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Would Presidents Die Today As They Did Then?

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Credit: Wikimedia Commons (Mike Tigas, Spokane, WA) [1]

Would our deceased Presidents fare better today medically than they did in their respective eras? The answer might surprise you.

Of the thirty-eight United States' presidents who have died, collectively, they surpassed life expectancies of their respective generations. (1) Did being in such a position of prominence afford them superior care to account for this windfall?

Unpacking their individual causes of death in parallel with medical advancement is one way to provoke greater understanding.

Being alive when we didn't know how disease spread, sadly, sealed Washington's fate.

Washington is a perfect example of how evolution of standard of care could have saved his life. Though well-intended, his physicians could not have known then what we know now. At that time, the established theory blamed vapors in the air, the Miasma, for spread of disease not direct contact with an infected patient as we would later discover.

It is this type of flawed opinion that beget misguided therapies which led to his premature death. In 1799, George Washington awoke with a sore throat and hoarseness. By the next evening, our first president was dead.

Though historians have proposed pneumonia and peritonsillar abscess as the cause, his precipitous decline is better explained by a presumptive diagnosis of acute epiglottitis; where volatile swelling of the upper airway creates a risk for suffocation.

As was typical of the time, he was intentionally bled four times for a total blood loss of thirty-two

ounces in under 16 hrs (2). This would never happen today since we know it would only weaken a patient.

He was given an enema and emetic to induce vomiting- also wrong. Then, the poor guy received mixtures of molasses, butter, and vinegar which likely endangered him further as he nearly choked. Today, we would not feed a patient in such distress as it could facilitate aspiration into the lungs and we would stabilize his precarious airway.

Yes, it is safe to say, Washington had a lot more life in him had he been born later.

Surviving into adolescence in 1800 - before hand washing and proper hygiene - was an essential predictor of reaching adulthood.

The global child mortality rate was > 50% – that's right, every second child did not surpass age 5 then (3), and childbed fever claimed countless maternal lives. (4)

The germ theory of disease identifying microorganisms as the offending agent didn't win out until 1880 and met with great resistance. (5) It underscored the importance of hand washing in curtailing spread of disease.

The importance of hand washing if universally implemented could have saved James Garfield in 1881.

James Garfield's presidency began tumultuously, nearly losing his wife to malaria. While exiting a train for the start of a holiday, an assassination attempt was made on his life.

Many doctors arrived to tend to him as he lay bleeding on the station floor. Sustained, protracted probing of his body with unsterilized hands and instruments took place in an effort to locate the bullet.

The use of sterile technique, championed in the mid-1860s by British surgeon Joseph Lister, was not yet adopted in the United States (7). And, since the bullet apparently missed vital structures, had Garfield enjoyed current measures [2], he would have had a more favorable outcome.

Garfield wasn't so lucky as the multiple, unsuccessful attempts to find the bullet only imperiled him. On top of that, he was given quinine, morphine and alcohol – a concoction reasonable for the era. As he worsened with persistent fevers and formation of abscesses, the great Alexander Graham Bell was called in to use his crude metal detector. Since the experts believed the bullet was lodged in his right side, Bell's allowable search was restricted to that location, so the bullet remained elusive.

The President lingered for 80 days before succumbing to infection.

In 1842, Dr. Crawford W. Long first used ether as anesthesia, allowing surgery to become less hurried and more of a thoughtful, if not invasive procedure. (8)

Just imagine if Garfield had been alive after the sweeping improvements in anesthetic and surgical care when keeping the patient safe and without pain allowed for the development of new and more effective procedures. Maybe then, Ulysses S. Grant could have had his throat cancer resected or benefited from chemotherapy discovered in the 1940s. He certainly would have been advised to

quit his love of cigars.

One might also argue a lack of understanding of infectious disease was the case for William Henry Harrison.

It is long maintained by historians Harrison's demise a mere month into office was from pneumonia. A case review published in *Clinical Infectious Diseases* (2014) disputes this with a compelling argument that a gastrointestinal infection resulted in secondary lung involvement. It suggests he contracted *Salmonella typhi* or *S paratyphi* due to poor sanitation in Washington, DC.

If true, then the colorful treatment litany of random roots, serial enemas, laxatives and tinctures of opium he received served to dehydrate and complicate his clinical course. Today, it would be ill-advised to give medications that slow down gut motility (like opium) or use enemas that could traumatize an inflamed GI tract putting it at risk of perforation.

Harrison inevitably succumbed to septic shock. Zachary Taylor died of gastroenteritis while James Knox Polk survived only shortly thereafter to succumb to cholera—all three as a result of contaminated sewage. (9)

In the 19th century, the population shifted into cities from the country causing overcrowding which overwhelmed the rudimentary sewage systems – cholera and typhoid, diseases of poor public hygiene thrived.

Though sanitation improved and medical innovations evolved, it was William McKinley's own instincts that might have saved his life.

In 1901 at the Pan-American Exposition, McKinley was shot, within roughly an hour he was in surgery to search for the bullet and repair its damage. Ironically, in one of the exhibit halls was a new device capable of finding the bullet without the need for the surgeon's knife.

Wilhelm Roentgen's "x-ray light" had its first medical use in 1896. Although an x ray apparatus was on display, no one thought to use it. McKinley asked for an x-ray out of concern it was in a vital area, but doctors worried moving him carried graver risk. He died eight days later of gangrene. (10)

Sadly, it is believed he too would have survived today.

In 1928, Alexander Fleming discovered penicillin, our first true antibiotic. (11) Many premature deaths of our presidents could have been avoided with this discovery, even those with infections caused by their well-meaning physicians.

Could modern day medicine have cured Abraham Lincoln or John F. Kennedy, Jr.?

No current medical care could have saved Abraham Lincoln or John F. Kennedy, Jr. who sustained mortal wounds to their head and brain, a person's most valuable real estate. Though surviving a gunshot wound there is possible, the likelihood of normal function is profoundly diminished.

If anything, current security measures to stave off an assassination attempt in the first place would have been their best chance at survival.

Franklin D. Roosevelt might not have contracted polio had he lived to be vaccinated after Jonas Salk developed it in 1953.

Those who are restricted in their mobility from paralytic conditions are at higher risk of infections and clots. As are chain-smokers, which was a known FDR predilection. This perfect storm along with high blood pressure and cardiac issues enabled him to sustain a stroke. (12)

Stroke, heart disease and failure were causes of death for multiple presidents. Medications to control high blood pressure, for instance, and cardiac surgeries developed much later as did our knowledge of the hazards of smoking.

So, who did benefit from being born at the "right" time?

Given that George H. W. Bush at 93 years old recently thrived after a hospitalization warranting intubation for severe pneumonia, Jimmy Carter is surviving metastatic melanoma and William Jefferson Clinton has done well after heart surgery, it is safe to reason modern medicine is a wonderful friend to our Presidents.

So, the answer to whether our lost presidents would fare better today lies in the specific case. For the vast majority, they might have survived their lethal event.

Note(s):

(1) Thirteen Presidents born in the 1700s with age at death: George Washington (67), Thomas Jefferson (83), John Adams (90), James Monroe (73), James Madison (85), William Henry Harrison (68), Andrew Jackson (78), John Quincy Adams (80), James K. Polk (53), Zachary Taylor (65), John Tyler (71), Martin Van Buren (79), James Buchanan (77).

**This data was obtained and cross-referenced via Wikipedia and Encyclopedia Britannica. Check out the CDC link here [3] to learn more about current mortality rates. And, here [4], for life expectancy trends between 1790-1900.

(5) Two physician advocates, Oliver Wendell Holmes and Ignaz Semmelweis, faced uphill battles convincing the medical establishment that unwashed hands after autopsy was the source of childbed fever spread. Holmes published in 1843 and Semmelweiss linked lower maternal mortality rates to clinicians who did not perform necropsies - blaming direct contact with "cadaverous particles." When he insisted anyone involved in autopsies wash their hands with chloride of lime, the maternal mortality rate declined. He published in 1861, but met with great resistance.

(12) Though consensus endorses polio, a journal publication in 2003 hypothesized the ailment was more likely a severe case of an ascending paralysis called Guillain-Barre Syndrome. This too is caused by an infection and tends to improve over time. Either way, FDR was a champion for polio and conscientious care is always required in paralysis to avoid complications.

Source(s):

(2) The Death of George Washington. George Washington's Mount Vernon, see here [5]. **(3)** Max Roser "Child Mortality," see here [6]. **(4)** Leavitt, Judith Walzer PhD. The Tragedy of Childbed

Fever. N Engl J Med 2000;343:587. **(5)** Lane, Hilary J. MLS, Blum, Nava PhD, Fee, Elizabeth PhD. Oliver Wendell Holmes (1809-1894) and Ignaz Philipp Semmelweis (1818-1865): Preventing the Transmission of Puerperal Fever. American Journal of Public Health. June 2010, Vol 100, No. 6. 1008-9. **(6)** Faria, Miguel Jr. M.D. Medical History—Hygiene and Sanitation. Hacienda Publishing. Winter 2002. Vol 7: Issue 4. **(7)** See here [7], The Assassination of President James A. Garfield. **(8)** Crawford W. Long Museum, see here [8]. **(9)** McHugh J, Mackowiak P. Death in the White House: President William Henry Harrison's Atypical Pneumonia [9]. Clin Infect Dis. (2014) 59(7):990-995. **(10)** University at Buffalo Libraries. See here [10] or here [11]. **(11)** American Chemical Society: Discovery and Development of Penicillin, click here [12]. **(12)** Goldman AS et al. What Was The Cause Of Franklin Delano Roosevelt's Paralysis? [13] J Med Biogr. 2003 Nov;11(4):232-4. **(13)** CDC. Achievements in Public Health, 1900-1999: Control of Infectious Diseases. MMWR Weekly. July 30, 1999/ 48(29); 621-629.

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