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History of Emergency Medicine

The idea of a singular location where any and all people could seek medical help at any time of day seems like such an intuitive idea. After all, accidents happen every day. People hurt themselves, get in accidents, get sick, and die. The CDC reports that there is an average of 130.4 million patients who visit the ER every year, making it the busiest department in all of medicine. For this reason, it would make sense that there be a specialty dedicated to identifying acutely sick patients; people available at any time of day who are trained in the art of resuscitation. However, most people would be surprised to hear that emergency medicine is one of the youngest specialties in medicine. Today, 365, 164 people will visit an emergency room somewhere in this country. None of those people will be neglected or turned away. 60 years ago, things were very different. In fact, it wasn't until the late 1970s when the American Medical Association recognized Emergency Medicine as a specialty. In this paper, we will walk through the history of this medical specialty. From the development of emergency medical services in times of war and in peace, we will talk about the development of the swift and advanced pre-hospital care providers we have today. Also, from the earliest American emergency departments, to the fully staffed innovative emergency rooms and residency programs that we have today, we will walk through how this extraordinary medical specialty came into existence.

After the end of the second world war, as well as the great depression, the world started to change. In 1956, the government signed the National Interstate and Defense Highways Act. This act authorized the construction of a 41,000 mile highway system. This revolutionized the way people travelled, as well as the way people interacted with one another. U.S. Citizens who had lived in the same location for generations now had the freedom to escape their roots, setting up shop in new locations. However, this quickly interfered with the classical definition of the family physician. Prior to this time, family physicians were able to develop relationships with entire families, sometimes generations of people. However, the National Interstate and Defense highways act of 1956 enable people to easily access the entire country, and patients no longer felt the burdens of traveling and moving luggage through the train service.

In addition, medicine was changing throughout this time as well. While most people had previously seen their primary care physicians for all types of complaints, the 1960s introduced a boom in a variety of medical specialties. Patients' who had previously relied on their primary care physicians for the management of their heart disease, would more regularly follow up with a cardiologist. Patients' who had previously seen their primary care provider for diabetes were starting to follow up with their endocrinologist. This surge in medical specialists lead to the development of a greater number of hospitals, particularly larger academic medical facilities. These type of facilities had the capability of allowing multiple medical specialties to congregate in single location, allowing patients access and input from a variety of medical specialties that had training in more narrowed areas of practice.

While this may sound like a good idea, hospitals simply were not ready for the surge of patients that would accompany this. The development of hospitals and singular locations of health care had the effect of attracting thousands of patients swarming the hospital on a daily basis, with insufficient ways to filter those patients to the appropriate care providers. Many patients were left waiting hours, sometimes days, to seek care from qualified heath care providers, even if their injuries or illnesses were life threatening. After all, the ambiguity of some patients' chief complaints can lead physicians down narrowed paths when thinking in the context of a specific specialty. So, it was extremely important that these specialists approached patients presenting to the hospital with more broadly based medical decision making.

In the 1950s, these hospitals quickly developed a variation of what is now known to be the first "emergency rooms." These rooms were not like the "emergency rooms" we have today. In fact, these rooms were often referred to as "the pit," and that's exactly what they were. These early emergency rooms were located in the basement of the hospital, often where there were exposed pipes, dripping water, and storage of materials that were not needed in the main part of the hospital. These "pits" were commonly located directly adjacent to the hospitals loading dock, where a small sign on the door would read something along the lines of "If emergency, please ring bell." The ring of this bell would notify the hospital nurses to grab a physician and tend to the patient.

One might intuitively come to the realization that not all hospitals were equipped to take care of severely injured or critically ill patients. Physicians realized this, and would often turn away critically ill patients so that they could be transferred to "more qualified hospitals." The problem was, seldom were more qualified hospitals readily available. In fact, in most cities

in America, properly equipped medical facilities that could handle critically ill patients were either too far away or didn't exist at all. This left some patients abandoned in the hands of either their loved ones, or in the hands of pre-hospital providers that at that time had little-to-no medical training.

In the early days, the physicians who would staff "the pit" were not licensed physicians, however. These physicians had graduated medical school, but were in their first year of their professional training; they were interns. Remember, at this time there was no such thing as a specialty in emergency medicine. So, these interns were young doctors planning to have careers in a variety of medical specialties (i.e. dermatology, family medicine, surgery, etc.). The thought process behind this model of care was that "the pit" was the absolute best place for these young doctors to train. "The pit" presented interns with the most critically ill patients, leaving them to rely solely on their medical school training to care for very sick or dying patients. In short, this model permitted the least experienced physicians to care for patients in the most dangerous situations. These young doctors were ill prepared, incompetent, and scared. However, specialists would not agree to come to the emergency room to see patients. As one can imagine, this quickly presented a dramatic ethical dilemma, which took years to identify and solve.

The 1960s were a turning point for the trajectory of emergency medicine. By this time, the community had started to recognize the ethical issue of having intern physicians staff the so-called "pit" that was the emergency room. Years of critically ill patients suffering in the hands of inexperienced clinicians who did not have the necessary tools to care for patients with life threatening illnesses was about to change. In response to this issue, Pontiac General

Hospital in Michigan created a system that revolutionized the emergency room in 1961. They developed a system in which twenty-three physicians who worked in the community in different specialties would work part-time to staff their emergency room twenty-four hours a day, 365 days a year. This would ensure that only licensed physicians, who at least had years of experience treating patients would treat the critically ill people who would present to the emergency room. They experienced significantly improved outcomes compared to their previous years, enticing many other hospitals to do the same. This innovative practice became known as the "Pontiac Model" of emergency medicine. Shortly after the success of the Pontiac Model, many physicians at outside hospital did the same, all maintaining their careers as physicians in various other medical specialties, but rotating shifts in the emergency room to care for patients with acute complaints. Their success is reflected upon as being an innovative turning point in the field of emergency medicine, and helped shape the models of care that we see today.

However, the Pontiac Model from Michigan did not come without its faults. This model of care permitted physicians of any background or specialty to care for critically ill patients. Therefore, one's emergency room experience was almost entirely dependent on the specialty of the physician who happened to be on call that day. Nevertheless, the kinds of patients that presented to the emergency room would continue to be the same. Dermatologists would care for people presenting to the hospital with appendicitis. Surgeons would care for pregnant patients presenting to the hospital for vaginal bleeding. It didn't matter the chief complaint, the physician on call would care for any and all patients who presented to the hospital at any time of day. This was the start of a new era of emergency medicine.

Despite the incredible improvements made to a system that had once been manned only by intern physicians, there was still the issue of inexperience in the field of emergency medicine with the Pontiac model. While emergency departments had now been manned with licensed attending physicians, there was still the issue that these physicians could practice in any specialty. Psychiatrists simply did not have any training in airway management, splinting fractures, or managing patients with cardiac arrest. Likewise, surgeons did not have the training necessary to manage patients with acute psychosis. However, later in 1961, another major advancement was made in the field of emergency medicine. Dr. James Mills, a general practitioner from Virginia aimed to solve this issue by developing a new model of emergency medicine.

As mentioned previously, Dr. James Mills was a general practitioner. He, like many other family physicians, had taken call in the emergency department once a month in order to provide patients with acute disease the opportunity to seek immediate medical care. He immediately fell in love with the environment of the ER. While most physicians found their emergency room duties to be inconvenient, or a necessary evil, he looked forward to it. According to his anecdotes in an article on the history of emergency medicine published by the American College of Emergency Physicians, he sought out shifts in the emergency department. He particularly found the intensity and fast-paced nature of the emergency room to be appealing. In this specialty, physicians can treat fractures, manage a critical patient's airway, and help a patient with uncontrolled diabetes all in the same day. He found the variety and high level of acuity in this area of the hospital to be particularly intriguing and wanted to find a way to do it all the time.

In 1961, Dr. James Mills recruited three other physicians who shared his interest in managing patients in the emergency room to become full time emergency room doctors. Together, these three physicians would rotate shifts everyday, staffing the emergency department entirely by themselves 24 hours a day, 365 days a year. At the time, this was no easy fate. Nobody have ever tried to make a living solely seeing patients in the emergency department. Particularly because all three of these physicians would have to leave their already established practices in order to make this happen. This meant that they each had to transfer the care of their hundreds of patients to other health care providers, losing all of the business they had building in their practices for years. They did all of this without the guarantee that they would be able to sustain a career in this field of medicine.

Like the Pontiac Model earlier that year, this model of emergency was a huge success. Specialists at this Virginia hospital were happy not to have to take call in the emergency room, and Dr. James Mills and his colleagues felt that they were making significant strides in their ability to manage sick patients in this unique room in the hospital. Their success attracted many imitators, changing the way emergency rooms were staffed in many hospitals throughout the country. In addition, Dr. Mills and his colleagues proved that one could sustain a career with a meaningful salary working solely in an emergency room. However, because of limitations in the number of people who were willing to take this risk, as well as limitations in the number of people who had the desire to work solely in the emergency room, many departments continued to utilize the Pontiac model where physicians of varying specialties would staff the emergency room.

One person who adopted this model of emergency care at his hospital was Dr. John Weigenstein. Like Dr. James Mills, his experience staffing in the emergency department while a general practitioner in Lansing, Michigan sparked an interest in pursuing a career in this nascent specialty of medicine. However, emergency medicine at this time really wasn't a specialty of medicine. It had no organization and no recognition by the American Board of Medical Specialties. Dr. John Weigenstein recognized this, and knew that if they had any hope of making emergency medicine a real specialty they would need to first have an organization.

In 1968, Dr. John Weigenstein, with the help of Dr. James Mills and six other physicians practicing in emergency rooms in Michigan, developed the American College of Emergency Physicians. They had only eight people, and needed to recruit many physicians to join if they were to have any chance at turning this into a legitimate specialty. In order to achieve this, they held a small conference for approximately 50 physicians from across the country that shared their interest in practicing in the emergency department. With little perceived interest but extreme enthusiasm from those involved, the venue was small, and was scheduled only days before the event. Within hours of printing pamphlets displaying emblems with the name "American College of Emergency Physicians," they were presenting at a conference that they had no idea would jumpstart them into developing an entirely new world of medicine. They had no real accreditation or support from the medical community, but every person who attended the conference in 1969 joined the American College of Emergency Physicians. Of course, they had a long way to go before practicing in an emergency room could become a legitimate medical specialty. In order to ensure a future for this specialty, they would eventually need to start developing residency programs and recruiting resident physicians.

Prior to all of these events in 1969, there was a young two-year-old boy who presented to a local emergency department in Michigan in 1965. This young boy was brought to the emergency room by his mother. He was not breathing, he had turned blue, and was actively dying. His mother believed he had eaten something that he was allergic to and was experiencing an anaphylactic reaction. Dr. John Weigenstein was running the emergency room that night. Even with many years of emergency room experience, Dr. John Weigenstein could not control the boy's airway using medications or the usual endotracheal intubation techniques. He was running out of options and was running out of time. He had never performed an emergency tracheotomy, but had no choice but to attempt one on this young boy. The tracheotomy was successful and the boy lived. That little boy's name was Robert Prodinger, and he became one of the first emergency medicine residents in Lansing, Virginia in the 1970s.

Getting to this point was a long and difficult path. Many physicians in the medical establishment were very skeptical of the idea of an emergency medicine specialty. Many believed that emergency medicine was not and could not ever be a medical specialty. Dr. Kenneth Mattox, a general surgeon, was one of the largest opponents against the development of an emergency medicine specialty. While most of those in favor of an emergency medicine specialty believe this to be a matter of turf, competition, and money, Dr. Mattox was frustrated with the idea that a medical organization that had produced no substantial research or educational policies could potentially create its own medical specialty. His point was not without merit, and early emergency medicine leaders realized they would need to prove themselves if they wanted to succeed in their efforts.

Early emergency room doctors were often ridiculed for their decision to practice emergency medicine, and were frequently told that they were throwing away their careers by leaving their specialties to practice in the emergency room. Their thought was that nobody with any real medical talent would risk their years of medical training to practice a specialty that didn't really exist yet. Because of this, the specialty tended to attract particular types of people. Many were outcasts, hippies, or were considered to have unusual personalities. Throughout the 1960s and 1970s, emergency physicians and other physicians would find themselves getting in arguments. There was a particular conflict that existed between surgeons and emergency room doctors. There had even been reports of fist fights breaking out between surgeons and ER doctors throughout the country.

Nevertheless, emergency medicine in the 1960s and 1970s became an increasingly popular specialty. This period of time in American history was filled with conflict. Black and white segregation was coming to an end, and protests and chaos filled the streets, particularly in the inner-cities, where the country's first emergency room physicians were practicing every day. With this chaos, came injuries and trauma. The emergency room is where everything happened, and the action was all played out on national television. Despite this, pre-hospital care providers were nothing like they are today. Most cities actually used mortician services to transport patients to the hospital.

The 1970s also introduced conflict in Vietnam, where one of the earliest sophisticated emergency medical service programs was developed. Soldiers in previous wars had acted as "medics," however their role was really more to provide pain control and to evacuate the wounded, tending to their care as best as they could. However, these "medics" really did not

have any formal medical education. However, in the Vietnam war, medics had more sophisticated training and were equipped with EMS bags that provided them with the tools they needed to provide lifesaving care in the field. This was the first time in military history where there were dedicated medical officers who were trained in both combat and resuscitation. In addition, the use of helicopters in the Vietnam war introduced one of the first uses of medical air evacuation. This enabled critically wounded soldiers to be transported to doctors who were prepared to deal with their patients' injuries, after they had already begun to receive care in the field.

At this time, emergency medical services did not exist in the United States. Most "ambulances" within the united states were hearses, trucks, or regular vehicles. Also, the people operating these vehicles had no medical training whatsoever. A person who had been fired as a gas station attendant the day before could have been hired by one of these ambulance companies. Once the Vietnam veterans started coming home, they quickly realized that the system they had set into place overseas was far superior to that which they had back home. In fact, most of these soldiers would argue that one had a better chance of surviving a gun shot wound to the abdomen in Vietnam than a gunshot wound that was sustained while in the United States.

The issue with pre-hospital care was so profound that most ambulance companies were ran by local morticians and funeral homes. For this reason, when emergency medical personal would arrive at the scene of a bad vehicle accident, where there would be dead and dying on the streets at the scene, these people would often fight over who got to transport the dead victims, because they brought revenue to the funeral homes. At this point in time, pre-hospital

services were almost entirely a transportation service and really had no emphasis on the treatment of critically ill patients. There was a clear disconnect between the advances that had been made in emergency medicine in the hospital and that which takes place on the streets prior to patients' arrival.

It wasn't long before the Vietnam soldiers realized the civil applicability of their combat experience. Their preparedness in the fields of Vietnam were far superior to the preparedness of pre-hospital care providers in the United States. They realized that, in the field, one did not have to be a physician to make a difference. One simply needed to know basic knowledge to know what to do in these situations. More importantly, one needed to know how to do it fast. Therefore, a man named Dr. Eugene Nagel took action by introducing this concept to a local fire department in Miami, Florida in the 1960s. His idea was that they needed to help pre-hospital care providers to take what they were doing inside the hospital, and to start doing it outside the hospital. In addition to providing basic medical training, Dr. Nagel's initial approach to achieving this goal was equipping a Miami rescue vehicle with a radio in 1967. This would allow physicians to speak directly with rescuers while in the field, ensuring that patients would be able to get immediate treatment for life-threatening illnesses in the field. This revolutionized pre-hospital care.

Like any profession, they needed a name for these newly trained emergency medical personnel. The term "Medic" had traditionally been used in reference to physicians during World War II, so people thought it would cause confusion to call these pre-hospital care providers by this name. However, the air-force's "paratroopers" were notorious for their combat rescue medicine throughout the Vietnam war, and they fulfilled a similar role to that

which these new emergency providers did in the streets of the United States. Therefore, they came to be known as "Paramedics." The name has stuck with them ever since.

This new job was idealistic and romantic in every possible way. Regular, working class Americans with only basic knowledge of medicine who would drop everything to rush to a person's location to save their life. The media ate this up. After the advent of these professionals in Miami, Florida in 1967, the media would post pictures of these pre-hospital care providers in the paper every week. However, the rest of the medical community were less convinced. Fireman in the 1960s were not trained the way they are today. They were untrained and often had no background in medicine at all. Many in the medical community were outraged that these individuals would now be able to deliver medicines and perform procedures in the field under radio-supervision of a physician. Nevertheless, no better system was currently in place, and Dr. Nagel's success in Miami was the foundation that led to the elaborite EMS system we see today.

Because of the incredible skepticism of pre-hospital care by medical professionals, congress had introduced two separate national Emergency Medical Services bills. Both of these bills failed. However, in 1973, congress voted a 3rd time on a national EMS bill. At this time, Illinois had a statewide EMS system. Dr. David Boyd, the chief health officer of this program was called to testify. After his testimony about the success of their program in Illinois, he was asked to stay in Washington, D.C. to re-write the Emergency Medical Services Health System's act of 1973. This would be the start of a transition from un-regulated pre-hospital transportation systems, to an organized program with trained professionals caring for patients prior to their

arrival to the hospital. The bill was passed and gave EMS providers the federal boost that was needed to establish organized systems of trained professionals throughout the country.

The boost in emergency medical services only fed the media's infatuation with these new professionals. This soon led to the development of the hit TV series, "EMERGENCY!". This television show focused on a team of paramedics, and recruited many new young people to the profession. In addition, it increased interest in Emergency Medicine as a medical specialty for new residents. Even though today there are over 200 emergency medicine residencies, in 1970, there were zero.

As mentioned previously, in 1970, medical students still staffed the emergency department. They were usually paid $45 a night, so it was a good opportunity for them to pay for their schooling. Bruce Janiak, a medical student at the University of Cincinnati, worked his first shift staffing the ER in 1969. In previous statements, he has said that his first patient he ever saw in the emergency department was in cardiac arrest, and he had no idea what to do. He has said that he was so distraught with himself that he thought about dropping out of medical school. That, or he would learn more about how to handle emergency situations. After picking up as many ER shifts as possible, he was asked to stay at the University of Cincinnati to become a rotating intern in the first emergency medicine residency. At this time, emergency medicine was not accredited, and not officially a specialty. However, he grew to love the emergency department so much, that he decided to take the risk. He became the first emergency medicine resident in 1970.

Throughout the 1970s, emergency medicine continued to grow as a specialty and interest in residency continued to blossom as more programs opened. However, eventually, if

they wanted emergency medicine to be a legitimate specialty, these residencies would have to be accredited. In 1977, the American Board of Medical Specialties voted on whether or not to approve the new specialty. Out of 105 votes, they received only five in favor of approving the new specialty. Many believed these new doctors to be apart of a "fake specialty;" one that had not produced any legitimate research or worth to the medical community, despite the progress that had been seen anecdotally at individual institutions. Leaders in the field, like Dr. John Weigenstein, Dr. Ron Chrome, and Dr. Judy Tintinalli knew that they would need to work effortlessly producing research and evidence of their worth in order to prove their legitimacy. After all, this new specialty would call for physicians' to master the knowledge of half a dozen different specialties, in addition to learning how to do procedures most other specialists couldn't do.

After two years of a surge in research and data produced by the American College of Emergency Physicians, a second vote was proposed to the American Board of Medical Specialties. This time, the outcome was overwhelmingly in favor of approving the new medical specialty. This meant that emergency medicine specialists would be approved a seat at the table of medical specialties, and would be included in health policy issues that would affect the entire nation.

Years of emergency medicine practice and thousands of new emergency room physicians produced a whole new era of controversies and health care issues. Emergency room doctors developed a reputation for treating "the forgotten." The emergency room became the sole source of care for many of the country's poor and uninsured. In the past, patients at privately funded emergency rooms would be transferred to public or county hospitals for

treatment if they could not pay for their care. This lead to many individuals being turned away from the hospital, even in critical condition. It was not uncommon for county facilities to receive critically ill patients from outside hospitals without first being stabilized. In an interview with emergency room doctor, Arthur Kellerman, he describes his time working in a county ER as troublesome. The issue of critically ill patients being transferred from capable hospitals became so prominent that he instructed his staff to collect the wrist bands of actively dying patients who had been transferred to his facility in unstable conditions. He referred to this egregious act as "dumping."

In 1986, he testified before congress about this issue. He stood before congress with a bucket of wrist bands, which he emptied on the table in front of him. He said "this is just 90 days of dumping at one hospital." His powerful testimony became the start of the Emergency Medical Treatment and Active Labor Act (EMTALA) of 1986. This bill would require all physicians to provide acute medical care despite one's socioeconomic status and would prohibit patient dumping. Under this new law, nobody could refuse to provide treatment because of pay. This helped make emergency medicine the safety net for all of medicine. Anyone can present to the emergency department for anything, at any time.

Emergency Medicine has come a long way throughout this journey. The emergency room is no longer "the pit" in the basement of the hospital. In fact, it is now usually the front door. It is the main point of entry at nearly every hospital in the nation. 130 million people get their care in the emergency department every year. It wasn't that long ago that there were no emergency physicians, and now there are thousands of them. Emergency medicine may be a

relatively new specialty, but it is now arguably one of the most important departments in every major hospital.