The Importance of Developing an Emergency Medicine Curriculum

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Thesis Statement:

Introducing a Basic Emergency Medical education to a broader spectrum of society will lower human fatality rates correlated with limited access to first aid by increasing density of available, trained individuals.

> *And, behold, a certain lawyer stood up, and tempted him, saying, Master, what shall I do to inherit eternal life?*
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> ***26*** *He said unto him, What is written in the law? how readest thou?*
> ***27*** *And he answering said, Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy strength, and with all thy mind; and thy neighbour as thyself.*
> ***28*** *And he said unto him, Thou hast answered right: this do, and thou shalt live.*
> ***29*** *But he, willing to justify himself, said unto Jesus, And who is my neighbour?*
> ***30*** *And Jesus answering said, A certain man went down from Jerusalem to Jericho, and fell among thieves, which stripped him of his raiment, and wounded him, and departed, leaving him half dead.*
> ***31*** *And by chance there came down a certain priest that way: and when he saw him, he passed by on the other side.*
> ***32*** *And likewise a Levite, when he was at the place, came and looked on him, and passed by on the other side.*
> ***33*** *But a certain Samaritan, as he journeyed, came where he was: and when he saw him, he had compassion on him,*
> ***34*** *And went to him, and bound up his wounds, pouring in oil and wine, and set him on his own beast, and brought him to an inn, and took care of him.*
> ***35*** *And on the morrow when he departed, he took out two pence, and gave them to the host, and said unto him, Take care of him; and whatsoever thou spendest more, when I come again, I will repay thee.*
> ***36*** *Which now of these three, thinkest thou, was neighbour unto him that fell among the thieves?*
> ***37*** *And he said, He that shewed mercy on him. Then said Jesus unto him, Go, and do thou likewise. (Luke Chapter 1…)*

Forming a thesis such as this one is to be done with verified and supported facts and figures which are used to demonstrate the validity of the thesis statement. And while this quote is of an ethos and pathos nature and not a logos one, it demonstrates a critical characteristic that should be expected of all people.

Information, when deemed necessary knowledge for members of society by the authorities of education, is introduced into the common academic curriculum. We are taught language, history, science, math, and many other subjects, but medicine, whether practice or study, is undertaken by few institutions, and general high school student awareness is limited at best. Currently, the health classes in highschool are abysmal, uninformative, and outdated. There needs to be an introduction of Emergency Medical training into the standard high school academic curriculum. I believe this is a matter of life and death. Emergency medicine may not be put to use immediately in high school, but exposing a higher number of students to basic medical knowledge, people who will be entering the workplace and society, in general, will increase the likelihood of others surviving a medical emergency, such as a seizure, heart attack, gun shot, or anaphylactic shock. In addition to the benefits of saving lives, teaching emergency medicine to all students will help to spur further interest in science, technology, and healthcare as professions.

Everything we, as a species, know we have taught ourselves, medicine included. When the human race was young and our understanding of the world limited, we did not have many skills: Simple structures to reside in, animal pelts to dress ourselves in, maybe a sharpened stick

to defend ourselves with or to hunt. Animals, like us, knew that one could eat different plants in order to appease an upset stomach. For example, in the case of the moose, eating the bark of a willow tree will help with the pain caused by those massive horns.("Willow trees…") As humans have evolved, so has our understanding of the human body, its ailments, and treatments for those ailments. When our knowledge of pain medication was primitive as we were, we learned by watching the animals and eating what they ate. We now know that the bark of the willow tree contains acetylsalicylic acid, the main ingredient of aspirin, one of the most commonly used over the counter pain relief medications. Our understanding of medicine and the human body has developed to the point where we can do more than just treat and cure illness, we have greatly reduce human fatality correlated with life threatening accidents injuries by administering effective emergency care. Fewer than 100 years ago, a gunshot wound would have been fatal, if not from blood loss caused by the puncture, then surely by the infection that would follow. Now, according to, 'Severity-Adjusted Mortality in Trauma Patients Transported by Police,' the survivability of a gunshot wound is almost 80%. Police being able to transport victims has reduced the mortality rate correlated with gunshot wounds. This is just one example of how something that used to be a death sentence is now considered survivable thanks to the expansion of modern emergency medicine. In the emergency medical field there is a span of time right after an incident occurs known as the "golden hour". The golden hour makes reference to the fact that someone who has sustained trauma has a higher chance of survival and recovery if they begin receiving treatment within that "golden hour" right after the incident. Any given patient's chance of survival drops greatly after that "golden hour has passed. *("History…")* While the term "golden hour" is a bit of a dogma, there is a certain logic to the thought that the

quicker a patient who has sustained a trauma gets to a hospital, their chances of survival are better. *(The Golden Hour in trauma...)* The emergency Services allow for the "golden hour" to be utilized effectively. Currently, according to the CDC, 30% of loss of life across all ages every year is due to trauma. Over 40 million Emergency Services visits and almost 200,000 deaths in 2014 were due to trauma. In theory, if any given individual present when someone suffers trauma was able to take advantage of that golden hour, then the chances of trauma survival would improve. *(National Trauma Center…)*

Like all specialized skillsets in life, there is a varying amount of education or certification required in order to perform any given emergency medical skill. CPR, or Cardiopulmonary Resuscitation, is the most basic level of emergency medical skill and requires the least training. It is a two-hour course, with a written test and practical. From there, there are a series of different medical certifications that range in length of course, skills that will be acquired with the class, and difficulty of material mastery. There are also a series of wilderness first aid certifications through NOLS, or Northern Outdoor Leadership School, and SOLO Wilderness first Aid School. This organizations offer a series of certifications ranging from wilderness first aid, a basic first aid certification, to geomedic, a certification in which you are taught how to give extended care in the field. ("Survival…") These programs are attended by individuals who go to remote places and have to be able to take care of themselves and those around them because help is a long way off. I am taking this the wilderness first aid class, and developing the curriculum for my project around what I learn in this class.

When someone is brought into an emergency room, there are a series of individuals that worked together to transport that individual to the ER. First are the people on scene, perhaps the

person who called 911, bystanders and witnesses, or family. Then the EMTs and Paramedics, professionals trained in emergency medicine, who stabilize and deliver the patient to the doctors and nurses at the hospital. Emergency Medicine experts are known as medics, Paramedics, or flight medics. Being a paramedic is the highest level of emergency medical training an individual can receive. Then there are Advanced EMTs, or EMT A and basic EMTs, or EMTB. All EMTs either basic or advanced, are on a national registry. In order to work in any manner in the emergency services, in individual has to pass the national test, which is what certifies them to be in the national registry, and a state test, which permits them to work in their locality. All EMTs and paramedics have to pass both of these tests, as well as do regular state mandated training and recertification. *(National Registry…)*

There is a monumental amount of work that goes into becoming and being a First Responder. All of the certifications and processes one has to go through makes them less accessible to the public. It is both expensive and time consuming to be certified any of the ways mentioned above. Being trained, even at a basic level, to deal with emergency situations is underwhelmingly done in the United States. According to the United States Bureau of Labor, there were 241,200 EMTs and Paramedics employed in the United States in 2014. Compare that to the 317,000,000 people living in the United States in 2014, the ratio of EMTs to people was 1 EMT to every 1,314 civilians. That is not reassuring. According to the American Heart Association, only around 30% of americans hold a non expired CPR certification. If someone keeled over in any given room, anywhere in the country, only three out of ten people there would have the slightest clue as to what they had to do. The creation of a class that taught basic emergency medical skills to the public would increase the number of trained individuals close to

any given incident at any given time. Having people be more medically educated would ease the pressure on the emergency services. The National Center of Education statistics estimates that some 3.5 million students will be graduating high school in the year of 2016. If, hypothetically, one percent of the graduating class went through the proposed curriculum and obtained some form of legitimate emergency first aid training, that would be an additional 35,000 people just this year with above average medical knowledge being introduced to the public.

How the Emergency Services Currently Work

When an injury occurs, someone has to call 911. This person will be asked to give as much information as they can about the situation to the dispatcher. The dispatcher will then take all of the acquired information and enter it into the dispatch computer, and a software program dispatches units based on the information given about the call. For example, if someone calls and says their house is on fire, several engines and tankers will be dispatched, whereas if someone calls with chest pain, only an ambulance will be dispatched. The emergency services system is effective, and its efficiency is continuously being modified and improved. Call data, such as response times, are recorded. The data is then taken and analysed to see if there are any changes that need to be made to the emergency services system in order to make it more effective. The American Heart Association states that brain death begins four to six minutes after cardiac arrest. NFPA standard 1710 states that fire and ems companies and departments should have a turnout time (time that it takes the fire/rescue people get into their respective trucks and ambulances from when the dispatch comes in) and a response time of four minutes. There always is a strain on fire rescue to serve their community. There are not a proportionate number of fire/ems

personnel to the population they serve. According to the NFPA there were 1,134,400 firefighters in the united states in 2014. The population of the United states was 318.8 million, which mathematically comes down to roughly 282 people per firefighter. The stress of a single patient emergency is tough enough, but when a series of patients need care, the judgement call has to be made as to who gets first response, which is a heavy and grueling decision to make. In a mass casualty event, patient are identified with four colors. Green means in good health, yellow means injured but not life threatening, red means life threatening, and black means deceased. Red gets priority, unless their chances of survival are slim, in which case they are not treated.

Generally speaking, when people acquire emergency medical training, it is because they want to run calls, save lives, and make a difference. Few and far between are those who go through training just so that if, by chance, they stumble across someone in need of help, they are able to assist them. The golden exception to this is CPR, which many people have just because it is a good thing to have. Anyone who wishes to be able to assist in an emergency scenario must have independent training, or be a member of a fire station or a rescue squad. There are upsides and downsides to being a committed member of a rescue company. The upside is that all of the first responders are easily identifiable via uniform, which provides a sense of security. Additionally, all of the equipment is federally provided, regulated and maintained. The equipment is inspected every shift by the on duty personnel . Anything that has expired is disposed of, and any supplies that were used are restocked. But, most importantly, all of the first responders are held to a series of training standards, which insures consistency in treatment. The downside to the emergency services is that, in order for anyone to receive aid, they have to call 911, talk the dispatcher through their issue, and wait for fire/rescue personnel to arrive. This

creates a delay in the receiving of care. The question is, what if people were able to be more independent of the emergency services when it came to dealing with an emergency.

With the implementation of a Basic Emergency Medical curriculum, people would have access to some basic medical knowledge. There would be several benefits, that, when compiled, would make a huge change in the world of emergency medicine. For example, when it comes to medical emergencies, people tend to over worry, panic, and even make themselves hysterical. This overreaction comes from a lack of knowledge,a sense of insecurity with one's current situation, and a fear of what may result . Giving people the ability to accurately identify their symptoms and decide with an educated opinion whether or not their medical issues warrant calling an ambulance will reduce the number of unnecessary dispatches. This would increase availability of first responders for legitimate emergencies and reduce operation costs of fire departments and rescue squads. Personally, I have gone on five separate calls where someone had a nosebleed, which is a waste of time and resources.The question is how to create a program that is accessible to everyone.

The curriculum should be offered in a high school setting. If implemented there, it would be taught at the highest legally mandated level of education. The class would be offered to students over the age of 16, as that is the legally required age to participate in any emergency services. A side benefit to this class would be that young men and women would be given a better grasp of what it means to be a medical professional, and perhaps, be given an advantage on their way to medical school. A preliminary class such as this could provide the foundation upon

which they build their medical degrees. Having access to these materials could create a peak in interest in the medical field. The class would also create a much greater awareness of not only the illnesses or diseases that we can contract, but what causes them. Creating an awareness of the damage we do to ourselves with poor health choices may curb the initial making of said choices. One of the biggest epidemics the United States is Obesity. According to the American Heart Association, 78 million adults and 13 million children suffer from obesity. Being a healthy weight, as defined by the CDC, means having a body mass index of 18 to 25%, or that your body fat should comprise 18 to 25 % of your body mass. Currently, in the United States, an estimated one out of every six children is classified as obese, and one in three are considered overweight. *(Child Obesity)* Being overweight comes from eating low quality processed food, which is filled with preservatives, trans fats, and refined sugars. Poor eating habits combined with insufficient exercise lead to excessive weight gain. Teaching better eating habits and a more active lifestyle to high schoolers could curb the percentage of people who suffer from obesity. ("Stanford…")

High School is not the only place where having a class of this nature would be useful and make a difference. It would be a good idea to offer a class of this nature to individuals who are incarcerated. Convicted felons cannot be hired by any first responder organization, no matter the crime. Individuals who have committed misdemeanors are given the opportunity to explain themselves on their applications. Unfortunately, someone who is arrested, for example, for shooting someone, may never be truly aware of the damage they caused when they pulled the trigger. Giving convicted people access to a class like this could reduce violence in communities with formerly convicted individuals. Having the ability to care for one another could harbor a

greater sense of community, and bring people closer together in a positive and caring light. In the case of offering a curriculum as proposed here to convicts, creating an awareness of the damage, both repairable and permanent, and the effort required to save a human life caused by violence could lead to a lessening in violent crimes. When the convicts are eventually released and return home to their communities, they would be more capable of providing a positive contribution to their communities by providing medical assistance. ("Understanding the American…")

When it comes to designing the curriculum, there is a certain balance that must be struck. There is a large amount of knowledge and training that can be acquired and applied to the field of emergency medicine. The balance in curriculum design is finding the correct amount of information to incorporate. The curriculum would be primarily knowledge based, and not practiced based. The curriculum would be developed around the idea of making a complete and accurate patient assessment. Finding out everything that is wrong with the patient and making an informed decision as to how to proceed with patient care is more effective than focusing on one given issue with the patient and ignoring the rest. If, for example, a patient was in a car accident, and they had a gash on their leg, and had hit their head, someone who was taught to "treat" what they see would go the stabilization of the leg, and miss altogether the head injury. Of those two, the head injury would be the more dangerous. Giving individuals the ability to understand what is going on would be better than giving the ability to attend to superficial damages. Internal bleeding of any kind is more dangerous than cuts scrapes or bruises.

The training and information provided by the class must be able to be utilized with a minimal amount of equipment. Not everyone carries around with them a fully equipped bag of

emergency medical supplies. The training will be less useful for the society in general if they require heavy amounts of equipment in order for their training to be of any use.

An example of this would be learning how to take a basic set of vitals by hand. Currently, fire rescue uses some form of a device known as an ECG, or a an electrocardiogram. The ECG is attached to the patient by way of a blood pressure cuff, which measures the systolic and diastolic pressures of a patient's blood vessels, and 12 electronic leads that are strategically placed to detect the heart's electrical activity, and provide information as to how the heart is performing. The data provided by the readouts of the ECG are crucial in the process of accessing the patient. The paramedics use the readouts to make educated decisions as to what the best course of action is for the patient's life and health. However, the ECG is expensive to own and operate, and unconventional to own for personal use. The data provided by the ECG can be obtained with some more rudimentary practices. While getting a blood pressure reading is not possible to do without a blood pressure cuff, getting a pulse and counting breaths is able to be done without any equipment. If the patient's heart rate and respiratory rate are irregular, it is an indicator that something is wrong. While the information one obtains by hand may not be as informative using an ECG, the caregiver will be aware that something is wrong just from the heart and respiratory rate. Having an idea as to how a patient's heart is performing without needing a machine to tell you is a prime example of why a distinction like this would be necessary for the proposed curriculum. There is no need to teach how to read an ECG, because the likelihood that one is used by someone who was only trained through the proposed class is very small. The material would have to be information pertinent to assessing a patient so the individual can begin

administering care right away, and accurately inform the dispatchers to the injuries the patient has sustained. ("EKG.") The information for the curriculum would be chosen based on the following guidelines.

1. The training or information is applicable to a wide variety of emergencies.

This is a basic class, so the things that will be in the curriculum, while vital to keeping someone alive, will not be specialized skills that take hours and hours of practice. The skills have to be simple and easy to remember, because the chance that they are used frequently by someone who is not a regular provider of care is slim. An example of a basic skill would be controlling bleeding. This could range from something as small as a bloody nose, to something more serious like an arterial bleed. Another example could be bandaging. Bandages come in all shapes and sizes, and using the appropriate one is crucial for its application to be effective.

2. The training or information will directly counteract a medical issue that could be fatal or permanently damaging.

The first thing that comes to mind with this category is CPR. Cardiopulmonary Resuscitation is one of the most basic and critical skills for any individual to know, especially if they are not medical professionals. Every single person should know how to do CPR. According to the American Heart Association, 12 million americans learn CPR every year, 32% of people who suffer cardiac arrest are given CPR by a bystander, and less than 8% of people who suffer cardiac arrest outside a hospital survive. It takes very little training, and it only takes using it once for the effort of the certification to be validated.

3. The training or information is necessary for easing the transport of the patient. The fundamental nature of emergency care is to keep the patient alive long enough to get them to the

hospital, where the patient's injuries will be attended to in a specialized, controlled environment. The goal for this class would be the same as with all other emergency medicine; stabilize and transport.

Let's say for instance, a patient is having an allergic reaction, and is going into anaphylaxis. Being able to accurately assess the patient and determine the issue, address it quickly (in this case administering epinephrine, or an epi pen) and then transporting them is more important than finding out what exactly they are allergic to. All that the EMTs and the Paramedics are concerned with is keeping the patient alive until they get there.

As with anyone who works in the emergency services, there is always a question of liability. If the patient is not saved, an error is made during assessment and stabilization,or the outcome of the injury is irreparable, occasionally the patient or the family of the patient will hold the emergency care givers responsible. (“Lawsuit…”) There is a law in the united states that protect individuals who give aid in the time of an emergency. This law is known as the good samaritan law. The good samaritan law in Virginia states:

§ 8.01-225. Persons rendering emergency care, obstetrical services exempt from liability.

A. Any person who:

1. In good faith, renders emergency care or assistance, without compensation, to any ill or injured person at the scene of an accident, fire, or any life-threatening emergency, or en route therefrom to any hospital, medical clinic or doctor's office, shall not be liable for any civil damages for acts or omissions resulting from the rendering of such care or assistance.

There is a downside to this proposed curriculum. Medical practices are continuously updated and changed. There is yearly required training for all emergency medical professionals, and there is retesting and recertification required every two. If, ten years after someone took the class, they are still practicing those old outdated methods of first aid, they could be doing more harm than good. If the class was continuously taught, then the number of people who knew the newer improved techniques would outweigh the one who took the class a while ago. Practicing emergency medicine is a big responsibility, and that point would have to be made abundantly evident throughout the course. Most things that are learned in school do not have as direct of an effect on human lives as a class of this nature would. There is always a question of ethics. All of the material covered in the class would have to be developed in such a manner that minimizes the ability for said material to be used in a harmful way. This class would be a big step forward in the evolution of education that could save hundreds of american lives.

Introducing a Basic Emergency Medical education to a broader spectrum of society will lower human fatality rates correlated with limited access to first aid by increasing density of available, trained individuals. In conclusion, the incorporation of a class like the one proposed could theoretically better the life of every American. If more people are able to take care of themselves and those around them, the average quality and longevity of human life would be improved.

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