



THE WHITE HOUSE
WASHINGTON

My Dear Sirs

When the President of the United States gets sick, headlines are written and the world pays attention. Regardless of whether this nation's leader is stricken with a minor accident or a major illness, his health can affect the operation of the entire nation and impact political events around the world. Presidents receive the finest health care available when ill or injured, but sometimes – as we've seen over the course of history – it just isn't enough.

During the formative years of this nation, medicine had scarcely evolved from the time of Hippocrates. Effective diagnostic tools did not exist, and prescribed treatments often did little more than make the patient worse. The conventional treatment for fever was bleeding, which was thought to drain the poisons of disease out of the body. Physicians and their patients did not understand that bleeding took out much more than poison. Blood and fluid replacement did not exist, and bleeding treatments often were augmented with aggressive purgatives and emetics. These treatments, while possibly flushing out body waste, simultaneously depleted the body of electrolytes, often dangerously dehydrating the patient or worse.

Diseases, according to mainstream medical opinions of the time, were thought to arise mainly from swamps and bad water, or to float in the air. This view was not without truth: widespread typhoid, cholera and dysentery epidemics were transmitted by polluted water; and malaria, literally "bad air," was transmitted by mosquitoes that were common in swampy areas. The pressing need for basic sanitation was still unrealized, so waterborne diseases were rampant in growing American towns and cities.

As we look at selected stories of American presidents' illnesses, we look into a mirror reflecting changes in medical practices throughout our nation's history, ranging from the invention of improved diagnostic tools to the discovery and use of antibiotics. Along the way, we confront the sometimes uncomfortable dichotomy between the personal right to medical privacy and the public's right to know their elected leaders' degree of illness and whether it affects the ability to carry out official duties.

Your most humble servant

Signature of George Washington



GEORGE WASHINGTON

1732-1799

Ist US President



Life of George Washington—
The farmer / painted by Stearns.
Library of Congress

Washington's ivory teeth.
National Museum of Dentistry



Health care during the nation's early years was primitive, and George Washington (in office April 30, 1789 – March 4, 1797) had to combat some of the most serious of diseases and conditions – any one of which could have ended his life and changed the course of the nation's history. Washington, the “Father of our Country,” is known to have suffered from recurrent bouts of malaria – endemic to the swampy areas of his home state of Virginia – from the time he contracted it in 1749, through 1786 when he was finally treated with Peruvian bark (which contains quinine) for the disease.

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In 1751, then-19-year-old Washington accompanied his older half-brother Lawrence to the island of Barbados following physician and family advice that exposure to sun and island air would help cure Lawrence's tuberculosis. While on the trip, the younger Washington fell ill with smallpox and, upon returning home, fell ill with tuberculous pleurisy (which he likely contracted from Lawrence on their travels). Washington made a full recovery from both the tuberculosis and the smallpox; his defeat of the latter would aid him as a general during the war for independence.

One of George Washington's most infamous maladies was his poor oral health. Today's dentistry is elegant and nearly painless, but 100 years ago it was neither. By 1757, it became evident that Washington's teeth were in abysmal condition. The treatment offered for what may have been periodontal disease, pyorrhea or caries was dental extraction. Washington gradually lost all of his teeth and had a set of dentures created. Ultimately, he would have dentures made from hippopotamus bone and the teeth of humans, elks and cows.

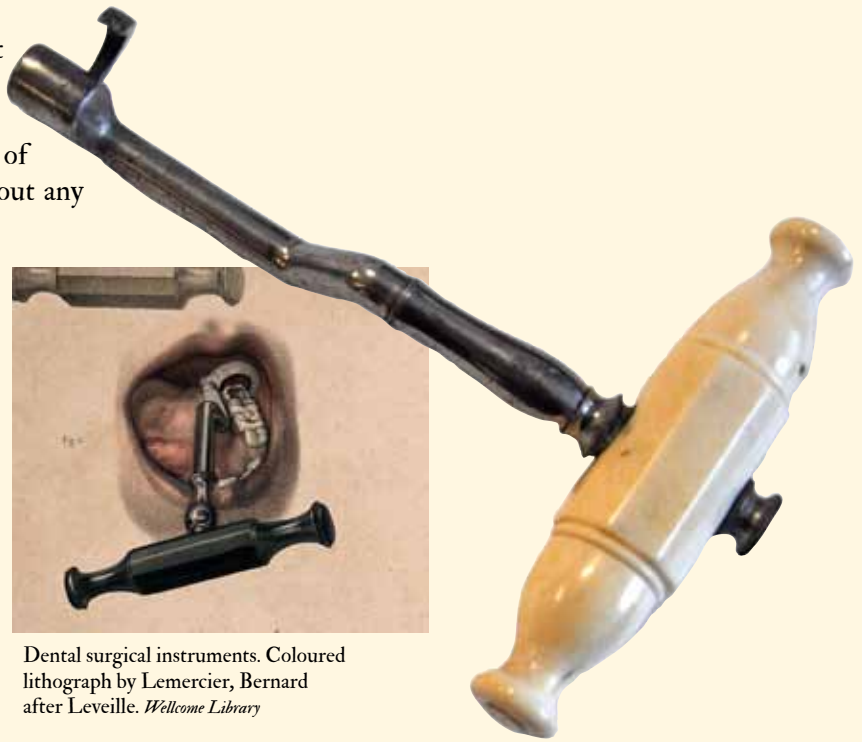
Despite the popular legend, Washington did not have wooden dentures.

Several basic tools were used to extract teeth; of course, in Washington's time this was done without any anesthetic or antiseptic precautions. Dental elevators had ivory or wooden handles with a slightly curved steel shaft that could be pushed under the base of the tooth, allowing the dentist to force the tooth up. Tooth keys had a "claw" at the end that was pushed under the base of the tooth to fully twist the tooth out of the socket. George Washington had virtually all of his teeth extracted this way, beginning at age 17.

During the first year of his presidency in 1789, Washington developed a "malignant carbuncle" on his thigh and was quite ill until his personal physician, Dr. Samuel Bard, incised and drained the tumor; Washington's health began to improve immediately. He was, however, plagued with multiple bouts of pneumonia (including a near-fatal attack in 1790), as well as colds and ear infections throughout his time in office. In 1797, Washington delivered his farewell address and retired to Mt. Vernon.

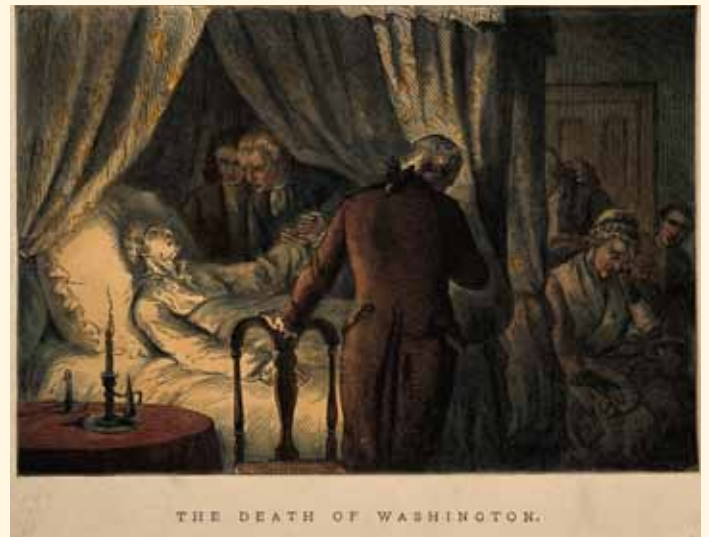
In the winter of 1799 at his home in Mount Vernon, Washington awoke having great difficulty breathing and speaking. He was bled by the overseer of his estate, and his physician was summoned; Dr. James Craik arrived later that morning and concluded that Washington suffered from quinsy, a suppurative inflammation of the tonsils. Washington was given Spanish Fly to counter throat irritation, bled three times and purged. The next morning, Washington had difficulty breathing and became febrile with throat pain and respiratory distress. After several more bloodlettings, Dr. Elijah Dick arrived in the afternoon and argued that further bloodletting might excessively weaken the President. Nevertheless, Craik ordered a fourth bleeding. When Dr. Gustavus Brown arrived an hour later, an enema of mercurous chloride and antimony potassium tartrate was administered.

The repeated bloodletting and purging rapidly depleted Washington's fluids and red blood cell volume. His fever dropped, and he became pale and somnolent. Dr. Dick, the youngest physician, suggested they perform a tracheotomy, but the idea was rejected by his older peers. Washington asked that nothing else be done to him so he could die in peace.



Dental surgical instruments. Coloured lithograph by Lemercier, Bernard after Leveille. *Wellcome Library*

The combined effect of massive depletion of his circulatory blood volume and his increasing respiratory distress led to Washington's death on December 14, 1799. Today it is believed that Washington had epiglottitis, an inflammation of the valve that closes the trachea when food is swallowed. A tracheotomy indeed may have prolonged his life.



Death of George Washington
Wellcome Library

By the mid-18th century, this young nation was no stranger to smallpox, though immunity was not widespread. Outbreaks of the disease in major cities were not uncommon, prompting citizens to avoid crowded areas and avoid traveling to areas with known cases. However, variolation – the process of introducing small amounts of live virus from victims into the healthy – was gaining momentum as a means by which citizens could protect themselves.

It was during the 1764 outbreak in Boston that future president John Adams, then a law student, was inoculated. He wrote of his experience: Do not conclude from any Thing I have written that I think Inoculation a light matter — A long and total abstinence from everything in Nature that has any Taste; two long heavy Vomits, one heavy Cathartick, four and twenty Mercurial and Antimonial Pills, and, Three weeks of Close Confinement to an House, are, according to my Estimation, no small matters. John Adams, predecessor to Thomas Jefferson in the White House, died on the same day as Jefferson.

The nation's greatest step against smallpox came during the Revolutionary War in 1779. During that winter, while General Washington was encamped with his troops in

Morristown, New Jersey, a smallpox epidemic afflicted about one-third of his troops, and many died from the disease. While previously opposed to inoculation, Washington ordered that the entire army be inoculated, excepting those already exposed. This experiment, the first mass inoculation in the United States, proved a profound success. Immunization of the troops continued into 1778, and smallpox ceased to be a threat to the soldiers. Though the war was far from over, the battle against the invisible scourge of the deadly pox had been won.

Thomas Jefferson, the third president, was also a strong supporter of inoculation, leading a national charge to advocate for this preventive medicine. In 1766, when Jefferson was 23, he traveled to Philadelphia to be inoculated against smallpox, though the practice was strongly discouraged in many of the colonies at the time. Later, in 1776, he encouraged his wife to travel with him to Philadelphia so that she too could be inoculated; she did not, but Jefferson had their daughters inoculated. In fact, Jefferson would become an ardent champion of inoculation, as a young lawyer defending physicians who practiced it, and as the president who openly supported the introduction of Edward Jenner's cowpox vaccine into the United States.



Vaccinating The Baby, 1890.
The National Library of Medicine

Th Jefferson



THOMAS JEFFERSON

1743-1826

3rd *US President*



Edward Jenner vaccinating a boy. Oil painting by E.-E. Hillemacher, 1884. *Wellcome Library*

Declaration of Independence, July 4th, 1776 / painted by J. Trumbull; engraved by W.L. Ormsby, N.Y.. *Library of Congress*



Co-author of the Declaration of Independence, Thomas Jefferson (in office March 4, 1801 – March 4, 1809) undoubtedly contributed more to preventive medicine in America than any other president of his time. His approach to maintaining health was almost modern in concept. He consumed primarily vegetables and modest amounts of meat, drank weak wines, avoided tobacco, cultivated herbs and plants that had medicinal properties, and believed in daily exercise, such as walking and riding horseback. He was also a strong advocate for vaccination and an ardent supporter of Edward Jenner's work in Europe against the deadly smallpox virus.

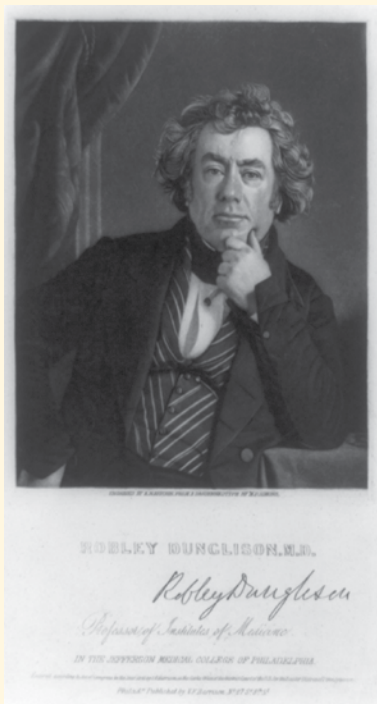
Jefferson suffered severe, prolonged headaches from the age of 19 onward. Physicians of the time believed Jefferson's headaches may have been related to tension, as sometimes activities such as horseback riding helped alleviate them. When his mother died suddenly at age 57 in 1776, he delayed his return to Congress because he was laboring with a severe and prolonged headache that lasted several weeks. When Jefferson's wife died in 1782, shortly after delivering their seventh child, he went into several weeks of depression and isolation; but there is no information that he suffered from headaches at that time. His headaches disappeared after he retired to his beloved Monticello.

Gastrointestinal distress plagued Jefferson starting in his 30s, and he speculated that some episodes of diarrhea or dysentery were due to eating fish. His friend Dr. Benjamin

Rush recommended retiring early at night and stopping his habit of bathing his feet in cold water every morning. In addition, he recommended that laudanum, a tincture of opium, be taken in small doses during the day and in larger doses at bedtime to slow the bowels.

Nevertheless, Jefferson's diarrhea continued intermittently throughout his life and would eventually be listed as one of the causes of his death. During the last year of his life, his diarrhea became chronic, leading to a small rectal prolapse. This necessitated frequent visits to Monticello by his physician, Dr. Robley Dunglison, who also made the diagnosis of an enlarged prostate and constriction of the urinary canal. Dunglison taught Jefferson self-catheterization with a bougie, a flexible tube made of elastic gum that was introduced through the urethra. In his correspondence with Dunglison, Jefferson wrote how greatly his symptoms were improved by intermittent catheterization.

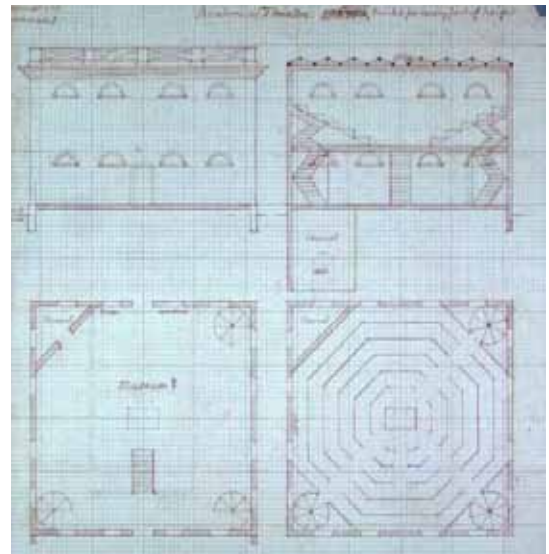
Ever the statesman, the third president hoped to live until July 4, 1826, the 50th anniversary of the Declaration of Independence. On the night of July 2, 1826, Jefferson fell unconscious, but on the evening of the next day he awoke and asked, "Is this the fourth?" He was assured it was not and fell asleep again. When he eventually died on July 4, his death certificate stated that he had colon carcinoma to account for his frequent bouts of diarrhea, and hypertrophy of the prostate.



Robley Dunglison, M.D.
Library of Congress

JEFFERSON'S ROLE IN PROMOTING MEDICAL EDUCATION IN VIRGINIA

Thomas Jefferson was a strong believer in the body's ability to heal itself. Nevertheless, he used the advice of physicians and some treatments known to cure certain maladies. After he left office, Jefferson turned his efforts to improving the public's access to education, founding the University of Virginia in 1819, with the teaching of anatomy and the theory of medicine and surgery as a central core of the school's mission. Designing the architectural layout for the university, Jefferson, in its inception, included an anatomical theatre. Construction on the building was completed in 1827, and the first graduates of the School of Medicine received medical degrees in 1829.



Surgeons perform an operation in the Anatomical Theater in 1900. *Photo courtesy of Alex Peck Medical Antiques.*

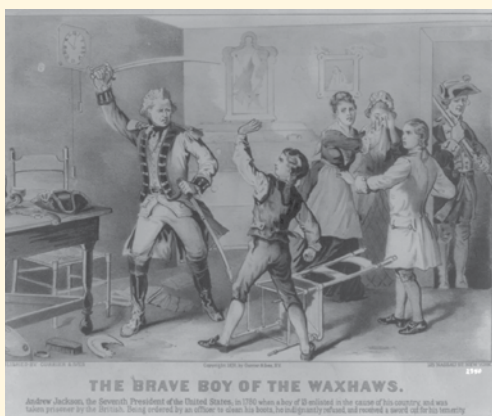
Andrew Jackson



ANDREW JACKSON

1767-1845

7th US President



The brave boy of the Waxhaws
Library of Congress



Andrew Jackson in his
last days
Library of Congress

General in the American Army, Andrew Jackson (in office March 4, 1829 – March 4, 1837) joined the American militia in 1780, and contracted his first significant illness – smallpox – in 1781 when he and his brother Robert were imprisoned by British forces after Jackson resisted a British officer's command to clean his boots. Though Andrew recovered from smallpox, his brother died from the disease.

Jackson's temper was legendary. In 1806, he was involved in a gun duel in which he was shot in the chest. The bullet broke two ribs and lodged in his chest near his heart. The wound never healed properly and continued to cause him discomfort. In a second duel – a tavern brawl – in 1813, Jackson was hit by a slug in the shoulder that lodged against his left humerus. Bleeding profusely, Jackson was attended by many physicians of Nashville. All but one recommended amputating his arm. But before losing consciousness, Jackson said, "I'll keep my arm." His wounds were dressed with poultices, but Jackson's severe blood loss and an infection kept him confined for three weeks.

Sent to "relocate" Native Americans, Jackson likely contracted malaria and dysentery while in the swamps of Florida and Louisiana. He continued to suffer from chronic diarrhea, obtaining relief by sitting perfectly upright on a straight-backed chair. For his intestinal problems, he used frequent doses of calomel, a toxic, mercury-containing compound that has purgative and antibacterial effects. Jackson also liberally used sugar of lead, which was believed to have anti-inflammatory and astringent powers. He used the medication for several ailments, including tuberculosis,

a queasy stomach, and as an eye wash when his eyesight began to fail.

While in office, President Jackson was in significant discomfort from his 1813 bullet wound, and Navy Surgeon Dr. Thomas Harris removed the bullet without anesthetic; Jackson's health improved immediately. Later, he sought the advice of Dr. Philip Syng Physick, the "Father of American Surgery," about removing the bullet in his chest, which caused frequent episodes of coughing up blood. Physick instead urged the President to stop smoking and taking medications containing arsenic and mercury. Jackson replied, "Now, Doctor, I can do anything you think proper, except give up coffee and tobacco."

In 1835, during his second term, Jackson became the first target of a presidential assassination attempt. A delusional

painter named Richard Lawrence approached Jackson as he was leaving the Capitol, aiming two pistols at him. Fortunately, both misfired. Jackson's famous temper took over, and he beat his attacker with a cane. Representative Davy Crockett restrained and disarmed Lawrence while others calmed the enraged President.

Jackson began to suffer from shortness of breath early in 1845. In April, he began experiencing swelling in his feet and legs, then his hands, abdomen and face. Hard of hearing, nearly blind in one eye, and likely suffering from congestive heart failure, Jackson stated, "I have long found that complaining never eased pain," and continued to advise his peer politicians until he died on June 8, 1845, at The Hermitage, his plantation in Nashville, Tennessee.

ENTERING THE INDUSTRIAL AGE

The 1800s were an exciting and critical time not only for the newly established United States of America, but for medicine as well. The industrial revolution triggered an explosion in prosperity and, along with it, population. American industrial towns and cities swelled to accommodate those who came to live and work in cramped, often unsanitary, conditions; the effects of pollution and the spread of disease threatened public health.

The first half of the 19th century brought with it a number of important medical advances, including the invention of the stethoscope, blood transfusion and the development of anesthesia. The experience of military surgeons in wars in France and the Crimea led to many improvements in surgical procedures. All these advances, however, would do little to inhibit the massive outbreaks of typhoid, cholera and, the biggest killer, tuberculosis, which struck the United States as well as industrialized Europe.



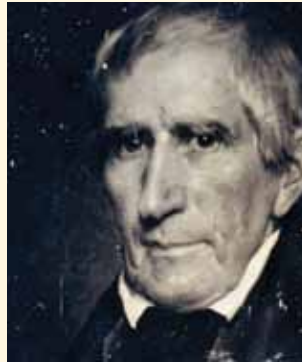
Take part in America's crusade against tuberculosis
Cook County Public Health Unit., 1940.
Library of Congress



Wooden Stethoscope ca. 1920
William P. Didusch Center for Urologic History



William Henry Harrison



WILLIAM HENRY HARRISON

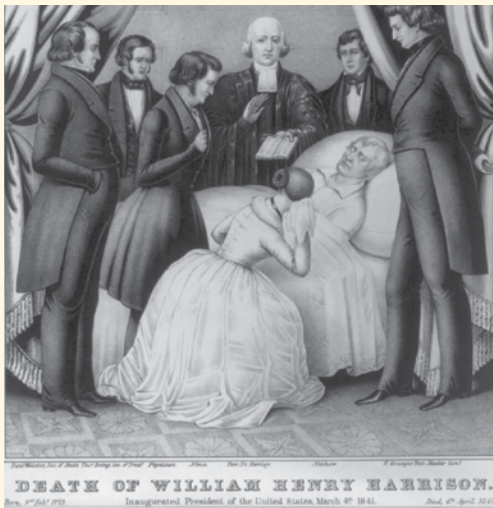
1773-1841

9th US President



Presidential inauguration of Wm. H. Harrison in Washington City, D.C., on the 4th of March 1841. *Library of Congress*

Death of Wm. H. Harrison, on the 4th of April 1841. *Library of Congress*



President William Henry Harrison (in office March 4, 1841 – April 4, 1841) – former student at the University of Pennsylvania School of Medicine – gained national recognition in 1811 when he led 1,000 troops into disputed Native American territory and won the Battle of Tippecanoe. Harrison became known as “Our Brave Defender” and was elected president in 1841. There is no evidence Harrison suffered any illness prior to his presidency. His sickness in office, however, would be the one to claim his life.

Germ theory was still unheard of in 1841 (Joseph Lister and Louis Pasteur were still decades away from their discoveries, and Robert Koch was only two years old), and physicians of the time still believed that one could cure disease by balancing the humors and removing harmful substances from the body. This deficiency in knowledge would contribute to the early demise of the would-be-doctor-turned-president.

Despite cold and rainy weather in Washington, Harrison delivered his two-hour-long inaugural address on March 4, 1841, without an overcoat or hat. On March 27, he became sick with a cold, which, at the time, was attributed to the wet weather. When Harrison’s condition worsened and he developed pneumonia and pleurisy, his physicians decided, because of his age, not to bleed him with a lancet but with cupping, a milder form of bleeding. After an initial episode of constipation, for which his physicians had given him harsh cathartics and ipecac to induce vomiting, Harrison developed violent diarrhea, a side effect of the overuse of ipecac.

The President, already in his late sixties, became increasingly exhausted. His physicians switched their treatments to camphor, brandy, crude petroleum, leeches and Virginia snakeroot, commonly used as a tonic and cure for snakebite. Harrison's illness did not abate. His physician, Dr. Thomas Miller, became concerned and decided to treat the President with doses of mercury-containing calomel, laudanum, castor oil and similar drugs. Still seeing no improvement, Miller discontinued the laudanum and switched to pure opium, which Harrison was to take with shots of whisky.

Eventually becoming delirious and stating, "I cannot bear this," Harrison died on April 4, 1841, of pneumonia, jaundice and septicemia. A few months later, the Boston Medical Journal printed an article protesting the manner of Harrison's treatment, with the authors strongly suggesting the President's life had been "sacrificed needlessly." Harrison was the first president to die in office and served the shortest presidential term in American history, only 32 days.

❧ BLEEDING AND PURGING ❧

The two mainstays of "heroic medicine," bleeding and purging, date back to the ancient Greeks. Into the 19th century, bleeding was often the first treatment physicians employed when called to see a patient. Such practices stemmed from the conviction that diseases occurred because of an imbalance of the four humors of the body (black bile, yellow bile, phlegm and blood) and from poisons in the blood that needed to be drained out. It was believed that the best way to re-balance the humors and remove poisons was by bleeding the patient.

A number of devices were developed for lancing a vein. Small lancets, usually about two inches, were protected in a tortoise or bone sheath until folded out for cutting. A triangular blade, called a fleam, could be swung out from its metal sheath for use. The blood was collected into a "bleeding bowl." Another common method of bleeding was cupping; a scarificator, a small metal box with multiple spring-loaded blades, made surface cuts into the skin at the touch of a trigger. A glass cup was placed over these cuts, and a flame was applied to the cup so the air inside heated. As the cup cooled, the resulting vacuum suctioned out small amounts of blood from the subcutaneous tissue.

Since most febrile illnesses lead to a flushed, reddish skin accompanied by sweating and agitation, bleeding therapy seemed to have a positive effect, since it improved the symptoms. After enough blood was drained, the patient's skin became pale, sweat dried up and agitation gave way to peace and somnolence. Doing so repeatedly could, and sometimes did, lead to eternal peace.

Purging of the body with emetics that induced vomiting, caused diarrhea or facilitated emptying the bowels was thought to complement bleeding by removing poisons from the bowel. Salt water and mustard water have been used since ancient times for this purpose. A preparation of the root of the ipecacuanha plant, known as ipecac, has been in use since the 18th century to induce vomiting. Once recom-

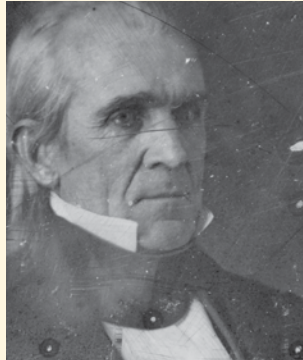
mended by pediatricians to treat accidental poisoning, it is no longer in widespread use.

*Many physicians preferred the application of leeches to bleed patients. The use of leeches was first documented around 200 BC by the Greek physician Nicander. Avicenna popularized it in his Canon of Medicine in the 1020s and considered leech treatment better than cupping. By the 12th century, leeches were also used to clean tissues after surgical procedures. The use of leeches over the past two centuries began to decrease significantly, but today the leech — *Hirudo medicinalis* — is making a comeback, namely in microsurgery, where it is used to relieve venous pressure from pooling of blood after reconstructive procedures.*



A medical practitioner administers leeches to a patient. 1827. Wellcome Library

Saucy & Sane



JAMES POLK

1795-1849

11th US President



Burial place of James K. Polk, Nashville Tenn.
Library of Congress

A frail youngster, James Polk (in office March 4, 1845 – March 4, 1849) developed a hernia that was treated by Dr. Ephraim McDowell, probably with compression. His mother had him wear a bag of asafetida around his neck to ward off disease. Born and raised in a limestone belt, Polk later formed bladder stones.

By the time he was 17, the pain from these stones became intolerable, and he rode 250 miles on horseback to consult with McDowell in Danville, Kentucky. Because Polk weighed only 85 pounds, McDowell kept him in town and tried to get him back to good health before operating on him to remove the stones. McDowell performed a lateral lithotomy; the operation, which creates a large incision into the bladder neck, was performed while Polk was awake, with brandy given as the only sedative. Polk had no complications, but the operation may have caused retrograde ejaculation, rendering him sterile; Polk never had any children.

Polk wrote to McDowell in December of that year expressing his gratitude and telling him that he had full urinary control. The role McDowell played in providing Polk relief was significant, as the future president wrote the doctor again 14 years later:

My dear Doctor,

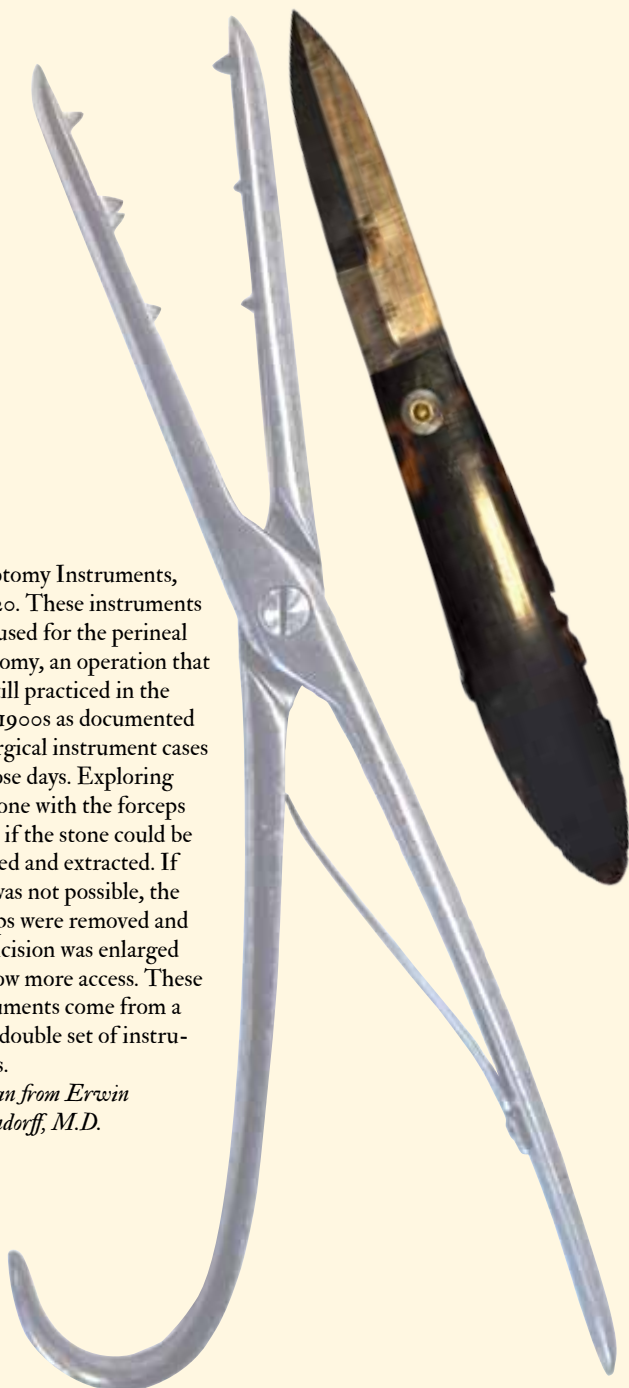
I have been enabled to obtain an education, study the profession of Law, and embark successfully in the practice; have married a wife and permanently settled in Tennessee, where I now occupy the station on which the good wishes of fellow citizens have placed me. When I reflect, the contrast is impressive indeed, between the boy, the meager boy with

pallid cheeks, oppressed and worn down with disease, when he first presented himself to your kind notice in Danville, nearly 14 years ago and the man today, in full enjoyment of perfect health.

Though Polk may have been one of early America's healthiest presidents, his time in office took a toll on that good health. Polk suffered for many years with intermittent episodes of cholera-related diarrhea, often quite severe, for which he took opiates. When Polk left office, he was exhausted, had lost weight, and had developed deep lines in his face and dark circles under his eyes. After returning to Nashville, Polk's diarrhea became worse; he became dehydrated and died on June 15, 1849, at his home at Polk Place, just three months after leaving office.

Lithotomy Instruments, ca.1720. These instruments were used for the perineal lithotomy, an operation that was still practiced in the early 1900s as documented by surgical instrument cases of those days. Exploring was done with the forceps to see if the stone could be grasped and extracted. If that was not possible, the forceps were removed and the incision was enlarged to allow more access. These instruments come from a large double set of instruments.

On loan from Erwin Rugendorff, M.D.



STONES AND THE PRESIDENCY



Born in 1771 in Rockbridge County, Virginia, Ephraim McDowell moved with his family to Danville, Kentucky, when he was 13. He studied medicine for three years in the office of Dr. Alexander Humphreys, a well-respected local physician. In 1793, he went to Edinburgh, Scotland, to further his studies for a year. One of his teachers was Edinburgh surgeon Dr. John Bell, who was interested in "stone in the bladder."

McDowell learned from Bell that such stones were found in great numbers in people residing in areas where limestone was abundant. This described the area where McDowell lived. He watched Bell operate on stones and eventually returned to Danville, where he began to practice medicine. McDowell was famous for performing 27 perineal lithotomies without a death, a remarkable success in his days. He also performed the first successful removal of an ovarian tumor.

Removing a bladder stone in those days was done through an incision in the perineum, cutting through the urethra into the bladder, using the following instruments: The staff is a long, slender instrument with a curved and grooved end that was inserted into the urethra to facilitate cutting with the knife through the skin into the groove. Once this was accomplished, a gorget was inserted through the incision. This allowed the operator to remove the staff and explore with the forceps to see if the stone could be grasped and extracted. If that was not possible, the forceps was removed and the incision was enlarged to allow better access. To ensure no residual stone fragments were left behind, the operator used a metal spoon to fish for such remnants, as he knew that pieces left behind led to further stone formation. Once the stone had been removed, the bladder was washed out. The incision usually was not closed and often sealed on its own. The surgery sometimes was complicated by bleeding, incontinence and infection, and, at times, fatal sepsis.

Perineal lithotomy was still practiced in the early 1900s, as documented by surgical instrument cases of those days.

Franklin Pierce



FRANKLIN PIERCE

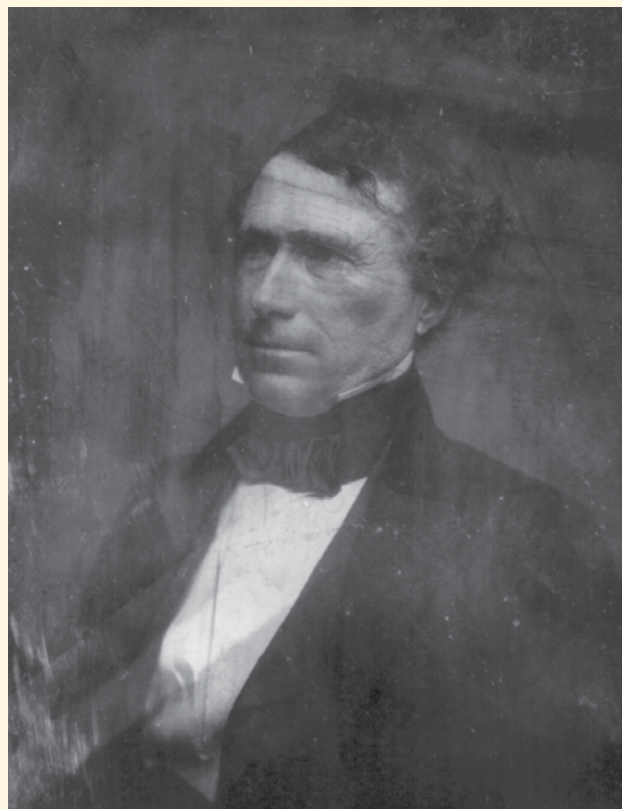
1804-1869

14th US President

During his first years in the House of Representatives, Franklin Pierce (in office March 4, 1853 – March 4, 1857) kept company with a hard-drinking crowd, though he tolerated alcohol poorly. After one alcoholic spree, Pierce got into a fight and woke up the next morning with a high fever and stabbing pain in his sides. His doctor diagnosed him with pleurisy and administered the usual treatment of bleeding by scarification and cupping. Pierce overcame the pain and some mental depression over the next few weeks and gradually recovered.

The country was moving toward industrialization and the age of the railroad, and this very progress would most deeply affect the future president. Two months prior to his inauguration as president in 1853, Pierce, his wife and eldest son were involved in a train accident in which their railcar left the tracks and rolled down a hill. Benjamin Pierce, who was 11 years old, was decapitated in front of his parents. Neither Pierce nor his wife ever truly recovered from witnessing his death, and both suffered life-long depression related to the incident.

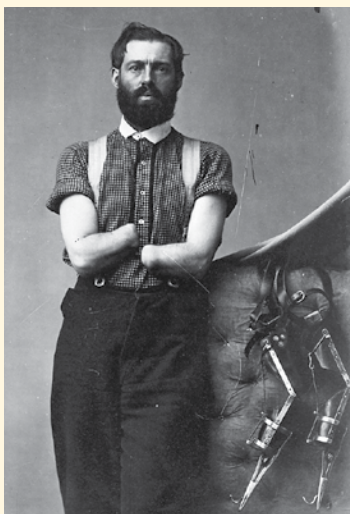
In addition to chronic gastritis, liver damage and tuberculosis, Pierce suffered several episodes of severe coughing, fever and night sweats between 1864 and 1865. In his last remaining years, he had ever-increasing malaise accompanied by nausea and stomach pains. In the summer of 1869, he developed dropsy, an accumulation of water in the soft tissues. While Pierce displayed typical symptoms of liver cirrhosis, his physicians apparently did not recognize it, though they probably would not have been able to help him. Franklin Pierce died on October 8, 1869, likely of liver failure.



Franklin Pierce, by Mathew Brady, ca. 1823-1896.
Library of Congress

U.S. CIVIL WAR MEDICAL ADVANCES

The United States moved closer toward the Civil War that would consume the nation in the early 1860s. Lessons learned from the Crimean War overseas had demonstrated the extent to which rifle warfare could damage life and limb, and Florence Nightingale's messages on sanitation were progressing on the warfront, with the U.S. Sanitary Commission taking an active role in helping fight disease among the troops. Future president and then-General Ulysses S. Grant made hygiene a priority for his troops, adhering to and enforcing Union Army sanitary practices that were implemented during the war. Through the course of the conflict, some 14,000 surgeons, most with only 2 years of medical instruction, would treat the casualties of war. Their collective experience would contribute to advances in surgical techniques, prosthetics, sanitary practice and a broader understanding of disease. Antiseptics and the germ theory of disease would not arrive until long after the war.



Samuel H. Decker, Private,
Company I, 9th U.S. Artillery
(Surgical photo 205).
Library of Congress

Despite advances in cleanliness, the nation was still ripe for outbreaks of diseases such as dysentery. Privies (outside lavatories) were plentiful, the water supply questionable and there was no real system for waste and trash removal. Prior to his inauguration, 15th president James Buchanan (in office March 4, 1857 – March 4, 1861) contracted dysentery at a dinner at the National Hotel in Washington, D.C. After a recovery that took several weeks, Buchanan contracted the disease a second time (once again after a dinner at the National Hotel) on the eve of his inauguration. While some implied that his sickness was the result of a plot to poison the new president, others postulated that sewer gas – or drowned rats in the hotel's drinking water – was to blame. Fortunately, Buchanan recovered from dysentery with no long-term effects.

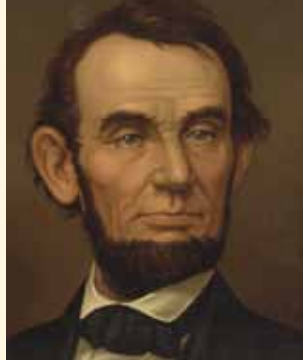
❧ MERCURY ❧

A medication commonly used during the 19th century, and especially during the Civil War, the “blue pill” or “blue mass,” was a pill or syrup containing mercury compounds. Though mercury’s toxicity is now well known, it was widely used then for a number of ailments including dysentery, diarrhea, tooth and child-bearing pain and depression. However effective as a diuretic, laxative and topical disinfectant, mercury’s side effects generally outweighed its usefulness.

Exposure to mercury or its compounds can result in many toxic effects. These include damage to the brain, kidneys and lungs. Mercury poisoning symptoms commonly include impairment of vision, hearing and speech, disturbed sensation and a lack of coordination. The type and degree of symptoms depend upon the individual toxin, the dose, and the method and duration of exposure. Since mercury blocks the breakdown pathway of catecholamines, the excess epinephrine in the body often causes profuse sweating, rapid heartbeat, increased salivation and hypertension.

Through the early 1900s, mercury compounds were injected intramuscularly into the buttocks of syphilis sufferers. Its toxic effects were sometimes confused with those of the disease it was intended to treat. Penicillin, which became available in 1945, first to American troops and gradually to civilians, eventually obviated the need for mercury compounds as antibiotic agents. Today the most significant source of ingestion-related mercury poisoning is the consumption of tainted fish. Plants and some livestock may also contain mercury from accumulations in soil, water and the atmosphere resulting from industrial pollution and runoff.

A. Lincoln



ABRAHAM LINCOLN

1809-1865

16th US President

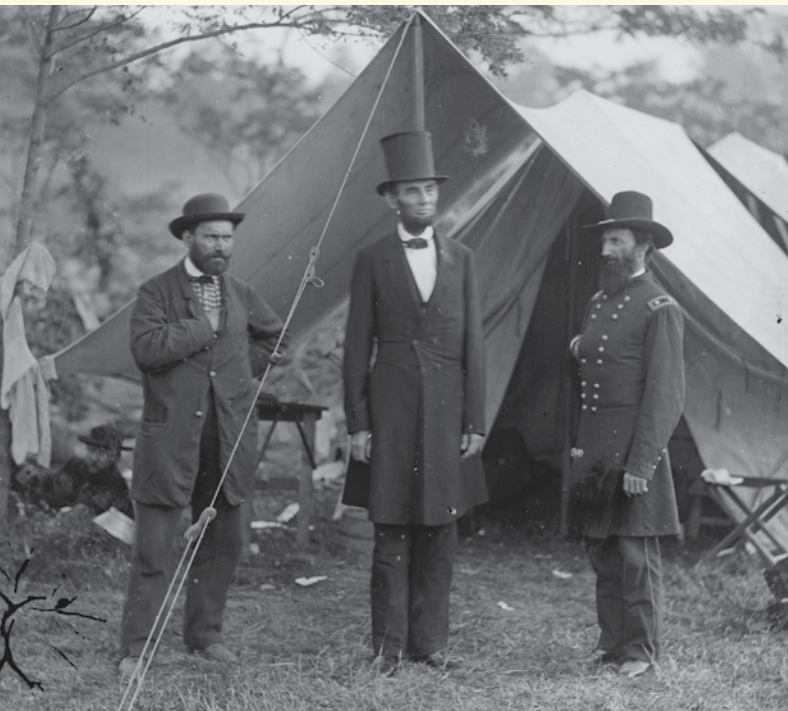
Famous among American presidents, Abraham Lincoln (in office March 4, 1861 – April 15, 1865) was fairly healthy as a young man. By age 19, he already was 6'4" tall, with a small chest and slim waist, powerful shoulders and large hands. Most believe Lincoln had Marfan's syndrome, a genetic disorder of the connective tissue characterized by exceptional height, a normal-sized trunk, and exceedingly long extremities with slender long fingers (arachnodactyly). The disease also can affect the heart, eyes, lungs, skeletal system, nervous system and tissue surrounding the spinal cord. A theory presented in 2007 speculates that Lincoln instead had multiple endocrine neoplasia, type 2B (MEN2B), a rare hereditary disorder.

Throughout his life, Lincoln suffered from varying degrees of depression and melancholia, particularly after he broke off his engagement with Mary Todd in January 1841. His depression was so deep that friends watched him day and night and removed all instruments of possible self-destruction. The couple eventually married on November 4, 1842. They fought hard and bitterly, but love for their four sons kept them bound together.

Lincoln also was known for occasional erratic behavior, such as laughing at inappropriate times or sudden outbursts of rage. Some physicians have attributed this behavior to the MEN2B theory, but others speculate that these mood swings might have been due to Lincoln's use of "Blue Mass," a widely used treatment of the time consisting primarily of mercury. Lincoln took the blue pills for constipation on the advice of his law partner, John Todd Stuart. However, because they caused him irritation and insomnia,

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Antietam, MD. Allan Pinkerton, President Lincoln, and
Maj. Gen. John A. McClelland, 1862.
Library of Congress

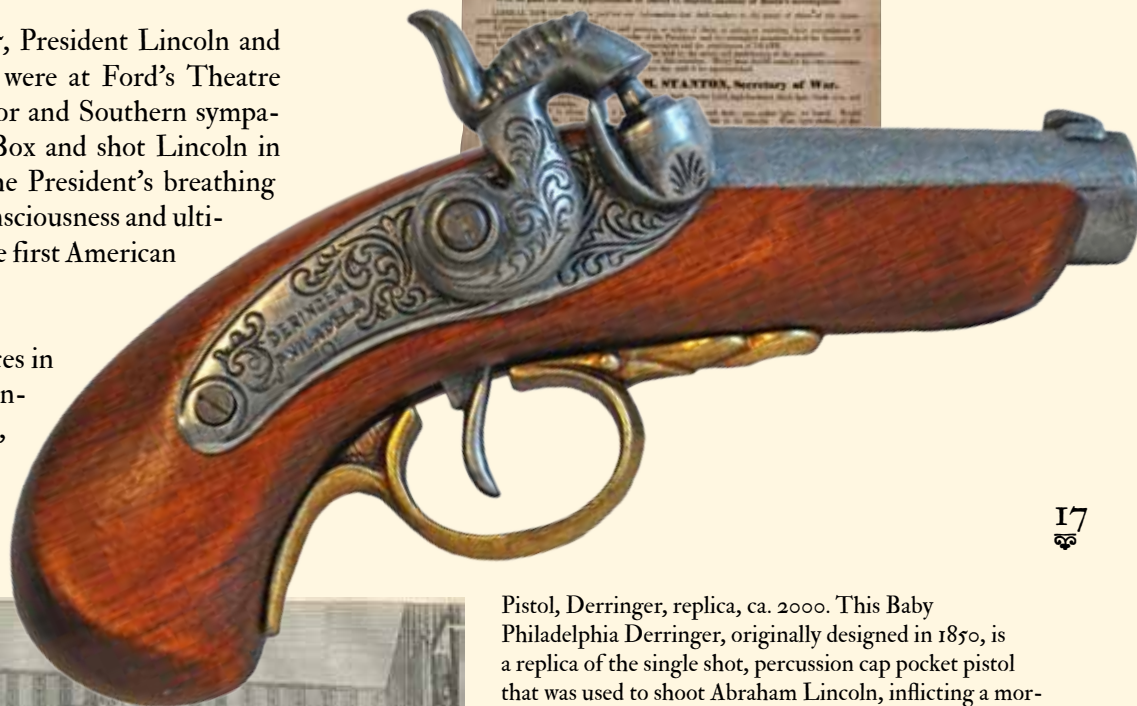


he stopped taking them in 1861. His behavioral symptoms could have been caused by mercury poisoning, which would have subsided when he stopped taking the pills.

Lincoln suffered several other mild conditions throughout his adult life. While campaigning for the presidency in 1860, Lincoln developed a fever and sore throat while his son Willie was sick with scarlet fever. Lincoln believed that he had a different form of the same disease, and he may have been correct. Scarlet fever is caused by *Streptococcus A*, which also can cause throat infection. When Lincoln returned from giving his famous Gettysburg Address on November 20, 1863, he was quite unwell. Confined to bed, his physician, Dr. Robert K. Stone, diagnosed him with varioloid, a mild form of smallpox with headache and fever. His general health appeared to improve after the end of the Civil War.

On the evening of April 14, 1865, President Lincoln and First Lady Mary Todd Lincoln were at Ford's Theatre when John Wilkes Booth, an actor and Southern sympathizer, entered the Presidential Box and shot Lincoln in the back of the head. Though the President's breathing was restored, he did not regain consciousness and ultimately died on April 15. He was the first American president to be assassinated.

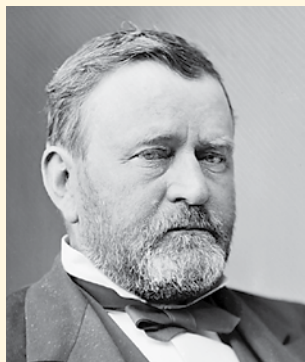
Unfortunately, despite the advances in surgery and prosthetics to treat gunshot victims during the Civil War, no amount of medical skill at the time could have saved Lincoln.



Pistol, Derringer, replica, ca. 2000. This Baby Philadelphia Derringer, originally designed in 1850, is a replica of the single shot, percussion cap pocket pistol that was used to shoot Abraham Lincoln, inflicting a mortal wound from which the President would not recover. It was easily concealable and fired a round lead bullet. The actual weapon used to kill Lincoln is on display at Ford's Theater in Washington, DC.
William P. Didusch Center for Urologic History



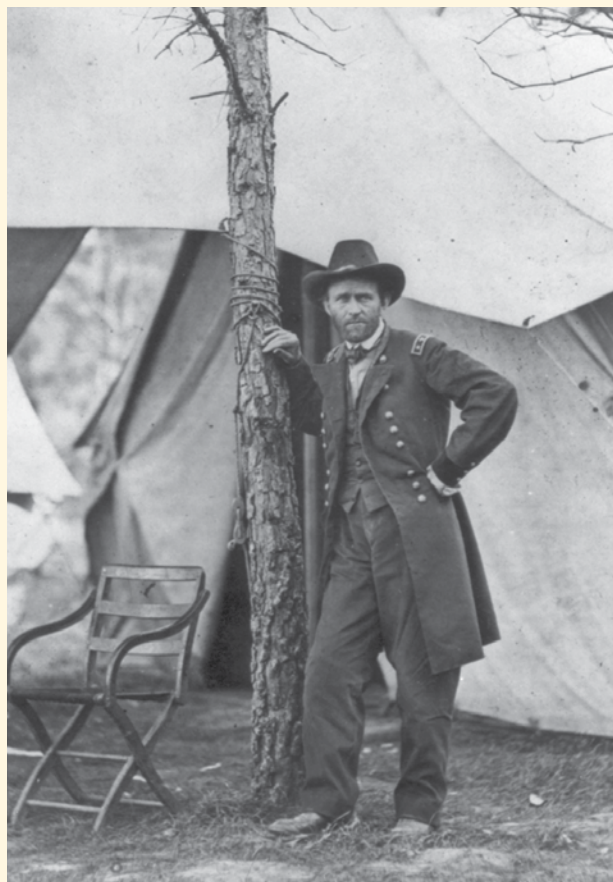
Lincoln on his death bed.
Library of Congress



ULYSSES S. GRANT

1822-1885

18th *US President*



General Ulysses S. Grant at his
headquarters in Cold Harbor,
Virginia, 1864
Library of Congress

Hiram Ulysses Grant (in office March 4, 1869 – March 4, 1877) was a sickly youth, always tired and needing sleep. He attended the U.S. Military Academy at West Point, where confusion over his name led him to change it to Ulysses Simpson Grant. Following graduation, he developed a severe cough with significant weight loss that lasted six months. The episode likely represented an activation of latent tuberculosis; he eventually recovered.

In 1854, Grant was forced to resign from the Army for excessive drinking, at which time he began to work as a farmer and real estate agent. In 1858, Grant developed a severe case of malaria, which he had first suffered as a boy in Ohio. This time, however, he was sick for more than a year, which is unusual for malaria treated with quinine; it is likely that Grant's malaria infection reactivated his tuberculosis. At the start of the Civil War, he joined the Union Army effort, ultimately being advanced to the position of Commanding General of the U.S. Army from 1864 to 1865. He did not suffer any major injury during his time in service; in fact, though some demanded his removal, Abraham Lincoln refused, saying, "I can't spare this man—he fights."

By the time Grant became president in 1869, he was in relatively good health. He gained his paunch while in office, after ceasing his regular horseback riding.

On Christmas Day, 1883, Grant slipped on ice while exiting a cab and severely hurt his thigh, which left him unable to walk for several weeks. While confined, he developed pleurisy, which kept him in bed for several more weeks.

Though speculation, it is possible that Grant's leg injury, obesity and bed rest caused a blood clot to develop, leading to a pulmonary embolism, which could explain his pleuritic pain. When Grant recovered enough to walk, he realized he had been swindled by his business associate and was left almost destitute.

By the summer of 1884, Grant was 30 pounds overweight, still had trouble walking, and one day while eating a peach, experienced severe throat pain. Both he and his wife Julia thought he had been stung by an insect on the peach, but the discomfort did not dissipate. A few months later, one of the lymph nodes in Grant's neck, on the side where he had his throat pain, became visibly enlarged. He consulted his physician, who performed a biopsy that revealed an "epithelioma," or a squamous cancer in today's terms. Grant asked his long-time friend and surgeon John Hancock Douglas whether his problem was cancer, to which Douglas responded, "General, the disease is serious, epithelial in character, and sometimes capable of being cured."

Grant stopped smoking cigars and began local treatment, which seemed to retard the spread of the growth. Dr. George Shrady, a New York surgeon, prescribed for Grant's treatment topical iodoform, saltwater gargles, carbolic acid gargles, permanganate of potash and yeast gargles, and a topical cocaine solution for the relief of pain. Grant told one friend: "If you could, imagine what molten lead would be like going down your throat, this is what I feel like when I swallow." The pain became so great that his physicians injected brandy intravenously.

During this time, Grant worked hard to write his memoirs, hoping to restore some financial security to his wife. Mark Twain offered Grant a generous contract for his memoirs, including 75 percent of the royalties. By December 1884, Grant's cancer had started to spread upward and downward, beginning to destroy Grant's palate and leading to secondary infection. Surgery was discussed, but, in light of Grant's general debilitation, the procedure was not recommended. By June 1885, Grant had moved with his family to

Mt. Gregor in New York to escape the summer heat, and he died on the morning of July 23, only a few days after completing his memoirs.

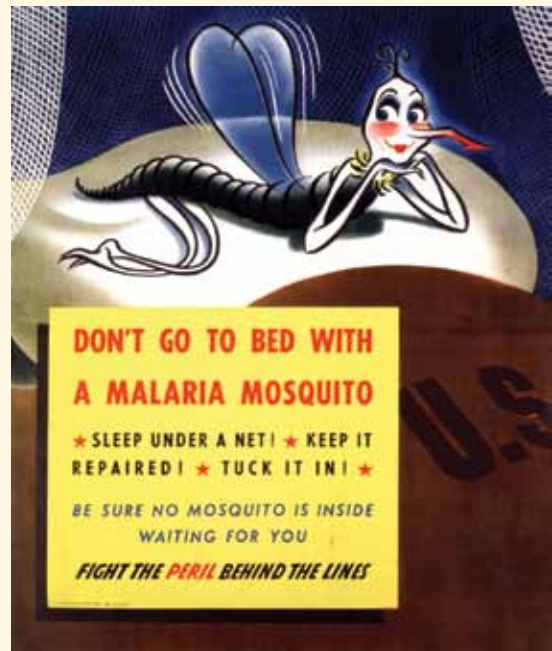


Gen. U.S. Grant writing his memoirs, Mount McGregor, June 27th, 1885.
Library of Congress

AFTER THE WAR: PROGRESS ON DISEASE

In the wake of the Civil War, American cities grew at an accelerated pace. Freed slaves and poor southerners migrated to northern cities, increasing urban crowding and unsanitary conditions. Growing industrial factories filled the air with smoke, trash piled up on the streets and sewage flowed through open gutters. Crowded housing conditions facilitated the spread of tuberculosis, and conditions for water-borne diseases to flourish were ripe.

The germ theory of disease, developed by Louis Pasteur and Robert Koch, and its correlation to sanitary conditions reached a peak of understanding in the late 1800s. Cities began to recognize the benefits of waste removal and sewage system management. From the 1870s onward, germ theory led to the development of vaccines for cholera, anthrax, rabies, tetanus, diphtheria and typhoid. Ronald Ross, a British surgeon in the Indian Medical Service, had studied the findings of physicians and scientists in Pavia, Italy, and identified the malaria parasite and its means of transmission. In addition, physicians began to gain a greater understanding of the circulatory system, developing new diagnostic tools and treatment methods. However, it would take some time before these discoveries would eventually be integrated into U.S. medicine.



Malaria prevention & control poster, 1944.
The National Library of Medicine

R. B. Hayes



RUTHERFORD B. HAYES

1822-1893

19th US President

Rutherford Birchard Hayes (in office March 4, 1877 – March 4, 1881) was born in Delaware, Ohio, two- and-a-half months after his father died of a violent febrile illness. Of the five Hayes children, only two – the future President and his sister – would survive into adulthood. He was a sickly and malnourished child, though his mother was determined that the two would survive.

In June 1847, Hayes decided to volunteer for service in the Mexican War, but he sought medical advice before making his final commitment. His doctors advised against his joining, as they felt the Mexican climate might further erode his already poor health (caused primarily by recurrent tonsillitis). Instead, his doctors advised bleeding, cod liver oil, snakeroot and time in a Northern climate. In 1849, he developed quinsy, the peritonsillar abscess that Washington's physicians thought caused the first president's demise 50 years earlier. Hayes was treated with rest, purges and cod liver oil. The abscess was neither drained nor incised but allowed to drain on its own.

Hayes finally joined the Union army in 1861. During a battle in 1862, Hayes was struck by a musket ball just below his left elbow joint and was evacuated from the battlefield for treatment. At the time, amputation was the standard treatment for such devastating wounds. Fortunately for Hayes, his surgeon and brother-in-law Dr. Joseph Webb decided against amputating the arm. The bullet had passed directly through Hayes' arm leaving a gaping hole, so no probing with instruments or fingers was necessary. By the time Webb examined him, the bleeding most likely had stopped.

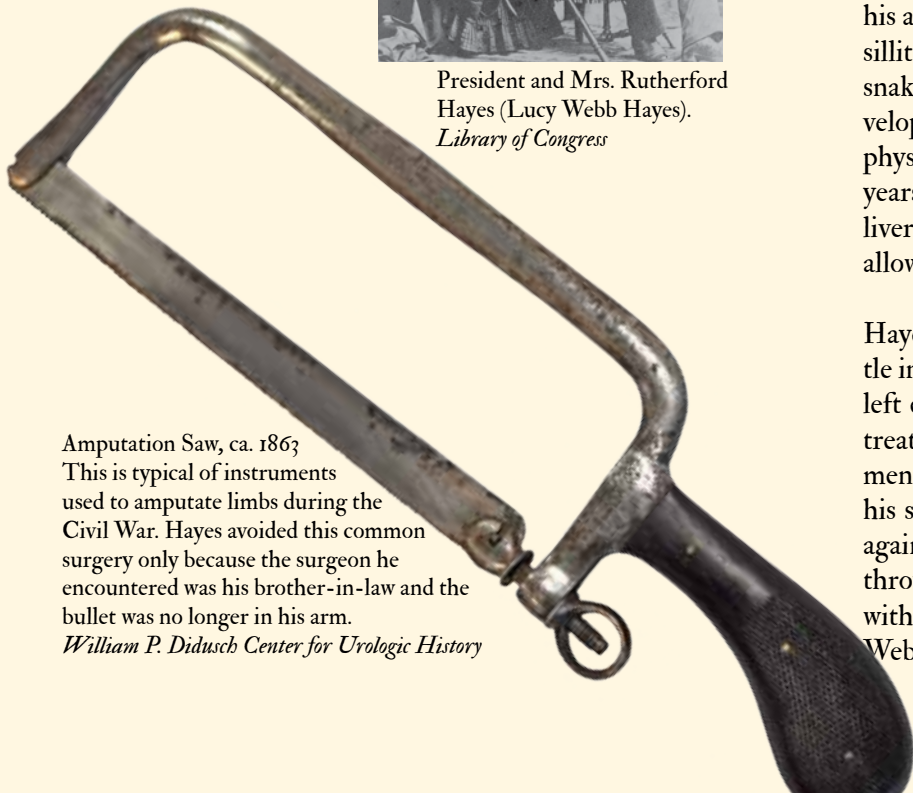


President and Mrs. Rutherford
Hayes (Lucy Webb Hayes).
Library of Congress

Amputation Saw, ca. 1863

This is typical of instruments used to amputate limbs during the Civil War. Hayes avoided this common surgery only because the surgeon he encountered was his brother-in-law and the bullet was no longer in his arm.

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The wound was washed out with regular water from a big basin, but it did not get infected. Webb applied a splint, and Hayes recovered, spared from the customary amputation.

When Hayes became president at age 54, he was in good physical condition. Because of tonsillar problems and his frailty, he knew he needed to maintain good health. He exercised daily and made an effort to ensure the public knew this about him, telling a reporter, "I rise with the sun both winter and summer, and seldom use the gas to dress by...I walk at least six miles a day and often more." His wife Lucy did not tolerate alcoholic beverages in the White House and was an abolitionist, positions that influenced her husband. In fact, Hayes banished alcohol from state functions at the White House, earning him ridicule from guests and his wife the nickname "Lemonade Lucy."

In 1881, Hayes left Washington and moved back to his home in Spiegel Grove, Ohio, where he continued to be active in public life, particularly in public education and prison reform. But when Lucy died of a stroke in 1889, Hayes began to weaken, gain weight and lose his memory. He also developed some nerve deafness, which progressed until he had great difficulty following a conversation.

In January 1893, Hayes traveled to Columbus to attend a board meeting of Ohio State University, where he appeared depressed and extremely nervous. After traveling to Cleveland to visit a close friend, he returned to the train station, where he began to experience severe chest pain. Brandy offered some partial relief, but the pain did not abate. He returned home to Spiegel Grove, where he was put to bed. Though his physicians initially were optimistic about his health, they realized Hayes was slipping away. He died in his home on January 17, 1893, presumably from myocardial infarction due to advanced arteriosclerotic heart disease.

EX-PRESIDENT HAYES DEAD

NEURALGIA OF THE HEART THE CAUSE.

HE WAS STRICKEN LAST SATURDAY AT THE HOME OF HIS SON IN CLEVELAND—TAKEN HOME ILL, BUT WAS EXPECTED TO RECOVER—OBITUARY SKETCH.

FREMONT, Ohio, Jan. 17.—Ex-President Rutherford B. Hayes died at 11 o'clock to-night.

As was stated in to-day's NEW-YORK TIMES, he was stricken at Cleveland, Ohio, on Saturday with a severe attack of neuralgia of the heart.

He was visiting his son Webb S. Hayes, who, after his father's partial recovery, accompanied him to his home in this city.

He was put to bed at once, and Dr. S. P. Hibbich, the family physician, was called. The doctor was at his bedside all of Monday night, and expressed hope of his recovery after a few days.

The Hayeses of this country are of Scottish origin, and a direct ancestor of the ex-President, a mechanic named George Hayes, came from Scotland and settled at Windsor, Conn., in 1680. A great-grandson of his, Rutherford Hayes, born at New-Haven in 1756, removed to Brattleborough, Vt., and established a hotel. He had a son, Rutherford, who was born at Brattleborough, and who in September, 1813, married Sophia Birchard of Wilmington, Vt., whose ancestors had also come from Connecticut, and were among the most prosperous families of Norwich, in that State. Rutherford Hayes determined, not long after the war of 1812-14, to emigrate to the West, and in 1817 set out with his family, which included two young children and his wife's brother, Sardis Birchard, for Ohio. He settled in the town of Delaware, where he purchased an interest in a distillery and built a substantial house. In 1822 he was carried away by a sort of malarial epidemic which swept that region, leaving his wife with a third child, and in moderate circumstances, to the care of her brother.

Rutherford Birchard Hayes was born at Delaware nearly three months after his father's death on the 22d of October, 1822. He was a frail and sickly child, and only the assiduous care of his afflicted mother kept him alive. Her solicitude for him was increased when he was three years of age by the drowning of his brother Lorenzo, six years older. His delicate health kept him from school in his early childhood.



Spiegel Grove

James Garfield



JAMES GARFIELD

1831-1881

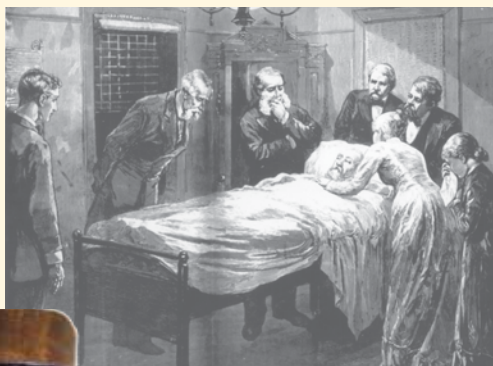
20th US President

James Abram Garfield was born on his father's farm in Ohio in 1831; his father died two years later. He was the youngest of four children who had to help their mother work the farm. In 1848, 17-year-old James Abram Garfield (in office March 4, 1881 – September 19, 1881) wanted to go to sea, but the best he could do was to get a job on the Ohio Canal, and the furthest he went was to Pittsburgh. He returned later that year recuperating from a febrile illness, which could have been malaria. In his journal Garfield wrote:

I was confined to my bed for ten days and on the tenth day, the ague broke. It stayed off about three weeks and then it came again. I employed Dr. Butler, but his medicine had little or no effect. I continued to have the ague every day until January 30, 1849. I commenced doctoring by Dr. Vincent and Dr. Harmon of Chagrin Falls, and since that time I have not had the ague, although not able to work any.

Garfield's treatment consisted of large doses of calomel, and he believed only his powerful constitution had saved him. He was convinced he had been treated by "old school" physicians who followed the old style. Garfield and his wife were strong believers in homeopathic medicine, hiring Garfield's first cousin, homeopath Silas Boynton, as their primary physician. Garfield had an athletic build and, according to all accounts, was very healthy when he entered the White House for what would, ultimately, be a very brief term.

On the morning of July 2, 1881, U.S. President Garfield, his two sons, Secretary of War Robert Todd Lincoln and



Death bed of President Garfield.
From *Harper's Weekly*, National
Museum of Health & Medicine, Otis
Archives.



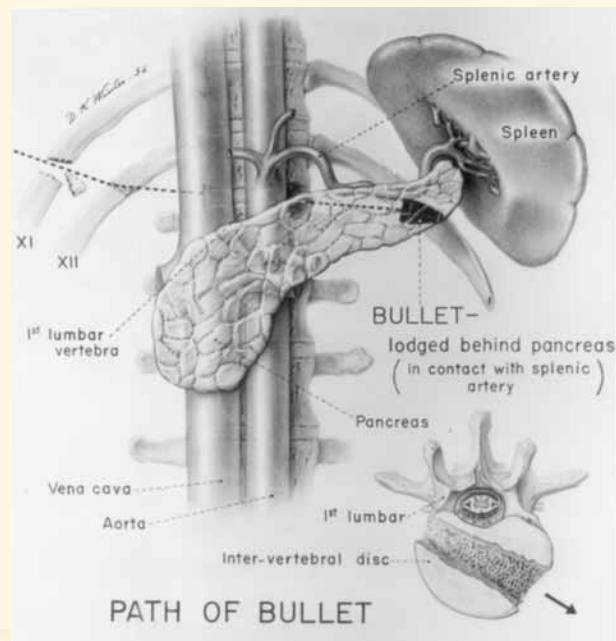
Senator James G. Blaine were entering the Washington station of the Baltimore and Potomac railroad, when a mentally disturbed and unsuccessful office seeker, Charles J. Guiteau, fired two shots at the President. One bullet grazed his arm and the other entered his back. Garfield remained conscious after the attack and was taken back to the White House to recover. The day after the attack, his vital signs were good, and he was conscious and alert. Physicians, however, were unable to locate the bullet in his back, which was thought to be lodged near his lung.

Over the next 10 weeks, physicians tried numerous maneuvers to locate the bullet, including bullet probes, which were not sterile or even particularly clean, or bare fingers, which often were not washed. Alexander Graham Bell was called in to attempt to locate the bullet with his newly invented metal detector, but the device failed.

The bullet wound was washed and drained repeatedly with a mild acid solution and yielded considerable quantities of what doctors believed to be “healthy pus” (a term dating back to antiquity: *pus bonum et laudabile* or *good and laudable pus*, implying that pus draining from a wound was a good sign). In mid-August an attempt was made to locate the bullet by seeing whether the bullet would, through interference of a magnetic or electrical field, influence a magnetized needle. This too failed. Garfield remained bedridden, becoming increasingly weak and delirious. Later that month, pus began to seep from Garfield’s right parotid gland, which was incised. The surgery left the right side of his face paralyzed.

The President’s health continued to spiral downward, and he was taken to the New Jersey seaside, so that the fresh air could aid his recovery. Shortly after arriving, Garfield suffered a rupture of the splenic artery, and blood filled his abdomen. He was diagnosed with pneumonia and began to show signs of septicemia. On September 17, following severe chills, nausea and vomiting, Garfield became delirious and two nights later, he died.

After his death, physicians managed to locate the bullet lodged in Garfield’s back, finding it only a few centimeters from the wound itself. As it turned out, the bullet had not killed the President; rather, the interventions – and extensive probing – used by physicians to locate the bullet introduced infection that spread throughout his body, ultimately leading to Garfield’s demise.



Surgeon General's Office.
ARMY MEDICAL MUSEUM.
PHOTOGRAPHS NOS. 385, 386, 387, 388, AND 389. *Pistol Shot Perforation of First Lumbar Vertebra. Death.*
James A. G. —, was shot at Washington, July 2, 1881, by a ball from a pistol in the hands of an assassin. He died September 19, 1881. The autopsy revealed the course of the missile. It had entered over the tenth intercostal space, three and a half inches to the right of the vertebral spines, fractured the right eleventh rib, passed to the left through the body of the first lumbar vertebra, and lodged in the adipose connective tissue, immediately below the lower border of the pancreas, about two inches and a half to left of the spinal column, and behind the peritoneum. It had become completely encysted.



Top: Path of Bullet (That wounded President Garfield).

Bottom: Pistol Shot Perforation of First Lumbar Vertebra.
National Museum of Health & Medicine, Otis Archives.

As medicine has evolved, so has the treatment of gunshot wounds. While Rutherford B. Hayes was fortunate enough to avoid amputation and save his arm following his gunshot wound, some advances would be made too late to save the lives of James Garfield and William McKinley, the two American presidents who ultimately succumbed to complications following attempted assassinations (in 1881 and 1901, respectively). Their deaths prompted strong criticism of the care the presidents received.

In both cases, surgeons attempted to remove the bullets, standard practice at the time, despite an eloquent case made against the practice nearly a century prior. Scottish surgeon and physiologist John Hunter, whose *A Treatise on the Blood, Inflammation, and Gun-shot Wounds* was published posthumously in 1794, had previously toured the United States, educating surgeons and physicians against the nearly universal practice of immediately opening the external wound of all gunshot wounds and searching and probing for the ball (bullet) to extract it.

Based on his own war experience and later experiments, Hunter recommended “not to regard the balls themselves and seldom or ever should one dilate upon their account.... for it was found that balls, when obliged to be left, seldom or ever did any harm when at rest, and when not in a vital part; for balls have been known to lie in the body for years, and are often never found at all and yet the person has found no inconvenience.” Hunter primarily advocated superficial dressings and enlarging the wound only if the bullet or bone fragments were visible; major arteries, veins or internal organs were affected and in need of repair; or if a vital organ was compressed by bone or a bone fragment (such as skull, rib, pelvis, etc.). However, despite his writings and teachings, Hunter’s treatments did not seem to take root in the minds of American surgeons. The desire to remove foreign bodies was too strong.

Until the advent of tools such as the x-ray, ultrasound and other imaging procedures, foreign bodies like bullets were

difficult to locate, especially without anesthesia. Sometimes the wound was enlarged to allow the entry of a finger or probe. In Civil War times, bullet probes were straight or slightly curved metal wires with ebony handles that usually had a hatched pattern so they would not slip in the physician’s hand. French physician Auguste Nélaton (1807-1873) developed a special probe to look for bullets. Bullets in those days were usually lead, and since bullets frequently fragmented bone upon entry or exit, it was difficult to determine whether one was touching a small piece of bone or a bullet. Nélaton’s probe had a porcelain tip that was marked by the friction of lead when it hit the bullet. Looking for the foreign body or bullet was also one idea behind the forerunner of today’s cystoscope, the Lichtleiter, an instrument from 1806 designed to look into “the normal and abnormal” cavities of the human body.

Instruments and hands occasionally were washed, but very often simply wiped off. If one surgeon could not feel a bullet, another inserted his finger. This practice continually introduced infection into the patient (and sometimes the surgeon), despite the teachings of Joseph Lister, who in 1867 had promoted his antiseptic system, concentrating on the relation of bacteria, pus, contamination and wound infection. At that time, American physicians strongly believed that a healthy and healing wound had to contain pus. Lister theorized that pus was not a good sign. However, surgeons remained skeptical of antiseptics, which was not routinely used until the end of the 19th century.



Bistouries, ca. 1860
Today called scalpels, these six ivory-handled bistouries came from England.
Nélaton Bullet Probe, c. 1840. Because bullets then were lead, the porcelain tip of this probe showed dark scratch marks whenever it encountered a bullet. Bone or bone fragments made no scratches on the porcelain.
William P. Didusch Center for Urologic History



Grover Cleveland



GROVER CLEVELAND

1837-1908

22nd *US President*



Grover Cleveland, full-length portrait, 1888.
Library of Congress

Overweight as a youngster and 280 pounds by the time he was first elected president, Grover Cleveland (in office March 4, 1885 – March 4, 1889 and March 4, 1893 – March 4, 1897) was renowned for his love of food, beer and tobacco, which he chewed as well as smoked.

At the funeral of General Ulysses Grant in 1885, Cleveland was limping on his right foot, purportedly from crippling arthritis. However, given his obesity, large intake of alcohol, love of rich food and lack of exercise, he most likely had gout, a condition from which he suffered throughout the remainder of his life. Cleveland also had significant problems with indigestion. Doctors blamed his gastric problems and gout for kidney and heart troubles that plagued the President later in life. Cleveland frequently used a stomach pump throughout 1899-1900, removing gastric acid with the pump, which gave him some relief.

While shaving in early June 1893, Cleveland discovered a rough spot in the roof of his mouth. Presidential physician Robert M. O'Reilly examined the lesion and took a biopsy, sending it anonymously to the Army Medical Museum. The biopsy was classified as malignant, and O'Reilly called on Joseph Bryant, a well-known surgeon and friend of Cleveland, for a consultation. All agreed that surgery to remove the growth was in order. However, the country was in the midst of a financial crisis, and advisors worried that knowledge of a serious presidential illness could spur a public panic.

On July 1 in Long Island Sound, Cleveland secretly boarded the yacht Oneida, owned by his friend Commodore Elias

Benedict, with a team of surgeons and physicians. Bryant led William W. Keen, the nation's first neurosurgeon and a well-respected oral surgeon; John Erdmann, Bryant's young assistant; Edward Janeway, a renowned New York internist and physiologist; and Ferdinand Hasbrouck, a young dentist who was familiar with the new "laughing gas" anesthesia, in the surgery.

The team removed several teeth and part of Cleveland's mandible to resect the cancerous growth. They then removed two molars and resected the left maxilla, including the infraorbital plate, as the tumor had invaded the maxillary antrum and involved the floor around the roots of the molar teeth. The cavity was packed, hemostasis was obtained with galvanocautery, and the entire operation was completed in one hour and 20 minutes.

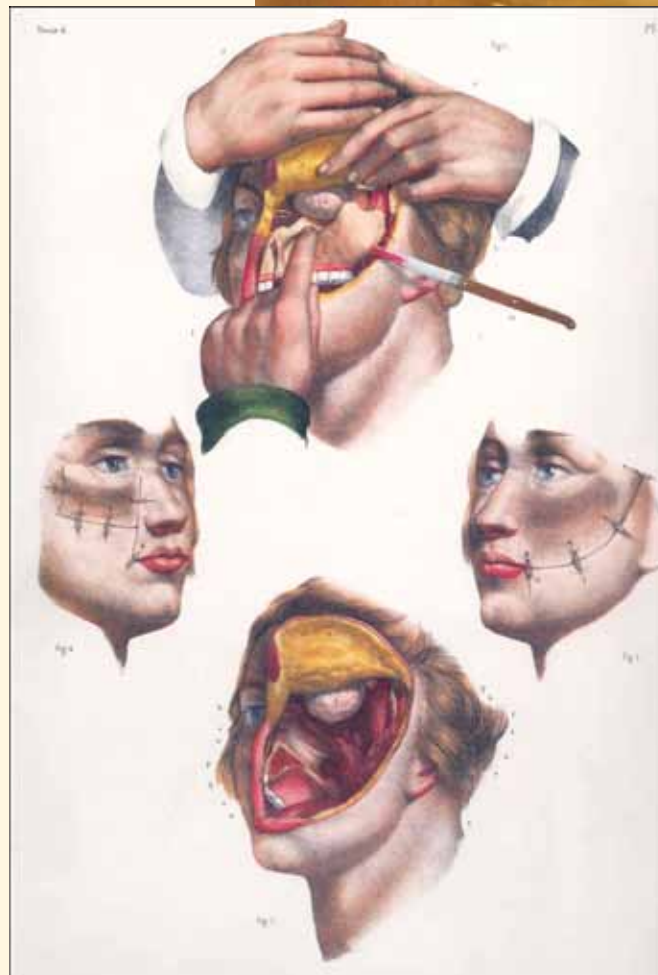
Cleveland tolerated the procedure well, but another secret operation was performed on July 17 to remove a small amount of residual tumorous tissue. The President was fitted with a prosthetic device allowing him to swallow liquids, eat normally and, most importantly, speak normally. President Cleveland's major concern was that he had to be able to address Congress to ensure the passage of important pending financial legislation, and he was able to do so.

The public knew little, if anything, about these operations, as the surgical procedures were done from within the oral cavity, leaving Cleveland without an external, visible scar. A well-fitted prosthetic device functioned well enough that there was probably no indication that the President had undergone a major operation.

After he retired, Grover Cleveland became a trustee of Princeton University, and on June 14, 1908, he died in Princeton of a heart attack.

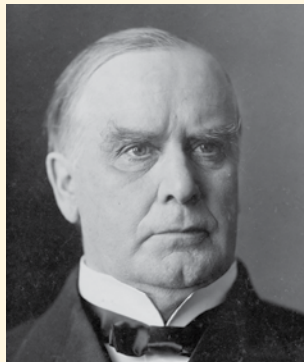


Grover Cleveland's tumor on display at the Mutter Museum in Philadelphia.



J.M. Bourguery, Atlas of Human Anatomy and Surgery

William McKinley



WILLIAM McKINLEY, JR.

1843-1901

25th US President



William McKinley, 1898.
Library of Congress

William McKinley Jr. (in office March 4, 1897 – September 14, 1901) was born on January 29, 1843, in Niles, Ohio, the seventh of nine children. He was described as a delicate child who liked school, and his mother hoped he would become a Methodist minister. At age 17, he entered Allegheny College but withdrew after a year when he became ill. His family's abolitionist sympathies and the attraction, excitement, and glamour of the war moved McKinley to volunteer for the 23rd Ohio Infantry Regiment, where he served under future president Rutherford B. Hayes. After the war McKinley studied law, was admitted to the Ohio Bar, and was accepted as a partner by an elderly judge who subsequently left him the practice. In 1871 he married Ida Saxton, and their first daughter was born that year. A second daughter was born in the spring of 1873, but she died a few months later, sending Ida into a mental and physical depression from which she never fully recovered. The death of her mother and her daughter (both within a short span of time) further damaged Mrs. McKinley's already "fragile, nervous temperament" and she would go on to develop epilepsy and suffer frequent seizures for the rest of her life. An invalid, she relied on her husband for care, a burden he carried quietly and without complaint for the rest of his days.

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McKinley had no significant medical problems when he became president other than minor illnesses and being overweight, but his wife's health presented a major personal problem. Though she had fewer and fewer "good days," she continued to appear with McKinley at every social gathering, refusing to give up her role as White House hostess. At state dinners, the President insisted that she be seated at his side, as opposed to at the other end of the table, as was customary. McKinley did his part in shielding his guests from his wife's seizures by covering her face with a napkin or

handkerchief, and acting as though nothing had happened once the spell was over.

Less than one year after he was re-elected to a second term, on September 6, 1901, McKinley was greeting attendees at the Pan American Exposition in Buffalo, New York, when tragedy struck. While shaking hands with people, McKinley was approached by Leon Czolgosz, who shot him twice with a gun concealed under a handkerchief. The first bullet grazed his shoulder, but the second passed through his stomach, pancreas and kidney before lodging in his back muscles.

President McKinley was transferred to the Exposition's hospital facility, which had no electricity and limited surgical tools. One bullet fell out of the President's clothes when they were removed, but the other bullet could not be found. Surgery was necessary. Dr. G. McKay Hall cleaned and temporarily dressed the wound, and a medical student administered morphine and strychnine hypodermically. A larger surgical team was called, including noted surgeon Roswell Park. A messenger entered the operation room in Niagara Falls where Park was operating, telling him that he was needed urgently. Park said, "Don't you see, I am in the middle of a case? I can't leave even if it were for the President of the United States." The messenger replied, "Doctor, it is for the President of the United States." Park did not arrive in Buffalo until McKinley's surgery was near completion.

The surgeons (who had no experience with trauma cases and, as was common, did not disinfect their hands or instruments) explored McKinley's abdomen for the bullet. Ironically, Wilhelm Roentgen's x-ray machine was being displayed at the Exposition near the medical area, but it was not used on the President to locate the bullet.

Unable to locate the projectile, the surgical team cleaned and oversewed an anterior entry wound and posterior wound in the stomach. McKinley's left kidney also was damaged. However, there was no fluid accumulation, so the physicians decided not to place a drain, though surgeon Herman Mynter advocated a Mikulicz drain behind the stomach wall. It is said that this lack of drainage may have contributed significantly to the President's failure to recover.

Over the next few days, McKinley's status waxed and waned, and he received little oral fluid and no intravenous fluid. Twenty-four hours following surgery, McKinley had passed only 370cc of urine, a small amount. All of the output volumes indicated poor fluid intake.

Shortly after the President died on September 14 at 2:15 a.m., the official cause of death was listed by U.S. Navy Medical Inspector P.M. Rixey as "gangrene of both walls of stomach and pancreas following gunshot wound," though McKinley likely died of fulminant pancreatitis due to pancreatic injury.

The media perpetuated hysteria that McKinley had been treated inadequately. A report released on October 12, 1901, and signed by each of the involved physicians noted that "the absence of known pathogenic bacteria, particularly in the necrotic cavity, warrants the conclusion that bacterial infection was not a factor in the production of the conditions found at the autopsy."



*I killed President McKinley because
I done my duty. I didn't ^{have} hope one
man should so much wrong and another man
should have more.
to of September 6th 1901.
- Leon F. Czolgosz*

Czolgosz shoots President McKinley with a concealed revolver, at Pan-American Exposition reception, Sept. 6th, 1901.
Library of Congress

William Howard Taft



WILLIAM HOWARD TAFT

1857-1930

27th US President



President Taft speaks to a gathering crowd at the unveiling of the George Armstrong Custer Equestrian Monument in 1910. Elizabeth Bacon Custer is pictured just below Taft.
Library of Congress

The heaviest president ever to serve, William Taft's weight earned him the name "Big Lub" while attending Yale, and it later kept him out of military service. Taft (in office March 4, 1909 – March 4, 1913) weighed 350 pounds at the beginning of his second term. In September 1902, Taft became ill with a fever (thought to be dengue) after having been appointed Governor-General of the Philippines. He was transferred to the Army Hospital and diagnosed with amebiasis, which had caused a perineal abscess. This was incised and drained, and a second operation was performed shortly thereafter. Taft's wife Nellie wrote to him:

February 6, 1902

My dearest Will ... I do feel dreadfully that you are having more trouble with that horrid wound. I want you to go to Baltimore and see Dr. Kelly who is the best authority on all such things. Dr. Forchheimer says that the only thing to say against the Johns Hopkins is that they might charge you frightfully. He had a friend who was charged \$17,000 for an operation... It could be done perfectly well here [in Cincinnati], and much more cheaply.

Taft eventually required a third operation for the abscess, which *was* performed in Cincinnati.

Taft's obesity was the brunt of jokes around Washington and caused him a number of health problems. It was claimed he had gotten stuck in a regular bathtub and required assistance from several individuals to get out, so a special bathtub was installed at the White House that was said to be the size of a small swimming pool. Not surprisingly, Taft developed gout to the point where he was bedridden with tremendous pain in his big toe. He most likely suf-

GOV. TAFT UNDER THE KNIFE

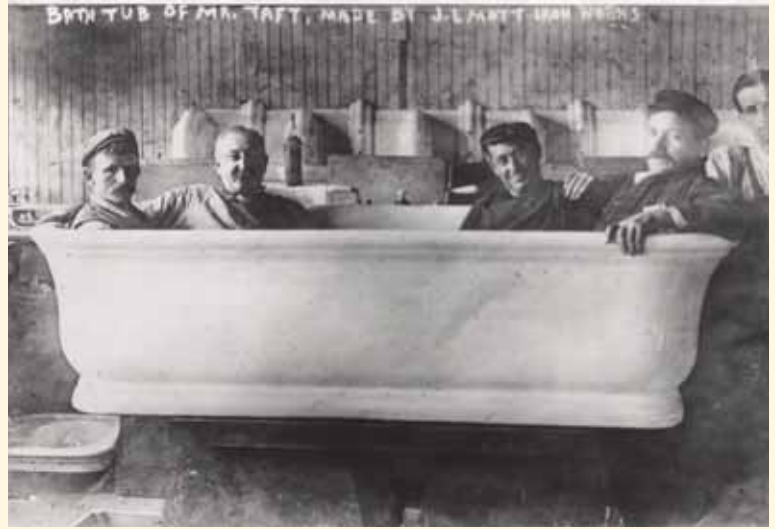
Successful Surgical Operation Performed at Cincinnati—The Patient Reported to be Doing Well.

CINCINNATI, March 11.—William H. Taft, Governor of the Philippines, underwent a surgical operation to-day at the Jewish Hospital in this city. He had contemplated the operation since his consultation with an expert in New York immediately after his return from Manila. The operation is not regarded as a serious one, and it was successfully performed. The patient is reported as doing nicely. He will be in the hospital perhaps three weeks. Dr. Forchheimer performed the operation.

ferred from obstructive sleep apnea as he frequently fell asleep in his chair, not only after his heavy meals, but even during Cabinet meetings and official functions. Taft always believed his obesity was caused by his tendency to overeat when stressed. After he left the presidency, Taft became a professor at Yale Law School, and within a year and a half he had reduced his weight from 350 to 270 pounds.

While he had lost some weight, Taft was still tremendously overweight when he became Chief Justice of the Supreme Court in 1921. For some time he had suffered prostatic enlargement that obstructed the flow of urine from his bladder, causing incomplete emptying of his bladder. By 1922, he needed to be hospitalized for bladder stones, which were removed endoscopically. He wrote to his son that “the gravel was removed with a cystoscope which was invented in 1920” (in fact, the cystoscope was invented three decades earlier). Taft also continued to experience digestive difficulties and heart problems, which may have been episodes of cardiac failure.

In the late 1920s, Taft realized that his memory was “growing poorer and poorer.” In March 1929, as Chief Justice, Taft administered the Oath of Office to the new President, Herbert Hoover. This was broadcast over the radio, and everyone heard Taft forget his lines and improvise. In Feb-



Taft's presidential bulk did not fit into a normal bathtub. Here, four workers have a grand time sitting in the special tub they built for him. It was shipped to the White House after the picture was taken.

Culver Pictures, Inc.

ruary 1930, Taft's son, Robert, traveled to Washington to announce his father's retirement from the Supreme Court.

After falling into a coma, Taft died on March 8, 1930, most likely from severe hypertension, general arteriosclerosis, myocardial failure and prostatic obstruction, which may have led to renal failure.

20TH CENTURY PRESIDENTS: BALANCING HEALTH AND PUBLIC DISCLOSURE

Throughout the history of the United States, efforts have been made to conceal the health afflictions of presidents to avoid public concern. During the first half of the 20th century, doing so was relatively easy, as radio and print journalists were more willing to be complicit in keeping health matters private. However, with an increase in the use of photojournalism, television and the Internet, and a growing interest in public figures' private lives, modern-day health secrets have become more difficult to conceal.

Woodrow Wilson suffered several strokes before being elected president, but he remained in a state of denial to himself and others. Then, following a massive stroke in October 1919, it was his physician, Cary Grayson, and his wife, Edith, who instigated a cover-up of the President's dire state. Though they decided against informing Wilson of the seriousness of his illness, Grayson did brief the Cabinet but refused to sign a declaration of the President's

disability. The two also refused to let the public know of the President's condition, though it likely affected his ability to govern. Some historians feel Wilson would have been better able to negotiate a compromise over the League of Nations had he not been ill.

Perhaps the most famous case of concealment occurred during Franklin Roosevelt's administration. When Roosevelt died unexpectedly of cerebral hemorrhage in April, 1945, his death shocked the nation because the White House and his physicians had kept his ailing health a secret. While it was widely known that Roosevelt had developed polio in 1921, his aides and, with few exceptions, journalists, did not disclose the fact that he could not walk on his own. The President's physicians also kept the severity of his arteriosclerosis and hypertension a secret, even as he began to lose weight during his last term. New theories, published first in 1979 and again in a book, titled “FDR's Deadly

Secret,” released in January 2010, suggest that Roosevelt suffered from metastatic melanoma, eventually causing a brain tumor and the stroke that killed him.

John F. Kennedy, the youngest president to be elected at age 43, was a media darling, often portrayed as a picture of health, strolling along a Massachusetts beach or sailing off the coast of Cape Cod. In reality, Kennedy suffered immensely from a very early age from what was eventually diagnosed as Addison’s disease. An analysis of his medical records released in 2002 revealed that by the time he was elected, Kennedy was taking 10-12 medications daily, many for pain associated with a bad back. Like Roosevelt, Kennedy also had trouble walking, and on some days was unable to put on his own shoes, facts that were carefully concealed from the public. Though Kennedy, his aides and the journalistic community may have deceived the public about the President’s disabilities, his health is not thought to have affected his decision-making.

In contrast, Ronald Reagan, the oldest elected president at age 69 and a former Hollywood star, may have suffered the effects of Alzheimer’s during the end of his last term as president. Those close to the President deny that the disease affected him during his presidency, but suspicion that Reagan might have Alzheimer’s arose during the 1984 election campaign when he lost his train of thought in his first debate with Democrat Walter Mondale.

In a book commemorating what would have been his father’s 100th birthday, Ron Reagan, Jr. claimed that his father’s memory was ailing while in office: “Three years into his first term as president, I felt the first shivers of concern that something beyond mellowing was affecting my father,” he writes in “My Father at 100,” published in January 2011. “Had the diagnosis been made in, say, 1987, would he have stepped down? I believe he would have. Today we are aware that the changes associated with Alzheimer’s can be in evidence years, even decades, before identifiable symptoms arise. The question, then, of whether my father suffered from the beginning stages of the disease while in office more or less answers itself.”

While we will never know the truth about some of the presidents’ health issues due to a lack of records or loyalty to their final wishes, the fact remains that many of these men suffered very privately, often in order to protect the country in times of war or economic crisis. More recently, presidents have become more open about their health, feeling that their struggles with issues such as obesity, heart disease or smoking cessation can help raise awareness about others suffering with such diseases. Should presidents and their doctors make full disclosures about their health, defying a right to privacy that many citizens hold dear? It is difficult to answer that question but, as long as facts are kept secret, theories and speculation about presidents’ health conditions certainly will proliferate.

WILSON MAY UNDERGO OPERATION

Washington, Oct. 17.—White President Wilson was feeling well today, his physicians said he had been suffering from several days of the past two weeks.

The doctors issued the following bulletin: “12:12 p. m., White House, October 17, 1919: “The President passed a comfortable night and is feeling well this morning. His temperature, pulse and respiration rates are normal. The prostatic condition is not as satisfactory as yesterday and is checking general improvement of the past two weeks.”

“GRAYSON, “RUFFIN, “STITT.”

Dr. Grayson announced that he had called in Dr. Hugh Young, one of Johns Hopkins hospital, Baltimore, one of the foremost specialists in the country on prostatic troubles, and that he was expected at the White House some time today. During the morning, the President was treated by Dr. Fowler, a Washington specialist who was called in when the President first suffered this complication several days ago. Dr. Young will make a thorough examination of the swelling of the prostate to determine whether an operation is necessary. Dr. Grayson

The New York Times. LATE CITY EDITION

PRESIDENT ROOSEVELT IS DEAD; TRUMAN TO CONTINUE POLICIES; 9TH CROSSES ELBE, NEARS BERLIN

FRANKLIN DELANO ROOSEVELT
1882-1945

TRUMAN IS SWORN IN THE WHITE HOUSE

WAR NEWS SUMMARIZED

LAST WORDS: I HAVE TERRIFIC HEADACHE

END COMES SUDDENLY AT WASH SPRINGS
Even His Family Unaware of Condition as Cerebral Stroke Brings Death to Nation's Leader at 63

ALL CABINET MEMBERS TO KEEP POSTS
Funeral to Be at White House Tomorrow, Miss Burial at Hyde Park Home—Impact of News Tremendous

BY ARTHUR BRONK

WASHINGTON, April 12.—Franklin D. Roosevelt, 63, died at his home in Washington, D. C., today at 6:05 a. m. after a long illness. The death was announced by the White House at 10:30 a. m.

The President, who had been in poor health for some time, died of a cerebral stroke. His death was a great loss to the nation.

His body will lie in state at the White House and be buried at Hyde Park, N. Y.

His death was a great loss to the nation.

His death was a great loss to the nation.

Woodrow Wilson



WOODROW WILSON

1856-1924

28th *US President*



President Woodrow Wilson, seated at desk with his wife, Edith Bolling Galt, standing at his side, 1920. The president's wife steadies a paper for him to sign, since he was unable to use his paralysed left arm and hand.
Library of Congress

Gastrointestinal problems plagued Thomas as Woodrow Wilson (in office March 4, 1913 – March 4, 1921) from an early age, as did vascular issues. As a young man attending college and graduate school and later as a university professor, he suffered indigestion and severe, prolonged headaches. Wilson's gastrointestinal complaints eventually led him to see a doctor in New York City, who diagnosed the future president with "excess stomach acid" and instructed him to use a stomach pump.

In the spring of 1906, Wilson awoke one morning to find that he was blind in his left eye. For the months prior, he had noticed increasing pain in his left shoulder and left leg. Wilson consulted well-known Philadelphia ophthalmologist Dr. George DeSchweinitz, who diagnosed him with arteriosclerosis with bleeding into the retina and recommended he live a quiet and retired life. However, Wilson went on to become governor of New Jersey in 1911, and after only one year in office, he had a bout of what appeared to be neuritis, involving the left extremities, with cramping and pain in his hand.

Shortly after Wilson's inauguration as president in 1913, his wife called for White House physician Rear Admiral Cary T. Grayson to see her husband, who was in bed with his usual problems of severe headache and gastrointestinal upset. Grayson promptly discontinued Wilson's use of a stomach pump as well as some other medications, instead prescribing fresh air, plenty of sleep, regular games and daily motor excursions. Wilson was put on a diet of raw eggs and orange juice and eventually oatmeal, chicken, steak and country ham. By today's standards, this is not the best diet for a person with arteriosclerosis, but Wilson's health improved under Grayson's treatment.

On September 3, 1919, Wilson embarked on a nationwide train tour to share his "League of Nations" concept with the American people. The harsh travel schedule caused the President blinding headaches and asthma attacks. One morning in Colorado, Mrs. Wilson found the President moaning and mumbling next to his bed. Wilson was slumped in his chair, ashen, with saliva trickling from the left corner of his mouth, which drooped perceptibly, and a feeble pulse. Grayson knew Wilson had experienced a slight paralytic stroke. The group headed back to Washington, where Wilson could recover.

Though Wilson improved after returning to Washington, he suffered another stroke early in October 1919, leaving him with paralysis of the left arm and leg and left side of face. The stroke would heavily debilitate the President and lead to what would perhaps become one of the most infamous White House cover-ups.

With the League of Nations concept at stake and the country haggard and worn after World War I, it was a stressful time for the President to be incapacitated. Though Wilson was, indeed, seriously debilitated by his stroke, Grayson vehemently denied that the President was unable to fulfill his duties and would not invoke the 25th Amendment, which states: In Case of the Removal of the President from Office, or of his Death, Resignation, or Inability to discharge the Powers and Duties of the said Office, the Same shall devolve on the Vice President.... Instead, Wilson was kept in isolation, with his wife Edith acting as a "gatekeeper" to the President.

During Wilson's recovery, he became unable to urinate and his bladder began to distend. Grayson introduced a catheter, but the process became progressively more difficult. Grayson called Hopkins urologist Hugh Hampton Young when he realized the President had gone 30 hours without emptying his bladder. Wilson's abdomen was hugely distended, and Young described his condition as "evidently desperate." While it seemed imperative to perform a suprapubic cystotomy, Young did not think Wilson could withstand the shock of the surgical intervention, which Young had learned through experience was risky because of infection. Wilson's bladder function fully recovered, but Young frequently visited the White House.

Wilson recovered slowly but gradually from his last stroke. The President's condition was kept a secret from his Cabinet and the public, except that he suffered "a nervous breakdown." When Wilson left office, he moved into a smaller house, where he lived the "life of a severe invalid." Over the next couple of years, he gradually weakened, continued to lose vision, had poor appetite, and became less and less aware of his surroundings. Wilson died on February 3, 1924, from a massive infarction of his brain.



Hugh H. Young. "Mr. Wilson was a very patient sufferer, and at times delightful and amusing in his conversation. When on one of my visits I remarked, 'Mr. President, you badly need a shave.' 'Yes,' said he, 'but I have always shaved myself and I hate to trust myself to a barber.' To which I replied 'Why don't you let Admiral Grayson shave you? You know originally, the surgeons were all barbers.' 'Yes,' said the President, 'they are still barbarous.' Hugh H. Young, *A Surgeon's Autobiography* William P. Didusch Center for Urologic History



Franklin D. Roosevelt



18

FRANKLIN D. ROOSEVELT

1882-1945

32nd *US President*



Franklin D. Roosevelt, 1920
Library of Congress

Born on January 30, 1882, in upstate New York's Dutchess County and the only son of a very wealthy couple, Franklin Delano Roosevelt (in office March 4, 1933 – April 12, 1945) was plagued by illness his entire life.

He grew up pampered and guarded by his protective mother. His parents traveled not infrequently to Europe and on one of these trips when he was seven, FDR boarded the ship with a fever. His family physicians thought the illness was due to malaria, but the ship's surgeon diagnosed typhoid fever. He was put in a room in the captain's quarters and, upon arrival in Liverpool, was taken by ambulance to a well-known Harley Street physician. Franklin recuperated while his parents continued their tour.

In 1904, during his first year at Columbia Law School, he became engaged to a distant cousin, Eleanor Roosevelt. He became ill sometime thereafter; initially this seemed to be a cold but was finally diagnosed as jaundice, perhaps hepatitis. During the several weeks he spent recuperating, he made his engagement to Eleanor public. They married in March of 1905 and on their honeymoon Eleanor found out that her husband was a sleepwalker.

In addition, he had a succession of headaches, sinus attacks, colds and several throat infections, which put him on bed rest for up to a month at a time. In August 1917, he had a tonsillar abscess and two years later had a tonsillectomy.

Roosevelt's most serious illness occurred in 1921. Believing it was an attack of lumbago, from which he had suffered since 1915, Roosevelt went to bed, where he developed a severe chill that was unrelieved by extra blankets, hot water bottles and hot drinks. By early morning he had weakness



FDR greeted in Worcester, Massachusetts, 1934
Rosenzweig papers.

of his left knee but was treated for a cold by his family physician. Over the next 24 hours, his temperature rose to 102 degrees and the muscular weakness spread; eventually the paralysis progressed up to the waist and was accompanied by transient partial paralysis of the upper extremities, face, bladder and lower bowel. After many days without improvement, the family called in Dr. Robert Lovett, a specialist in infantile paralysis, who diagnosed Roosevelt with polio. In 1924, Roosevelt began going to Warm Springs, Georgia, for exercises and baths that gradually helped him become more functional, though he continued to have difficulty walking. For years he needed a wheelchair or leg braces to help him move. FDR was so impressed with his improved sense of well-being after Warm Springs that he decided to buy the property and convert it into a rehabilitation center for young polio victims. He also formed the National Foundation for Infantile Paralysis in 1938. Infantile paralysis was then the name for polio.

FDR went through a long period of recuperation but never regained complete control of his lower extremities.

In 1943, President Roosevelt became ill and was diagnosed with the flu by his physician, Admiral Ross McIntire. However, it was clear by 1944 that the President's health was not improving despite treatments with nose drops and sinus sprays, which brought only marginal relief and increased his already-elevated blood pressure. McIntire admitted FDR to Bethesda Naval Hospital for a complete checkup; there, Dr. Howard G. Bruenn, an officer specializing in internal medicine and cardiology, diagnosed Roosevelt with "hypertension, hypertensive heart disease, cardiac failure (left ventricle) and acute bronchitis," and recommended treatment with digitalis, salt restriction and bed rest.

Instead, McIntire changed the treatment to cough syrup containing codeine, possibly to treat the bronchitis. Eventually digitalis was begun, and within a week Roosevelt's symptoms improved, as did his EKG and chest x-ray. But his blood pressure remained significantly elevated and eventually rose to 220 over 118. Pressure at this level is labeled malignant hypertension, and the prognosis is usually poor. Nevertheless, McIntire reported only "a modest degree of arteriosclerosis, although no more than normal for a man of his age." Only a month before Roosevelt's reelection, McIntire made a statement to the press: "The President's health is perfectly okay. There are absolutely no organic difficulties at all."

However, Roosevelt's health was clearly deteriorating. On April 12, 1945, while sitting for a portrait, Roosevelt suddenly told the artist, "I have a terrible headache," and lost consciousness. Bruenn attended to him immediately, but shortly thereafter pronounced Roosevelt dead from a massive stroke.

❧ ROOSEVELT AND THE MARCH OF DIMES ❧

The National Foundation for Infantile Paralysis, which FDR had founded, raised money through annual Birthday Balls and radio campaigns that urged everyone in the country to donate a dime to the cause. Entertainer Eddie Cantor coined the term "March of Dimes" as a play on the name of a popular news show called "March of Time," and the White House received 2,680,000 dimes and thousands of dollars in donations. In 1941, the organization helped fund the development of an improved iron lung, which helped the breathing of polio victims who had lost lung function. After Roosevelt died in office in 1945, his portrait replaced that of Liberty on the dime in commemoration of his work as president and in the fight against polio. The foundation adopted March of Dimes as its official title in 1979.

The March of Dimes provided a patient aid program and funding for vaccine research and development. Much of the financial support leading to the creation of two polio vaccines developed by Jonas Salk and Albert Sabin was provided by the March of Dimes. In 1955, following the largest clinical trial conducted in the nation—involving the vaccination of 1.8 million schoolchildren—researchers announced that Salk's vaccine was 80 to 90 percent effective in preventing polio. Widespread vaccination campaigns in the United States effectively ended the polio epidemic in the United States.

In 1958, the March of Dimes decided to expand its efforts to help prevent premature birth, birth defects and infant mortality. The organization continues to support research into the causes of birth defects, promotes prenatal screening, and educates health professionals and the public about healthy pregnancy.

Poster for The President Hotel's birthday ball "so we may dance again" to raise funds in support of the fight to cure infantile paralysis. 1939
Library of Congress



John F. Kennedy



JOHN FITZGERALD KENNEDY

1917-1963

35th US President



The Politician: After back surgery, Jack continued the Senate campaign in pain while on crutches.
John F. Kennedy Presidential Library

John Fitzgerald Kennedy (in office January 20, 1961 – November 22, 1963) was a sick child, almost dying from scarlet fever at age 2, and he continued to suffer from frequent upper respiratory infections, several episodes of jaundice, colitis, severe chronic back pain, and the effects of a rare illness that was kept from the public.

In 1933, Kennedy developed what has been described as hepatitis, jaundice and a “blood disease,” and he later dropped out of Princeton University after another attack of hepatitis. He entered Harvard in 1936, and while there was treated for what his mother Rose called “a delicate stomach.” Dr. Sara Jordan, a gastroenterologist and a founder of the Lahey Clinic in Boston who treated Kennedy for 25 years, wrote a prescription for him: “Continue care in diet, take Trasentine tablets [an antispasmodic] before each meal, and in the early morning apply heat to stomach on the first awakening for 15 minutes before rising.”

While serving as a WWII Naval patrol boat commander in August 1943, JFK was steering his boat at night through the Solomon Islands when it was rammed by a Japanese destroyer. Kennedy and the survivors of his crew swam to a nearby island, where they were eventually rescued and treated for their injuries, as well as malnutrition and exposure. Kennedy had contracted malaria and was diagnosed with a chronic disease of the lumbar spine.

He underwent back surgery in the summer of 1944 at the Naval Hospital in Boston, but the operation was declared unsuccessful. In 1947, Kennedy began his first term in the U.S. House of Representatives. Though a newcomer to Congress, he was absent for prolonged periods several times due to illness. In March of that year, one of his colleagues thought Kennedy looked “decrepit.”

While on a trip to Europe that summer, he became seriously ill. He was rushed to a clinic in London, where he was given an injection of desoxycorticosterone acetate (DOCA) – the only available treatment for what was diagnosed as Addison’s disease: a rare, chronic endocrine disorder in which the adrenal glands produce an insufficient amount of steroidal hormones. Kennedy’s weight loss, fatigue, gastrointestinal complaints, pigmentation and lack of resistance to infection were all attributable to this illness. On the way back to the United States on the *Queen Elizabeth*, Kennedy was so ill that he was given Catholic last rites, but he improved somewhat by the time he reached home. His physician recommended that he “slow down.”

In 1951, on a trip around the world with his brother Robert, JFK came down suddenly with a serious infection and a high-grade fever. Once again he was not expected to live but recovered after treatment with antibiotics and an increase in his cortisone. Boston newspapers reported that Representative Kennedy had suffered a relapse of malaria, which, along with the boating accident, was used repeatedly to explain his medical and orthopedic problems.

Kennedy’s back pain continued to worsen, but another back surgery was not advised because of his Addison’s disease. Against the recommendations of his physicians at Lahey, JFK went to the New York Hospital for surgery. Initially recovering well, he developed an antibiotic-resistant infection several days later and fell unconscious. Though his condition was considered critical and he once again was given last rites, Kennedy gradually recovered over the next two months. It soon became apparent that the surgery had failed, and it was feared that he might not be able to walk again. While he did reasonably well on steroid therapy, his back problem remained a major issue, and he needed crutches for a short time.

In May 1955, Kennedy began to see Dr. Janet Travell, a specialist in back pain who would later become the first female White House physician. She prescribed Novocain injections and sitting in a rocking chair to reduce pain (from spasms) and strengthen Kennedy’s lower back muscles. She also found that his left leg was $\frac{3}{4}$ of an inch shorter than the right and ordered special shoes and a small brace to support his back. Travell would later reveal that JFK also was diagnosed with hypothyroidism.

Kennedy’s health did not improve after he was elected president. He was extremely ill in the summer of 1961 during a presidential trip to Canada. His back pain was worse than it had been in years, and he also developed a severe upper respiratory infection with sore throat, cough, chills and high-grade fever. JFK was prescribed large doses of penicillin and intravenous medications, and he improved within a few days.

As Kennedy was requiring more Novocain injections to treat his back pain, Dr. Eugene Cohen, the President’s endocrinologist, suggested he consult Dr. Hans Kraus, an expert in exercise and health. Dr. Kraus recommended Kennedy add twice-daily physical therapy-type exercises to his daily swimming regimen. JFK made great progress, and by early 1963, he felt better than he had in years.

Indeed, he was in remarkably good shape on November 22, 1963, when he was assassinated in Dallas.



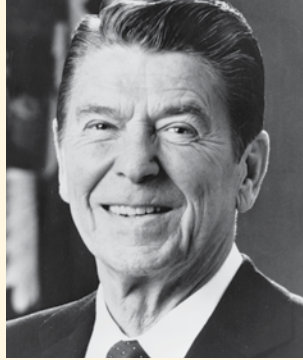
John F. Kennedy leaving on gurney from hospital following spinal surgery, as his wife Jacqueline stands over him, 1954 December 21.

John F. Kennedy Presidential Library




John F. Kennedy motorcade, Dallas, Texas, Nov. 22, 1963.
Library of Congress

Ronald Reagan



RONALD REAGAN

1911-2004

40th  US President



Ronald Reagan testifying at the House Un-American Activities Committee (HUAC) hearings in Washington, DC. 10/25/47.
Ronald Reagan Library

Despite his family's poverty, Ronald Reagan (in office January 20, 1981 – January 20, 1989) had a very healthy childhood. As a young man, Reagan suffered from extreme nearsightedness that was corrected with contact lenses, and severe hearing loss, which he may have developed as an actor filming numerous gunshot-filled Westerns. He was diagnosed in 1966 with prostate stones after a series of urinary tract infections. In 1967, due to a "well-documented" history of significant problems from his prostate "stones," he underwent a trans-urethral prostatectomy.

As the oldest candidate in history to seek the presidency, Reagan's health was a significant topic of discussion on the campaign trail. He authorized the release of medical information and vowed to resign the presidency if he ever became unfit for service. Going into the presidency, his physicians hailed his strong health and cleared him for office. He was known to work out regularly and eat well.

On March 30, 1981, a few months after his inauguration as the 40th President of the United States, Reagan was leaving the Washington Hilton when a young man fired several shots in an attempt to assassinate him. A Secret Service agent threw the President into the back of the limousine when a second shot presumably ricocheted off the window



Ronald Reagan and Nancy Reagan at the Victory celebration for California Governor at the Biltmore Hotel in Los Angeles, California. 11/8/66.
Ronald Reagan Library



and entered Reagan's chest. The President was rushed to George Washington University Hospital, where he lost consciousness and had difficulty breathing due to a collapsed lung and severe blood loss. Reagan underwent successful surgery to stop the bleeding, repair his lung and remove the bullet lodged close to his heart. Unlike Garfield and McKinley, Reagan fully recovered from this assassination attempt. Medical stabilization of the patient, aseptic methods, blood transfusion, x-ray location of the bullet, and safe anesthesia, all helped him to survive.

In 1984, an exam showed Reagan had a benign polyp in his colon and another was detected in March 1985. Reagan underwent endoscopy to remove the polyp in July 1985; the procedure revealed a larger tumor that was cancerous and too large to be removed endoscopically. Prior to going under anesthesia for surgery, Reagan wrote a letter empowering Vice President George H.W. Bush to temporarily assume the Constitutional powers of the presidency. When he recovered Reagan stated, "I didn't have cancer. I had something inside of me, with cancer in it, and it was removed."

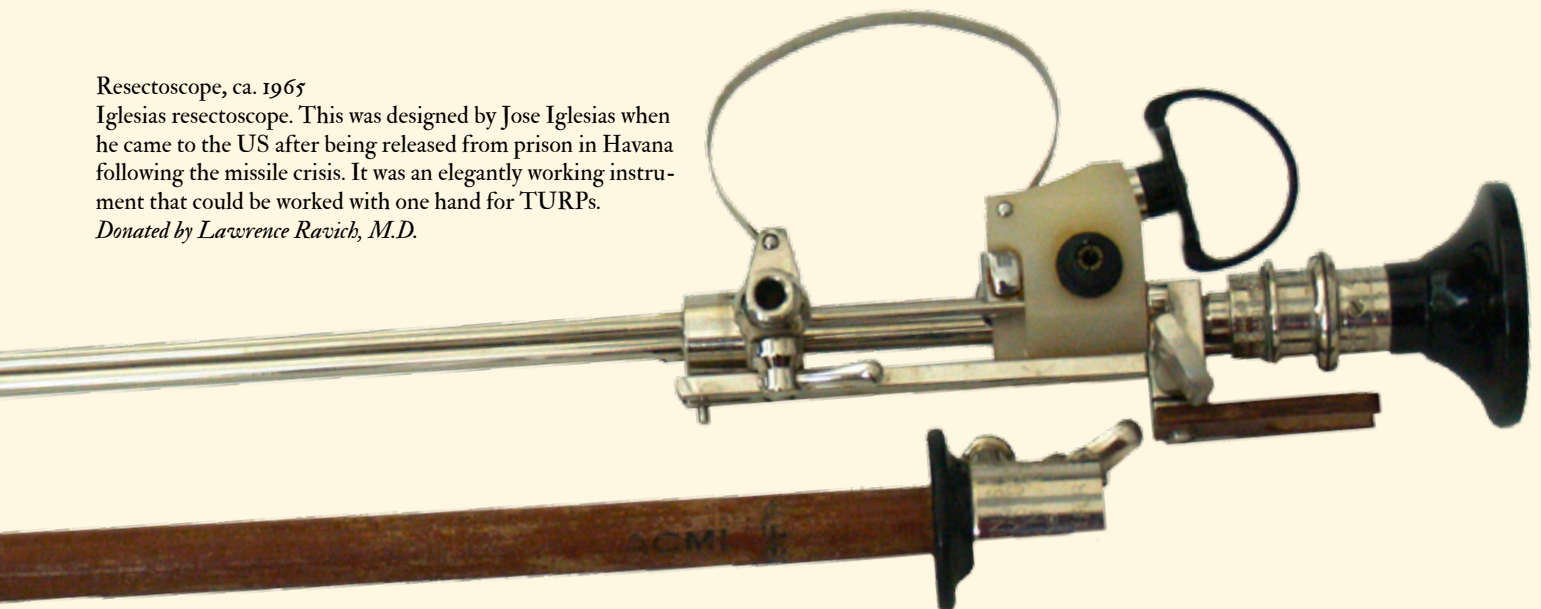
In January 1987, he underwent transurethral resection of the prostate (TURP) surgery to alleviate problems due to an enlarged prostate. No cancer was found.

Toward the end of his second term, Reagan began to have memory lapses, forgetting the names of Cabinet officers, trusted aides or visiting dignitaries. However, Dr. John Hutton, the President's primary physician from 1984 to 1989, said that the President did not show signs of dementia or Alzheimer's disease. Reagan was first diagnosed with Alzheimer's in 1994 during his annual visit to the Mayo Clinic. Some speculate that his disease was exacerbated by a head injury experienced in 1989 after he fell off of a horse while in Mexico. The President publicized his problem in a letter to the American people on November 5, 1994.

Resectoscope, ca. 1965

Iglesias resectoscope. This was designed by Jose Iglesias when he came to the US after being released from prison in Havana following the missile crisis. It was an elegantly working instrument that could be worked with one hand for TURPs.

Donated by Lawrence Ravich, M.D.



In January 2001, the nearly 90-year-old Reagan fell and broke his hip, which was fixed with pins and screws. Though such a fracture and operation usually causes significant morbidity, he did remarkably well. Reagan died on June 5, 2004, of pneumonia, which can be a complication of Alzheimer's disease, as reflexes preventing aspiration of saliva may be diminished or lost.



President Reagan with Nancy Reagan inside George Washington Hospital four days after the shooting. 4/3/81.
Ronald Reagan Library.



THE WHITE HOUSE
WASHINGTON

THE PRESIDENT'S PHYSICIAN



James Craik, M.D.
Library of Congress



Samuel Bard, M.D.
Library of Congress

The role of personal physician to the President of the United States is one of great import to the health of not only the nation's leader, but to the country itself. Over the course of time, Presidential physicians have been called upon to treat everything from the most minor ailments, such as colds, to the most serious, such as gunshot wounds. In cases where a presidential illness could imply weakness and negatively impact public attitude (as in the case of Grover Cleveland's malignancy), physicians and staff operate under a veil of secrecy. The position is one of high stakes and high stress.

Historically, being the doctor to the president has also been a position of honor. Early presidents typically chose outstanding doctors from their local communities to tend to their medical needs. In some cases these physicians were close family friends (as was Washington's physician, James Craik). As medicine evolved, so did the role of "first physician." When homeopathy emerged, some presidents, such as James Garfield, selected non-allopathic physicians to attend the First Family. Others, including James Monroe, elected to use military physicians for their care. These choices may have been based on trends of the time, or on specific injuries for which treatment was needed. For instance, Andrew Jackson sought the services of naval surgeon Thomas Harris to remove the bullet from his shoulder, presumably because he felt a military surgeon would have more experience with gunshot wounds than a private practitioner.

In the founding years of the country, the president chose his physician personally, usually an outstanding doctor from the local community. At that time, most physicians were trained through three-year apprenticeships with doctors, some of whom had been educated in Europe. At the conclusion of the apprenticeship, the young man received a certificate of completion, which was registered in a court of record and legally qualified him as a practitioner of medicine.



The death of President Abraham Lincoln in Washington, 1865. *Wellcome Library*

In the early 1800s, however, the center of medical education shifted from Edinburgh, Scotland, to the Medical School of the University of Pennsylvania in Philadelphia. The outstanding teacher at the University of Pennsylvania was Benjamin Rush, who was a close friend of Thomas Jefferson and taught William Harrison during his short stint at the school. Rush taught several medical students who later treated American presidents.

By the second half of the 19th century, poor-quality medical schools where an applicant could obtain a certification in two years or even buy one at a “diploma mill” were widespread in America. This scenario did not change much until 1910, when, at the request of the Carnegie Institute, Abraham Flexner published an evaluation of every “medical school” in the country. Few of the schools escaped unscathed.

James Craik received his medical education at the University of Edinburgh and left his native Scotland in the 1770s. He met George Washington while serving as surgeon in

Colonel Joshua Fry’s Virginia Provincial Regiment, and the two became good friends. He served as the Physician General of the United States Army, and later he received an honorary medical degree from the University of Pennsylvania. After the Revolution he was persuaded by his friend Washington to settle in Alexandria, Virginia, so they could be close. Craik was one of the three physicians to attend to Washington when he had his terminal illness.

Samuel Bard, another physician to treat Washington, was an acquaintance of the President and founded the first medical school in New York. He attended King’s College (Columbia University today) and went to the University of Edinburgh to study medicine. Bard returned to New York and, on June 13, 1789, about six weeks after Washington’s Inaugural Address in New York, was called to lower Manhattan to attend to Washington, who was suffering a high fever and tremendous pain in his left thigh caused by an abscess (called a malignant carbuncle).

Robley Dunglison was an English physician trained in London, Edinburgh and Paris who moved to the United States to serve on the faculty at the University of Virginia. Thomas Jefferson chose Dunglison to be his personal physician. Dunglison's son, Richard James, was the editor of the first American edition of Gray's Anatomy.

There had been sporadic calls for military surgeons to attend a president. Whereas the private physicians selected by presidents had numerous other patients to care for, the military physicians assigned to presidents, and later vice presidents, and their families had these important individuals as their one and only charge.

Jonathan Foltz, a Navy surgeon, was the first military officer assigned to a president and the first to accompany one on a trip outside of the capital city. Foltz served James Polk and later James Buchanan. Serving as assistant naval surgeon, Foltz went with Polk on an 1848 visit to Bedford Springs, Pennsylvania, where Polk was seeking the curative effects of the waters about which Foltz had written an unpublished treatise, titled "On the Curative Effect of the Waters of Bedford Springs." Later, Foltz was the first to take up residence at the White House at the request of President Buchanan. Foltz attended to Buchanan, a close companion, accompanying him on several trips and attending to him through several illnesses. However, the relationship between Foltz and the President unraveled after Foltz did not receive a promised appointment to be surgeon general of the Navy. Foltz blamed Buchanan and began criticizing him publicly, even changing his first born son's name from Frederick Buchanan to Frederick Steinman. Foltz was eventually appointed to surgeon general of the Navy by President Ulysses Grant.

Several homeopathic physicians also were involved in the care of presidents. *Silas Boynton*, a first cousin of James Garfield, was assigned to attend to the President and his family. *Susan Edson*, a homeopath who the youngest Garfield boy referred to as "Dr. Edson, full of med'cin," also provided care for the family. However, following the attempted assassination of Garfield in 1881, the President appointed childhood friend and former Civil War surgeon *D. Willard Bliss* as his primary physician. Bliss, who is said to have been arrogant and dictatorial, removed Boynton from the President's medical staff. Bliss was later criticized for his care of Garfield after his death from assassination, as Bliss and his team possibly introduced infection to the President's wounds by examining them with unwashed fingers and instruments.



Gen. Rear Admiral Presley Marion Rixey was a Surgeon General of the United States Navy (1902–10) and personal physician to Presidents William McKinley and Theodore Roosevelt. *Library of Congress.*

President Grover Cleveland tapped *Robert M. O'Reilly*, an Army surgeon who later became Surgeon General of the Army, to serve as White House physician in 1885. O'Reilly was the first to examine and biopsy a "rough place" on Cleveland's palate.

Under Presidents Cleveland and McKinley, hospitals became more prominent in the United States. Previously, people needing hospital care were treated at almshouses or asylums, and those of wealth had physicians attend to them at their homes. The status of the White House physician also began to change under McKinley, who was the first to create a small, permanent medical corner at the residence. McKinley appointed *Rear Admiral Presley M. Rixey* as White House physician and to "take charge of Mrs. McKinley, who had been an invalid for many years." Rixey accompanied the McKinleys on all of their trips, including to Buffalo, New York, where McKinley was assassinated. Following the President's death, Theodore Roosevelt asked Rixey to remain White House physician but to attend to Mrs. McKinley "as often as necessary." Rixey was eventually appointed Surgeon General of the Navy and Chief of the Bureau of Medicine and Surgery, and served as White House physician through the end of Roosevelt's term in 1909.

Although Rixey was present when McKinley was shot, he stayed with Mrs. McKinley, and Matthew Mann, a well-known Buffalo physician specializing in gynecology, was placed in charge of the operation that attempted to remove the bullet from his stomach.

President Calvin Coolidge selected *Major James Coupal* to serve in the position, as he already was serving as personal physician to Coolidge when he was Vice President. Coupal, born in Massachusetts, received his undergraduate and medical degrees from Tufts University and, after World War I, became the curator of the Army Medical Museum in Washington, D.C. During Coolidge's time as Vice President, his wife Grace had become close friends with her personal physician, assistant White House physician *Joel T. Boone*, who also served under Harding. Coolidge preferred Boone to Coupal, and therefore consulted him more often. Despite misgivings about Coupal's medical qualifications, Boone was able to cooperate closely with him when they cared for Calvin Coolidge, Jr.'s fatal illness.

Boone was born in Pennsylvania and, after graduating from Mercersburg Academy, went directly to medical school at Hahnemann Medical College in Pennsylvania. He joined Susan Edson, Silas Boynton and Charles Sawyer as the only homeopathic physicians to provide care for a U.S. president. Boone also provided care to presidential guests such as Madame Curie and Thomas Edison.

Herbert Hoover appointed Boone as White House physician when he was inaugurated, and took the doctor aside to have him examine a sore finger. When Boone led him to a linen closet in the White House, showing shelves lined with bottles, dressings and instruments, Hoover was appalled and stated, "But I want to go to your office." Boone replied, "This is our office," and the President directed him to locate a more efficient and adequate space, which Boone found in the basement. Thus, a permanent medical office was established in the White House, and Boone became the first physician to begin regular comprehensive physical examinations of the president, beginning a tradition of health maintenance and disease prophylaxis rather than simply diagnosis and treatment of acute medical problems. Boone also created "Hoover-ball," a combination of tennis, volleyball and medicine ball, which he instructed the President to play to stay in shape.

Years later, in a 1961 letter to *Janet Travell*, the newly appointed White House physician under John F. Kennedy and the first female to hold the position, Boone said that he and all successors were indebted to Hoover's determination to create a suitable office space in the White House for the presidential physicians. Travell, a pain specialist who received her medical training at Cornell University Medical College, was first consulted by Kennedy in 1955 for recurrent back pain. She is best known for prescribing the use of a rocking chair to improve his back pain and for the use of vapo-coolant sprays for musculoskeletal pain, a technique still widely used in sports medicine.



Janet Travell, first female White House physician. *John F. Kennedy Library*

More recently, *Eleanor Concepcion "Connie" Mariano*, the White House physician to President Bill Clinton and the first Filipino-American and graduate of the Uniformed Services University of Medicine to serve as director of the White House Medical Unit, acknowledged Boone's significance, writing that under Boone "Congress recognized the title 'White House Physician' as that of the doctor responsible for the medical care of the President." She also appreciated Boone's and Hoover's roles in establishing a physician office on the ground of the White House, which "remains to this day as the doctor's office and serves as the medical office of the President's physician."

Today, the White House Medical Unit is an element of the White House military office and is responsible not only for the First Family, but also the Vice President and his or her family as well as, in some cases, guests to state functions. Extensive preparations are made for any and all possible health scenarios that could befall these families at home or abroad. Today's president is closely flanked by a member of the medical unit day and night. The White House is equipped with a full medical office, and the physician is one of few with access to the president's personal living quarters. Presidential jet Air Force One has emergency medical equipment, an operating table and operating room lights installed. The medical team is ready for anything and everything – including the possibility that they may be called upon to invoke the 25th Amendment and declare the president unfit for duty.



The White House, Washington D.C., United States of America, 1880.
Wellcome Library

A messenger entered the operation room in Niagara Falls where noted surgeon Roswell Park was operating, telling him that he was needed urgently.

Park said,

“Don’t you see I am in the middle of a case. I can’t leave even if it were for the President of the United States?”

The messenger replied,

“Doctor, it is for the President of the United States.”

Park arrived in Buffalo when McKinley’s surgery was near completion.



Roswell Park

Healthcare at the White House has always drawn great public interest – whether focused on the well-being of the president himself, or his perspective on the issue. From George Washington’s support of inoculation and Thomas Jefferson’s investment in medical education, to FDR’s work in laying the foundation for the March of Dimes and Barack Obama’s advocacy for healthcare for the masses, the role of the president in shaping the health of a nation is significant.

Today’s president is surrounded by an entire medical team of experts ready to serve in all capacities and tend to any aspect of his well-being. Gone are the days when physicians had to be summoned from far distances (as was Roswell Park when McKinley was shot). Today’s White House is fully equipped with medical facilities and around-the-clock staff.

Modern medical advances may not have helped the outcomes in the notorious assassinations of Abraham Lincoln and John F. Kennedy, but had we known then what we know today, George Washington may not have suffered a suffocating demise. Antiseptic practice may have saved the life of James Garfield. Franklin Pierce’s alcoholism may have kept him from the White House entirely. Woodrow Wilson may have received timely treatment for his atherosclerosis that may have prevented his strokes. Any of these interventions could have changed the course of history.



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