma. Along with trauma resources, other specialties and services will be gained. One great example relates to the COVID pandemic that we are currently living in. The absolute sickest patients need to be transferred north to receive a treatment called extracorporeal membrane oxygenation (ECMO). The RGV will not be the only region to benefit from the added resources of a Level 1 Trauma Center. Mexico's northeastern region, which may include a family member or a working member of our community, will also benefit from these services.

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Editorial Team

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How to Submit Articles for Trauma Bulletin?

We invite submission of brief reports for publication in the *Trauma Bulletin*; a section of the DHR Proceedings. This section will highlight perspectives of clinicians, fellows, residents, students, researchers and other health professionals working to understand, prevent and treat traumatic injuries. For publication, *Trauma Bulletin* will consider unstructured manuscripts with a maximum of 2000 words. A maximum of four authors is suggested for the manuscripts. The manuscripts submitted for publication in the *Trauma Bulletin* will undergo an expedited peer review process to ensure that the information is disseminated in a timely manner. For submissions, please follow instructions for Brief Reports.

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