Dealing with the Dead and Wounded: Field Medicine and the American Civil War

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The spring of 1861 in the United States saw the culmination of many legal, geographical, and social issues erupt into a massive civil war that separated the United States into the Union and Confederacy. Over the course of the next five years, Americans would attempt to solve many of these issues on the battlefield. This conflict would become the bloodiest war in United States history and remains so to this day. The war would ultimately see the death of over 600 000 soldiers, fundamentally changing the structure of American society. The enumeration of the dead was seen as important in understanding the unanticipated scale and destructiveness of the war.¹ However, not all of these deaths were the direct result of combat itself. Over two-thirds of these deaths were the result of disease for a multitude of reasons, including the lack of medicine and the use of archaic medical procedures. There was a general understanding, especially in the Union, that medicine was in need of a desperate change to keep up with ever-advancing military technology. The Civil War provided this opportunity and led to one of the greatest transformations in American medical history, which saw the complete overhaul of American field medicine and brought changes to civilian medicine. Ultimately, the destruction of the American Civil War forced a fundamental shift in medical care to deal with the degeneration and stagnation of medical infrastructure, medical competency, and its ability to efficiently operate in war in relation to the increasing deadliness of war itself.

One of the most important aspects in changing the operation of American field medicine and the understanding of disease was to develop an infrastructure that could support and withstand the massive changes implemented to medicine. In changing the operations of field medicine during the course of the Civil War, the Union Army was challenged by its understandings of various diseases, treatments, and other war-related medical problems. This resulted in the creation of the Army Medical Museum and the development of *Circular No. 2* by the federal government in 1862 in order to assemble an early framework for disease and its treatment during the Civil War. Under the direction of William A. Hammond, Surgeon General of the United States, the Army Medical Museum was to “serve as an educational endeavor to improve medical and surgical care.”² In order to create this museum, Hammond issued *Circular No. 2* which stated that: “[m]edical officers are directed diligently to collect, and to forward to

the office of the Surgeon General, all specimens of morbid anatomy, surgical or medical, which may be regarded as valuable; together with projectiles and foreign bodies removed, and such other matters as may prove of interest in the study of military medicine or surgery.”³ This document was the first step in establishing the framework for research required to gain a better understanding of the human body and disease in war. Medical specimens were sent to a central location in Washington where they were studied to improve the efficiency of American medicine both during and after the Civil War. These specimens included the right leg of Major General Daniel Sickles and the skull of a soldier killed by a canister shot at Fort Wagner. These specimens would be used to study the effects of a cannon ball on both muscle and bone. As a result, the participation in and the experience of the Civil War presented the American medical community the opportunity to establish a strong foundation for the development of an infrastructure and framework for medical research.

At the time of the publication of *Circular No. 2*, the Medical Department actually needed bodies to develop scientific medicine, which had become a primary objective.⁴ *Circular No. 2* served to solve this problem that the Union Army faced during the war. A central medical infrastructure had been created for the first time, much different from the previous, antebellum Medical Bureau, which was seen to be “little, rickety, [and] antiquated.”⁵ This fundamental change in the infrastructure of American medicine allowed for proper medical treatment and study to be achieved over the course of the Civil War and fundamentally change how disease and the body was examined as a whole. With the appointment of William Hammond as Surgeon General, and his creation of the Army Medical Museum, the combat capabilities of the Union Army had greatly increased. In comparison, the Confederacy did not have anything comparable to Union medical infrastructure throughout the war.⁶

In developing the proper framework for research and practice, it was important that the appropriate people were in the appropriate positions and had the right responsibilities. The introduction of the Wilson Bill (1862) sought to increase the efficiency of the Medical Department and was one of the ways the government worked to establish a proper medical framework. This led to the search for the “best men” to assume its leadership.⁷ This meant that the old and established physicians of the medical hierarchy could no longer assume they would automatically be appointed the next surgeon general upon the retirement of their senior, as if it were a hereditary monarchy. The best men were those who had the most experience, implicitly

defining military medicine as a specialty on the basis of administrative expertise.⁸ Professional standards had thus been established and would guide the further development of American medicine.

At the same time as the development of the Medical Department and the Army Medical Museum, the United States Sanitary Commission (USSC) played a leading role in the development of health care for troops as disease was a large issue in many of the camps. A major issue during the Civil War was that few men knew why wounds became infected or what caused disease.⁹ At the outbreak of the Civil War, doctors had discovered some correlation between cleanliness of camp and sickness, but the idea of sanitation was very rudimentary.¹⁰ It was thus understood that something needed to be done in order to combat the rampant spread of disease in camp that was, at times, more deadly than the war itself. Sanitation and public hygiene was finally added to combat the problems that disease created in the Civil War and helped to establish future ways to research and understand disease. For example:

The Army of the Potomac mandated that camps had to be pitched on new ground and drained by ditches 18 inches deep; tents had to be struck twice a week to sun their floors, cooking had to be done only by company cooks, all refuse had to be burned or buried daily, soldiers had to bathe twice a week and change clothing at least once a week, and latrines had to be 8 feet deep and covered by 6 inches of dirt daily.¹¹

These simple, yet very important tasks were aimed not only at combating disease, but also at preventing it. It was finally beginning to be understood that disease was just as deadly as the war itself. These changes were only made possible by the strict military discipline employed by the Medical Department, which allowed them to transcend many of the civilian limitations of medical work.¹² Controlling camp cleanliness was ultimately an important early step and a significant factor in the development of a strong framework for the institutionalization of medicine that further allowed American medicine to undergo a fundamental shift. Ultimately the institutions developed out of the experiences of the Civil War and the experiences of doctors themselves in the war would fundamentally change the established medical research field in America, and work to create more modern medical institutions.

In the process of developing a framework for medical research during the Civil War, the foundations had been laid for standardization of medicine to occur at the end of the war. The lack of medical infrastructure was one of the largest problems both armies faced in attempting to

standardize the medical field. This lack of infrastructure was indicative of the underdeveloped field of military medicine in the nineteenth-century. This problem was highly noted in the Union Army, especially by Dr. Maj. Jonathan Letterman, Medical Director of the Army of the Potomac, who wrote that during the Battle of Gettysburg the lack of proper support from military command effectively deprived the medical department of “appliances necessary for the proper care of the wounded, without which it is as impossible to have them properly attended to as it is to fight a battle without ammunition.”¹³ Letterman’s notion of the lack of medical infrastructure can also be noted in other battles of the Civil War, including Second Bull Run where three thousand men were left on the field several days after the battle because of the lack of ambulances.¹⁴ However, the Union Army was not alone in this problem, the Confederate Army experienced similar problems.

The lack of infrastructure posed an even larger problem for the Confederacy because the problem was manifested in the overall lack of medical personnel. Not only was the lack of medical personnel a problem, but the lack of physician experience was also a huge problem. In the Confederate Army, only 27/3000 (0.009%) surgeons actually had field experience.¹⁵ As a result of this, physicians, especially surgeons, were required to find their medical necessities on their own. Confederate Surgeon, Dr. Hunter McGuire, was responsible for development of camp sanitation policies, the requisition of medicine, instruments, and supplies; and during the course of the war, transportation of medical equipment, selection of field hospital sites, and evacuation systems.¹⁶ The experiences of McGuire exemplifies the challenges faced by the Confederate medical staff during the Civil War, highlighting the poor Confederate operations and the impact that having fully trained and highly experienced medical men on the field might have had on the performance of medical procedures.

As a result of the many issues discovered by medical personnel during the early years of the war, and in order to develop some semblance of standardization in military medicine, there was a realization that uniform standards were required. This led to the implementation of mandatory multipart medical entrance exams for surgeons, consisting of a written exam, two oral exams, a clinical medical, a surgical examination at a hospital, an examination on a cadaver, the performance of surgical operations, and an essay, in order to join the war effort.¹⁷ However, the idea of standardization of medicine in the war through the use of examinations was something completely foreign to surgeons and even had to be explained to those who would be

administering the exams.¹⁸ Pamphlets were published that helped potential surgeon by providing guidelines to the physical examination of patients. Henry M. Farr, a Civil War surgeon from Iowa received a copy of the twenty year old guidelines, which had not changed much stating that “they [Surgeons and Assistant Surgeons] will be particularly attentive in the examination of recruits, and will cause each recruit to be stripped of all his clothes... in order to ascertain which may render him unfit for the active duties of a soldier, or be the means of introducing disease into the army.”¹⁹ The medical guidelines for Union physicians established in 1861 were quite similar and stated that:

In passing a recruit the medical officer is to examine him stripped; to see that he has free use of all his limbs; that his chest is ample; that his hearing, vision, and speech are perfect; that he has no tumors, or ulcerated or extensively cicatrized legs; no rupture or chronic cutaneous affection; that he has not received any contusion, or wound of the head, that may impair his faculties; that he is not a drunkard; is not subject to convulsions; and has no infectious disorder, nor any other that may unfit him for military service.²⁰

With the implementation of these modified guidelines, it was quite clear that standardization was a big focus of the Medical Department. To solve the issues of standardization, the Medical Department resorted to the implementation of mandatory entrance exams in the hopes of ensuring that the “best men” were chosen for surgeon positions and had the appropriate medical knowledge to perform on the battlefield. As a result, most of the surgeons who became members of the medical department were usually from small communities because of the hands-on experience they would gain across a variety of specialties in medicine. These men were those who had the most experience in a particular field; making specialization a more visible medical and social category.²¹ The aim was to eliminate the incompetent surgeons within the current Medical Department, and standardization would allow for surgeons across the Union to be posted anywhere with the knowledge, in theory, that a wound would be treated the same in each hospital established by the Union Army.

With the introduction of standard medical methods during the American Civil War, the expediency and efficiency of medical care rose during the war. This increased the relatively low success rates that surgeons faced during the war. One of the largest and most complex innovations was the creation of a series of hospitals. These hospitals were part of an echeloned

system that saw the provision of a centralized location for medical care.²² Field hospitals would first be constructed and were highly mobile. Hospitals in major cities were also constructed in order to deal with more complex cases, especially those that required surgery. In order to get these soldiers from the field hospitals to permanent hospitals in the city, ambulances were needed to allow for rapid and efficient transportation of wounded soldiers. Introduced by Dr. Maj Jonathan Letterman, ambulances moved with each individual corps using medical wagons allowing for easy access of medication and transportation. The effectiveness of this new system is noted in Letterman's "Gettysburg Report" where he quotes Surgeon John McNulty, commenting on the use of ambulances, "'it is with extreme satisfaction that I can assure you that it enable me to remove the wounded from the field, shelter, feed them, and dress their wounds within six hours after battle ended, and to have every capital operation performed within twenty-four hours after the injury was received.'"²³ In previous situations where ambulances had not been used, or there was an insufficient number, soldiers were often left on the battlefield for days. Medicine moved to a stage where a sense of urgency was required, but was organized in a way for the chaos of urgency to be removed by efficient medical work, allowing for other advances in the treatment of soldiers that would not be possible if they did not make it off the battlefield.

Standardization did not only apply to medical practice itself, but also to what surgeons and physicians used in practice to treat illness and disease. This included the medications used in the war and the manufacture of the drugs themselves.²⁴ The standardization of medication also led to the standardization of medical kits and supply wagons.²⁵ This standardization was one of the greatest fundamental changes of American medicine during the Civil War because it allowed for uniformity to be established within the medical community across the entire North United States and wherever the Union Army was fighting. Ultimately, the lack of infrastructure was one of the great inhibitors to the development of standard medical models during the war. It was not until after the war that standardization actually gained a foothold in medicine, however, it was still fundamental in changing medical care during the war.

Specialization was one of the greatest achievements in the Civil War because of the mass amounts of knowledge that it allowed physicians to produce in the process of their work. Much of the specialization undertaken during the war was out of a genuine interest in certain areas of the body. It is these studied diseases and other conditions of the Civil War that helped to

crystallize the debates about the cause of various diseases.²⁶ Specialization was a way for physicians to develop these better understandings and provided a promise of innovation through medical research.²⁷ Specialization thus expanded to enhance the development of a research and theory framework established during the Civil War. In treating patients, specialized hospitals were constructed that encouraged increased ventilation and separation of patients according to disease or infection.²⁸ Other hospitals were also built that focused on treating specific diseases of infection or focused on specific injuries that soldiers sustained in battle. Turner's Lane Hospital in Philadelphia, one such specialized hospital, was the first hospital established in the Civil War designed to specifically study neurological injuries. Many of the discoveries made at this hospital had profound impacts on American medicine that are still seen to this day. Physicians S. Weir Mitchell, W. W. Keen, and George Morehouse led medicine in neurological specialization and were the first to observe the phenomenon known as "phantom limb," the experience of any sensations that could be felt in the portion of the amputated limb that could be experienced before amputation.²⁹ W.W. Keen's *Gunshot Wounds and Other Injuries of the Nerves* would become the foundation for modern neurosurgery.³⁰ This was the beginning of clinical specialization in American medicine that would also play a large role in the study of the human body. In conjunction with the establishment of written records, hospitals were also established that focused on the specialized study of "injuries of the eye, the nerves, 'soldier's heart,' and other alike... This facilitated the rise of clinical specialism... as a scientific form of practice and research."³¹ The Army Medical Museum played a fundamental role in the facilitation of the diffusion of medical knowledge because it required medical officers to collect and forward specimens for further study, which would ultimately allow for the development and proliferation of standardized techniques and practices.

However, as mentioned previously, specialization did not become the centrepiece of the medical community during the war itself. It took advances such as germ theory posed by Louis Pasteur and the further development of bacteriology by Robert Koch for surgery and medicine to drastically change. While not contributing to massive medical discoveries during the war, specialization allowed for the creation of the *Medical and Surgical History of the War of the Rebellion (1870-1888)*, which was the official medical history of the war. This text was extremely important to the development of medicine all over the world as it became the definitive repository of military medical knowledge and was widely acknowledged by European

medical authorities at the end of the nineteenth-century.³² The Civil War had shown what American medicine was capable of doing when faced with such a challenge. It was able to adapt to the changing nature of warfare and alter the structure of medicine in order to best suit the needs of the soldiers that it served. Specialization served as one of the avenues that allowed American medicine to flourish during the Civil War.

The death of Confederate Lieutenant General Thomas “Stonewall” Jackson provides an excellent case study into the expediency and efficiency of medical care in the Civil War. Jackson was one of the greatest generals in the Civil War, and was considered to be the right-hand of General Robert E. Lee. On the night of 2 May 1863, Jackson was accidentally shot by soldiers of his own corps after a small engagement with Union troops when his party was mistaken for the enemy as he returned to the front line. Jackson had his left arm amputated two inches below the shoulder by Dr. McGuire, Medical Director of the Confederate Army, who was assisted by three other surgeons.³³ Had this operation been for a regular soldier, McGuire or a subordinate surgeon would perform the surgery alone. However, this surgery highlights the importance placed on senior military commanders and their health as well as the general complexity and danger of field medicine. Prior to being transported to a field hospital, Jackson was tended to in the complete darkness and under heavy fire.³⁴ This begs the question of whether or not the exemplary care received by Jackson was simply a result of his rank and importance in the Confederate Army, and if this were any other soldier, would the attending surgeon have just bandaged the injured soldier and hoped for the best. Ultimately, the care extended to Gen. Jackson exceeds what would be expected of any medical man during the Civil War and is an example of the prejudiced care that Civil War surgeons would perform on senior officers.

While soldiers were removed from the threat of combat by being placed in hospitals, there were still many medical problems that soldiers faced. The deadliest problem soldiers experienced was infection and disease while recuperating in hospitals. Disease, referred to as the “Third Army” by Jeffrey Sartin was one of the biggest problems in the hospital and was the reason why amputations were performed to prevent disease rather than infection.³⁵ Three out of every four surgical procedures performed during the war were amputations.³⁶ Even with the massive number of surgeries to prevent disease, soldiers still faced a 40% fatality rate from infection while in the hospital.³⁷ Gangrene and erysipelas posed two of the greatest threats of disease to soldiers during the Civil War. In efforts to combat the deadliness of the infection and

disease, doctors began to search for methods to reduce its effects on the soldiers. This resulted in the use of the clinical trial within the context of the American Medical Museum and allowed for potential treatments to be developed. Managing these two diseases was a large challenge and ultimately contributed to the physician's role as producer of medical knowledge.³⁸ Disease posed a large challenge to Civil War physicians because of its destructive and deadly nature, but determining how to actually fight it posed just as big a problem.

The lack of disinfectant posed another problem for disease transmission. Surgery during the Civil War was considered to be an assembly-line procedure with surgeons using the same bloody instrument surgery after surgery. Sponges used to soak up blood were even used on other patients after only being soaked or compressed in water.³⁹ It was within the framework of research established by the American Medical Museum and other research methods that Joseph Lister was able to develop an anti-septic technique that would forever change the military medical field. Lister had learned to prevent surgical infection by killing living airborne germs before reaching the open wound, effectively transforming wound care.⁴⁰ This small triumph over disease was an important step in the understanding of disease. While actually slowing down the treatment of soldiers, this small but important step would have a massive impact on the development of the field of surgery and American medicine both during and after the war, contributing to its increased success.

Overall, the American Civil War provided the opportunity for the necessary and crucial expansion of American medicine. Newly developed institutions and legislation, including the American Medical Museum and *Circular No. 2* provided the basic infrastructure required for the implementation of these new policies and practices in medicine. These changes also showed the power and interest of the American government in changing its medical community and paying a debt to soldiers for performing a duty to the nation. These changes also resulted in an unprecedented focus on disease and patients, growing into objective medical study.⁴¹ American medicine was now on a new, rapidly advancing path due to the destruction caused by the Civil War. The Civil War made known the importance of hands on experience and training in medicine; best shown by the government's new policy of the "best man" to lead the Medical Department. Standardization of medicine also played a large role by simplifying the established medical model, allowing any surgeon with experience to perform at any hospital in the country. However, while expediency certainly improved over the course of the war, it remained an issue.

American soldiers had performed their duty to the nation, and the Civil War itself did the same by revolutionizing the field of medicine.

NOTES

- ¹ Drew Gilpin Faust, “‘Numbers on Top of Numbers’: Counting the Civil War Dead,” *The Journal of Military History* 70, no. 4 (October 2006): 995.
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- ³ William A. Hammond, “Circular No. 2” (United States Army Medical Department, May 21, 1862).
- ⁴ Shauna Devine, *Learning From the Wounded: The Civil War and the Rise of American Medical Science* (Chapel Hill: University of North Carolina Press, 2014), 198.
- ⁵ Freeman, “Lincoln Finds a Surgeon General.”
- ⁶ Devine, *Learning From the Wounded*, 267.
- ⁷ Bonnie Ellen Blustein, “‘To Increase the Efficiency of the Medical Department’: A New Approach to U.S. Civil War Medicine,” *Civil War History* 33, no. 1 (March 1987): 23.
- ⁸ *Ibid.*, 32.
- ⁹ Bruce Catton, *The Civil War* (New York: First Mariner Books, 2004), 154.
- ¹⁰ *Ibid.*
- ¹¹ Robert F. Reilly M.D., “Medical and Surgical Care during the American Civil War, 1861-1865,” *Baylor University Medical Proceedings* 29, no. 2 (2016): 141.
- ¹² Blustein, “‘To Increase the Efficiency of the Medical Department,’” 24.
- ¹³ Jonathan Letterman, “*Dr. Letterman’s Gettysburg Report*,” Report, (October 3, 1863).
- ¹⁴ Richard H. Shryock, “A Medical Perspective on the Civil War,” *American Quarterly* 14, no. 2, Pt. 1 (Summer 1962): 162.
- ¹⁵ Wayne E. Richenbacher, “The Demise of Stonewall Jackson: A Civil War Medical Case Study,” *The Journal of Military History* 79 (July 2015): 639.
- ¹⁶ *Ibid.*
- ¹⁷ Devine, *Learning From the Wounded*, 17.
- ¹⁸ Blustein, “‘To Increase the Efficiency of the Medical Department,’” 36.
- ¹⁹ Philip D. Jordan, “The Career of Henry M. Farr, Civil War Surgeon,” *The Annals of Iowa* 44, no. 3 (1978): 195.
- ²⁰ United States War Dept., “*Revised United States Army Regulations of 1861, with an Appendix Containing the Changed and Laws Affecting Army Regulations and Articles of War to June 25, 1863*,” June 25, 1863, <http://quod.lib.umich.edu/m/moa/agy4285.0001.001/313?page=root;size=100;view=image>.
- ²¹ Devine, *Learning From the Wounded*, 150.
- ²² Dale C. Smith, “Military Medical History: The American Civil War,” *OAH Magazine of History* 19, no. 5, Medicine and History (September 2005): 18.
- ²³ Letterman, “*Dr. Letterman’s Gettysburg Report*.”
- ²⁴ Freeman, “Lincoln Finds a Surgeon General,” 11–12.
- ²⁵ *Ibid.*, 15.
- ²⁶ Devine, *Learning From the Wounded*, 71.
- ²⁷ *Ibid.*, 150.
- ²⁸ Michael R. Gilchrist, “Disease and Infection in the American Civil War,” *The American Biology Teacher* 60, no. 4 (April 1998): 259.
- ²⁹ Smith, “Military Medical History: The American Civil War,” 19.
- ³⁰ Devine, *Learning From the Wounded*, 257.
- ³¹ Blustein, “‘To Increase the Efficiency of the Medical Department,’” 26.
- ³² Smith, “Military Medical History: The American Civil War,” 18.
- ³³ Richenbacher, “The Demise of Stonewall Jackson: A Civil War Medical Case Study,” 645.
- ³⁴ *Ibid.*, 649.
- ³⁵ Jeffrey S. Sartin, “Infectious Diseases during the Civil War: The Triumph of the Third Army,” *Clinical Infectious Diseases* 16, no. 4 (April 1993): 581.
- ³⁶ Reilly, “Medical and Surgical Care during the American Civil War, 1861-1865,” 140.

³⁷ Devine, *Learning From the Wounded*, 206.

³⁸ Ibid., 101.

³⁹ Gilchrist, "Disease and Infection in the American Civil War," 259.

⁴⁰ Devine, *Learning From the Wounded*, 243.

⁴¹ Ibid., 270.