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******What problems did physicians in America face 200 years ago? Instead of malpractice suits, he encountered smallpox, non-sterilization as well as political jealousies, to name a few.*

DALLAS--They used razor blades and wooden spoons in surgery. Anesthesia was yet to come. Cupping or bleeding was so popular as a medical technique that three well-meaning doctors and an overseer may have hastened the death of a famous Revolutionary figure by tapping 90 ounces of blood from him. The patient's name was George Washington.

Such was the state of medicine 200 years ago. It was tough on both patient and physician, yet there were successes. Washington's army was "variolated," or inoculated, for smallpox with only four deaths. And six physicians were among the signers of the Declaration of Independence in 1776. The best known of these was Dr. Benjamin Rush.

In a time when the doctor did not enjoy the status of today, most colonial physicians, particularly those in the Continental Army, fought with the best of their ability and knowledge such formidable opponents as lack of sterilization, smallpox, dysentery, cholera, and, not the least, political jealousies.

The physician in the War for Independence not only battled disease but fought the enemy in hand-to-hand combat, sometimes losing his life. Confrontations abounded as physicians pleaded for supplies and Congress issued muddled decrees.

But despite these drawbacks, several basic standards emerged that contributed to the framework of medicine and medical practices today.

The major problems facing colonial medical practitioners were poor transportation, lack of drugs and medical supplies, and lack of qualified training. "There supposedly were 3500 doctors in America at this time," Dr. Jonathon Erlen, medical history librarian at The University Health Science Center at Dallas, noted. "However, because there were few licensures or examinations to test medical skills, almost anyone who said, 'I'm a doctor,' was considered one." Of these 3500, only around 400 had any formal training, he related.

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first add medical history

The best qualified doctors were trained in the British Isles at the University of Edinburgh. Prominent colonial physicians, such as Dr. Benjamin Rush, Dr. John Morgan, Dr. Samuel Bard and Dr. William Shippen, were graduates of this institution. However, their early medical training began with apprenticeships to local American doctors, a common practice during this time.

"This meant they began their training at age 12 to 18," Dr. Erlen said. The apprentice not only observed and learned from the doctor under which he served, but acted as stable boy and personal servant as well. He was then graduated into his own practice and received a certificate stating he had successfully served his master.

"Thus the apprentice only became as good as the doctor he worked with," Dr. Erlen noted. Most of the best physicians were found in Philadelphia, he added.

"Unfortunately, we were guilty of the poor medical practices of the day, he explained. "No sterilization was apparent anywhere, even in England where formal medical training was best."

Two American medical colleges were opened immediately preceding the war--the College of Physicians in Philadelphia in 1765, and King's College in New York City (now Columbia University), which began in 1768. The College of Physicians was established by Dr. John Morgan, and Dr. Samuel Bard founded King's College, from which the first legitimate American M.D. degree was awarded in 1770.

But what about the medical treatment of the day? With the blockage of English and European goods, American doctors had to rely on their own ingenuity and knowledge to produce the treatment needed. Dr. Rush advocated "bleeding" the patient to relieve the tension in the blood which he and other doctors believed caused disease. Another common practice was blistering the patient. Some physicians even refused to extract a bullet that was beyond a finger's reach.

A variety of mixtures was concocted from such diverse ingredients as cream of tartar, arsenic, anemone and Jesuit's bark (a forerunner of quinine) to generate the healing process for a wide range of ills. "Most mixtures were made up of native herbs," Dr. Erlen noted. "When a certain ingredient worked on one disease, the doctors usually tried it on someone with another illness just because it had done well previously."

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However, one major practice did make a significant improvement in and effect on the fighting troops--variolaion for smallpox. This treatment, advocated in America by the fiery Puritan minister, Cotton Mather, and Dr. Zabdiel Boylston, a Massachusetts physician, required that a person be infected by inoculation with a small amount of the smallpox germ, which gave him a light case of the disease and made him temporarily immune to further smallpox.

Of the 500 men in General George Washington's troops who were variolated under the general's orders, only four died. This was the first time this procedure had been used on a mass military basis.

But these practices only made a small dent in fighting the malnutrition, dysentery, typhus, scurvy, cholera, pneumonia and other diseases resulting from crowded, unhygienic conditions that plagued the American troops. It has been estimated that almost nine American soldiers died of disease for every one killed by the British. But the Americans weren't the only ones affected--at one time, approximately two-thirds of British General Charles Cornwallis' men were down with illnesses, making battle difficult.

Colonial doctors had to serve as physicians, surgeons, apothecaries and soldiers. Many times more doctors died of diseases encountered in their care of patients than did commanding officers. A prime example of the soldier/physician is Dr. Joseph Warren, a general in the Continental troops at Bunker Hill, who was killed by a musket ball while directing his men. It was General Warren who sent Paul Revere to arouse the Minutemen.

Medical tools were elementary, Dr. Erlen said. Physicians often used razor blades in place of scalpels, or wooden spoons for forceps in surgical proceedings. "But with no way of giving blood transfusions and no anesthesia, the lack of instruments only added to the medical problems," he said.

Hospitals were usually established in homes or tents. Poor ventilation and overcrowding prevailed, spreading diseases even further. Recovery chances were slightly improved when Dr. James Tilton, director of the general hospital at Trenton, N.J., built several "hospital huts," log enclosures with no connecting doors and numerous windows. These provided the much-needed ventilation, with space maintained between patients.

third add medical history

As ludicrous as it seems, however, one of the physician's greatest obstacles was Congressional political maneuvers. Not until General Washington demanded Congress provide fresh medical supplies for the army doctors did it finally vote on July 17, 1775, to establish the Hospital Department for the new government. Dr. Benjamin Church, a well-known and respected Boston physician, was appointed its first Director General and Chief Physician. He was to be aided by four surgeons, one apothecary, 20 surgeon's mates, one clerk, two storekeepers, one nurse to every 10 sick, and occasional laborers. But for numerous reasons, he never got all of them.

Dr. Church faced a major situation beyond his control when Congress failed to bring all medical men under his jurisdiction. Many doctors only served in certain states or battle regiments, refusing to aid anyone outside their self-imposed borders. This resulted in competition for very limited supplies. Jealousies and accusations arose, and during investigation of these attacks, Dr. Church was arrested for treason. Although he was never proved guilty, he left the country and was later lost at sea.

The second Director General, Dr. John Morgan, took office in October, 1775. He was also plagued by petty politics and professional envy. Though he spent much time with the troops, choosing sites for new hospitals and supervising patient evacuations, he was dismissed in January, 1777, without an explanation or hearing. Not until June, 1779, was he brought before a Congressional committee and vindicated.

The next director, Dr. William Shippen, was appointed in April, 1777. A bitter rival and former Edinburgh contemporary of Dr. Morgan, he probably had a hand in Dr. Morgan's unexplained dismissal. Dr. Shippen did institute a new reorganizational plan for the medical department along with Dr. John Cochran, but otherwise he neglected his responsibilities and was far removed from the battlefield hospitals and patients.

This negligence as well as his speculation in hospital supplies was ultimately discovered by General Washington and Dr. Rush, and he was court-martialed and dismissed in August, 1780. Although reappointed in October of that same year, he voluntarily resigned on Jan. 3, 1781.

Dr. Shippen was succeeded on Jan. 17, 1781, by Dr. John Cochran, who had been highly recommended to Congress by General Washington four years earlier. He was beset by acute shortages and inflated currency, but he served harmoniously for the remainder of the war. Afterwards, President Washington named him Commissioner of Loans for the State of New York, basing the appointment on "cheerful recollection of his past services."

fourth add medical history

In spite of these drawbacks and political flurries, four basic medical values emerged from this period, Dr. Erlen believes. The first was that major textbooks were published dealing with military medicine, such as "Incident to Armies with a Method of Cure," by Baron Van Swieten, in 1776, and "Directions for Preserving the Health of the Soldier," by Dr. Benjamin Rush, in 1778. These books greatly added to the limited medical literature which consisted primarily of one manual written by Dr. John Jones in 1775 of King's College titled, "Plain Concise Practical Remarks, on the Treatment of Wounds and Fractures."

Another noteworthy aspect from Revolutionary War medicine was that licensing of physicians was advanced. Not all states required the licensure, but those that did, such as Massachusetts, set up medical examining boards which gave final approval and status to physicians wanting to treat the wounded. Such testing, however, was dropped after the war, but formal medical training was rapidly becoming more popular and advocated.

Then, because of the British paper blockade, medical drugs and tools had to be manufactured on native ground. This was the initial stage of the American pharmaceutical industry.

A final benefit of the war was that overall colonial medicine was improved. The uninstructed American doctors were brought into contact with learned French physicians who came to help during the war, and garnered more advanced methods of treatment. Hospital practices had to be improved as well.

Available history seems to paint a bleak picture of early American medicine, with several factors working against any initial advancements the colonies might have made in their medical training. Even without the political conflicts, it would have been hard to remedy the lack of supplies, poor medical knowledge, overcrowded hospitals and devastating epidemics. As Dr. Erlen reported, "We were guilty of the medical practices of the day."

Fortunately for Americans 200 years later, our medical predecessors were not content to leave the profession in its primitive state but used knowledge gained from these experiences as the foundation of the nation's strong practice of today.