

Letters to the Editor

Firearms injuries: A preventable daily tragedy

I applaud *The Pharos* for running the editorial, Firearms injuries: A preventable daily tragedy (Summer, 2022, 2-12). I agree with most all of its points. Gun violence severely degrades public health in many ways and should be addressed by health care professionals using evidence-based methods. But, I think there is a broader point to be made.

Further research is needed, but we now have enough evidence from many studies (and from common sense) that the underlying cause of gun violence and death is guns—their abundance and easy availability in our society. Multiple studies show that the United States, with its liberal gun laws and higher rates of private ownership, has far more gun violence and death than other developed nations. Moreover, there is a clear correlation between the abundance and availability of guns and gun violence and death in society.¹⁻⁷ The unavoidable conclusion is that reduction of gun abundance and availability is key to addressing this epidemic. This truth is behind some actions recommended by the authors, such as banning assault weapons. But these are not enough. Like other diseases, palliation may be achieved with various measures, but real healing cannot occur until we deal directly with the pathogen: in this case, guns.

I recognize the enormous barriers to this assertion—the huge number of guns in our society; the self-interest of gun manufacturers; the entrenched gun culture; the political power of certain interest groups; and, of course, the Second Amendment. But, we cannot let these difficulties deter us. We all have an obligation to speak the truth—even if it is difficult. Gun violence is not simply a public health problem; it is also a cultural and moral problem.

The authors are clearly motivated by a sense of moral responsibility for this problem, a responsibility that we all share. Every citizen, in or out of health care, has a duty to serve the common good, safety, and health of our nation, based on truth. Like the editorial's authors, we all should be publicly advocating for measures to reduce gun violence, and this should include reduction in the abundance and availability of guns.

References

1. Goldstick JE, Cunningham RM, Carter PM. Current Causes of Death in Children and Adolescents in the United States. *NEJM*. 2022; 386: 1955-6.
2. Grinshteyn E, Hemenway D. Violent death rates in the US compared to those of the other high-income countries 2015. *Nursing and Health Professions Faculty Research and Publications*. 2019; 130: 2-26.

3. Hemenway D, Miller M. Firearm Availability and Homicide Rates Across 26 High-Income Countries. *J of Trauma, Injury, Infection, Critical Care*. 2000; 49: 985-8.

4. Hepburn LM, Hemenway D. Firearm Availability and Homicide: A Review of the Literature. *Aggression and Violent Behavior*. 2004; 9: 417-40.

5. Miller M, Azrael D, Hemenway D. Firearms and Violent Death in the United States. In: Webster, DW, Vernick JS, eds. *Reducing Gun Violence in America: Informing Policy with Evidence and Analysis*. Baltimore (MD): Johns Hopkins University Press. 2013: 3-20.

6. Swedler DI, Simmons MM, Dominici F, Hemenway D. Firearm Prevalence and Homicides of Law Enforcement Officers in the United States. *Am J Public Health*. 2014; 105: 2042-8.

7. Wintemute GJ. The Epidemiology of Firearm Violence in the Twenty-First Century United States. *Annual Review of Public Health*. 2014; 36: 5-19.

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Charles Lindbergh

I was surprised to see the “Charles Lindbergh’s contributions to high-altitude aviation, 1942-1944,” article in the summer 2022 issue of *The Pharos*, (pp 28-35), and then disappointed in its contents. At a time when there is a resurgence of dangerous racism, antisemitism, isolationism, and anti-democratic populism in this country, *The Pharos* has published Dr. Reich’s, Mr. Cooper’s and Mr. Reich’s sympathetic view of Lindbergh, when Lindbergh was at the epicenter of exactly the same movement here in the 1930’s.

The authors gloss over Lindbergh’s history prior to the war, i.e., his three visits to Germany were “controversial” and “he became a leading spokesman for isolationism.”¹ As documented in detail in Ken Burn’s recent PBS series on the Holocaust, Lindbergh is on record repetitively espousing virulent racism and antisemitism, the latter sometimes veiled, at other times blatant and threatening. At a time when German Jews and others were increasingly subjected to deadly persecution in Germany, Lindbergh accepted the Service Cross of the German Eagle from Hermann Goering in Berlin in October 1938.

These are some of Lindbergh’s words during that time:

These wars in Europe are not wars in which our civilization is defending itself against some Asiatic intruder. This

is not a question of banding together to defend the White race against foreign invasion.¹

Our bond with Europe is a bond of race and not of hypocritical ideology. It is the European race we must preserve, political progress will follow. Racial strength is vital, politics a luxury. If the White race is ever seriously threatened, it may then be time for us to take our part in its protection to fight side-by-side with the English, French and Germans but not with one against the other for our mutual destruction.¹

The only reason we are in danger of becoming involved in this war is because there are powerful elements in America who desire us to take part. They represent a small minority of the American people but they control much of the machinery of influence and propaganda. They seize every opportunity to push us closer to the edge. It is time for the underlining character of this country to rise and assert itself to strike down these elements of personal profits and foreign interests.¹

The following are excerpts from Lindbergh's speech at the America First rally in Iowa September 11, 1941:¹

There are three groups pressing the country toward war, the British, the Roosevelt administration, and the Jews.... Instead of agitating for war, the Jewish groups in this country should be opposing it every way for they will be among the first to feel its consequences....Tolerance is a virtue that depends on peace and strength, history shows that it cannot survive war and devastation....Large Jewish ownership and influence in our motion pictures, our press, our radio, and our government constitute a great danger to our country.

The authors indicate that the Ford Motor Company hired Lindbergh as a test pilot when the war began. Lindbergh was a close friend of Henry Ford, another vicious antisemite who was awarded the Nazi Grand Cross of the Supreme Order in Berlin in July 1938, and a fellow organizer with Lindbergh of American First.

Finally, the writers have glowing comments about Lindbergh's war record in the South Pacific. This is ironic since, judging by his racist comments, Lindbergh was exactly where he wanted to be, defending the "White Race" from the "Asiatic intruder," not at war with the "White race" in the air over Germany. Lindbergh espoused all of the values and prejudices of the Nazis. After his speech in Iowa, the

San Francisco Chronicle wrote, "The voice is Lindbergh's, the words are the words of Hitler and Goebbels."¹

Lindbergh was a revered icon in this country and he could have used his voice to do good. He chose the opposite path. His voice, the voices of Henry Ford and their ilk had real consequences because it stoked the antisemitism and xenophobia that made it impossible to rescue tens of thousands of German Jews and many others who were ultimately murdered by the Nazis.

The Pharos was not the appropriate forum to take up the case of Charles Lindbergh, and certainly not his rehabilitation.

Reference

1. The U.S. and the Holocaust. www.pbs.org. September 18, 2022. <https://www.pbs.org/kenburns/us-and-the-holocaust/>.

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"Charles Lindbergh's contribution to high-altitude aviation, 1942-1944" (*The Pharos* of Alpha Omega Alpha. 2022. 85(3): 28-35) is significantly imbalanced regarding his influence on American history. Although the article is focused on aviation technology, readers deserve a clearer description of Lindbergh's larger negative role.

Saying Lindbergh "became a leading spokesman for isolationism" minimizes Lindbergh's influence. A once-popular and familiar figure, he became the most powerful voice and organizer of public opinion against the 1941 Lend-Lease Act to aid Britain, then the only surviving democracy in Europe. Lindbergh was also an outspoken anti-Semite.

If Lindbergh's opinions had prevailed in 1941, the United States and its allies might have fared very differently in the developing war against the Axis. Franklin Delano Roosevelt's successful opposition to Lindbergh was vital in maintaining American opposition to growing Axis domination. At that time, the outcome of World War II was far from evident.

Weighing Lindbergh's alleged patriotism against his dangerous politics, historian William O'Neill spoke for

many Americans when he offered the opinion that, “In promoting appeasement and military unpreparedness, Lindbergh damaged his country to a greater degree than any other private citizen in modern times. That he meant well makes no difference.”¹

Reference

1. American Experience. “Fallen Hero.” www.pbs.org. October 1, 1990. <https://www.pbs.org/wgbh/americanexperience/features/lindbergh-fallen-hero/>.

The views expressed here are my own and do not reflect opinions of the Uniformed Services University or the Department of Defense. I have no financial interest in this matter.

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The value-added anatomy laboratory

In the Spring 2022 issue of *The Pharos*, Dr. Mathur reflects on his experience in the anatomy laboratory (pp. 31-2). His reflection is correct for the time and place of his education, and I am sure it is representative of many other physicians’ experiences. Following on Dr. Mathur’s contribution, there are four additional pieces in the Summer 2022 issue of *The Pharos* that also reflect on experiences in the anatomy laboratory (Letter to the Editor, *Cor Cordis*, pp. 52-3; Patient-centered care begins with the cadaver, pp. 36-41; A letter to my cadaver, pp. 13; Anatomy of grief: For Anna-Christina, pp. 20-1). All of these reflections provide the opportunity to describe the ongoing evolution in which anatomy is being taught at a number of institutions; providing a more humanistic approach to the use of the donors and interweaving ethics and professionalism into a student’s anatomy education.

Over the past 20 years, many anatomy courses have brought humanity back to the anatomy lab. They are describing the bodies in the lab as “donors” (not as the more pejorative and objectified term “cadavers”—no one says “I went to see my grandmother’s cadaver at the funeral home”). This point is discussed in the recent *The Pharos* article by Lim and Wassersug (Patient-centered care begins with the cadaver, pp. 36-41). These courses are also highlighting the altruistic nature of the donor’s contribution. Some institutions provide the students with medical, social and personal information about their donor¹ and, in a few

cases, may even have the students meet the family of the donor.^{2,3} This allows the students to appreciate the donor as their “first patient”^{4,5} or their “first teacher”^{2,6} and they realize they can learn more from their donor than just the fundamentals of anatomy.

In addition to providing more humanity, respect, and dignity to the donor in the anatomy lab, there is also an ongoing move to incorporate ethics and professionalism into medical school anatomy courses. This is accomplished by supporting and encouraging appropriate professional behaviors in the lab (professional treatment of the donor, small group interactions, peer-to-peer presentations, communal problem solving) as well as providing teaching units on anatomical ethics case studies along with historical and current issues in anatomical ethics. More than 30 ethics and professional units are freely available on the American Association for Anatomy website.⁷ These can be incorporated into anatomy, histology, embryology, and neuroanatomy presentations allowing students to contemplate these issues while in the safe space of the anatomical laboratory.⁸

The majority of medical schools also provide memorial services for their donors. These usually occur at the end of the anatomy course and involve student reflections, poetry, art, and other forms of expression. They generally reflect on the experience in the lab, and the gratitude that the students feel toward the donor.^{2,9} A number of programs invite the family members of the donors as well as the general public to these ceremonies of gratitude. This is another mechanism that highlights the humanity of the donor to the students.

A further recent development in anatomy education is the emphasis on clinical relevance. Many anatomy courses focus on the clinically relevant anatomy that is necessary for the undifferentiated physician. As Mathur noted, this involves teaching the proper medical nomenclature, while also emphasizing the anatomy necessary for physical diagnosis and common traumatic events (clavicle fracture, scaphoid fracture, trigeminal neuralgia, Bell’s palsy, abdominal aortic aneurysms, etc.). This clinical focus has been driven by an increased emphasis on clinical exposure early in medical training as well as the pressure of decreased time available in the curriculum to teach anatomy.

The modern anatomy course has become more than just a rite of passage, it has become a way to introduce first year medical students to clinical medicine, humanity, ethics and professionalism. It provides a safe space early in medical students’ professional career where they can contemplate and incorporate ethical and professional

attributes.⁸ This allows the seamless integration of bioethics and professionalism into basic medical science courses, so that students develop these characteristics and behaviors as they learn their foundational medical knowledge.

The goal is that an ethos of ethics and professionalism permeates all of medical education,¹⁰ so that it becomes built into a student's development as a medical professional, and becomes habitual in their practice of medicine.

References

1. Champney TH, Broadfield DC, Vargas EH, Hoodiman DR. Establishing and operating a body donation program. In: Teaching Anatomy: A Practical Guide, Second Edition. LK Chan, W Pawlina, eds, Switzerland, Springer Nature: 2020: 207-14.
2. Chu SY, Tseng TC, Ho YC, Tseng GF. The impact of a gross anatomy curriculum with donor family interaction: thematic analysis of student letters to silent mentors. *Acad Med.* 2022; 97: 1065-70.
3. Rizzolo LJ. Human dissection: an approach to interweaving the traditional and humanistic goals of medical education. *Anat Rec.* 2002; 269(6): 242-8.
4. Cohen N. Is it just semantics? Medical students and their 'first patients'. *J Med Ethics.* 2019; 45(6): 411-4.
5. Hasselblatt F, Messerer DAC, Keis O, Böckers TM, Böckers A. Anonymous body or first patient? A status report and needs assessment regarding the personalization of donors in dissection courses in German, Austrian, and Swiss Medical Schools. *Anat Sci Educ.* 2018; 11(3): 282-93.
6. Bohl M, Bosch P, Hildebrandt S. Medical students' perceptions of the body donor as a "first patient" or "teacher": a pilot study. *Anat Sci Educ.* 2011; 4(4): 208-213.
7. <https://www.anatomy.org/AAA/Resources/Anatomy-Ethics-Resources.aspx>
8. McDaniel KG, Brown T, Radford CC, McDermott CH, van Houten T, Katz ME, Stearns DA, Hildebrandt S. Anatomy as a model environment for acquiring professional competencies in medicine: experiences at Harvard Medical School. *Anat Sci Educ.* 2021; 14(2): 241-51.
9. G Strkalj, N Pather, eds. *Commemorations and Memorials: Exploring the Human Face of Anatomy.* Singapore; World Scientific Pubs: 2017.
10. Champney TH. A bioethos for bodies: respecting a priceless resource. *Anat Sci Educ.* 2019; 12; 432-4.

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Beethoven's deafness, other ailments and death re-examined

I was present a few years ago when Dr. Mackowiak presented the idea at a conference at the University of Utah School of Medicine that Beethoven had congenital syphilis (*The Pharos*, Winter 2022, pp. 12-16). Rather than a reluctance to accept the possibility that Beethoven had syphilis because of the high esteem people have for him and his music, it is the absence of confirming evidence that makes this diagnosis improbable for me.

It is true that Beethoven's father was an alcoholic, but there is no evidence that either his father or mother ever had syphilis. He had none of the accompanying stigmata of congenital syphilis, such as saber shins, mulberry teeth, snuffles, or other findings. His autopsy did show atrophic cochlear nerves, but the meninges were noted to be thin rather than thickened over the fourth ventricle where the nerves exit the brain stem. This is the opposite of what would be expected. Neurosyphilis also usually involves multiple cranial nerves, which were not indicated in Beethoven's case.

The physicians in Vienna were some of the best in the world, in the first three decades of the 19th century. As Beethoven had 11 physicians attend him at one time or another, it is striking that none considered the diagnosis of syphilis, either acquired or congenital.^{1,2} Most convincing of all is that the treatment at that time for syphilis was mercury, and there was no mercury found in Beethoven's hair and bone samples that were examined by the National Laboratory at Warrenville, Illinois, in 2000 and 2005.^{3,4}

Beethoven tried several forms of therapy for his hearing loss, including vesticaries, which are strips of bark placed on the forearms to absorb salicin that would be metabolized into salicylic acid.⁵ This treatment may have contributed to his renal findings at autopsy.

One of the reasons for the consideration of syphilis was a salve that Beethoven used that was thought to contain mercury, which has since been found to be ammonium.⁶

Several of the diagnoses suggested have courses that mimic Beethoven's hearing loss. Otosclerosis, Paget's disease, lead poisoning, and syphilis are the most plausible. Otosclerosis is a common cause of hearing loss that causes a slowly progressive loss that often begins in the 20s, like Beethoven's. However, there are several reasons that this diagnosis appears unlikely. One is that it is inherited, and although it can skip generations, it is notable that there is no history in Beethoven's family of hearing loss. It usually begins affecting the low rather than the high frequencies like Beethoven's loss, and although otosclerosis has been

reported to cause loss limited to the cochlear nerves, it is very rare. It usually involves the middle ear, and Beethoven's middle ears showed no signs of otosclerosis on careful examination at his autopsy.⁷

The main problem with Paget's disease is that although its effect can be limited to the cochlear nerves, there has been no case reported of bilateral hearing loss that did not cause middle ear findings that would have been obvious at Beethoven's autopsy. Beethoven also lacked findings of Paget's in other bones, and examination of his skull showed no evidence of the disease.⁸

Contrary to the statement that lead usually spares the cochlear nerves, axonal degeneration of the cochlear nerves has been reported in many patients who work with elevated levels of lead exposure.⁹

It has recently been brought to light that Beethoven had abnormally high expenditures for wine. He particularly liked wine to which lead had been added to improve the flavor.¹⁰ Lead can cause abdominal pain and constipation, but excess alcohol intake can also cause diarrhea. Tavern owners report Beethoven drinking a pint of wine with each meal. Long-term lead exposure also causes paresthesias of the extremities, that presumably Beethoven interpreted as arthritis.¹¹

Beethoven's eye ailments could have been due to vitamin A deficiency from pancreatitis that was seen at his autopsy. Although alcohol causes a micronodular appearance in early stages it can cause macronodular cirrhosis in end-stage cirrhosis as seen in Beethoven's autopsy.¹²

Beethoven's hair and bone samples did show high levels of lead that could have caused his hearing loss. The presence of lead deep in the bone is suggestive of repeated exposure over a long period of time.¹³

Therefore, Occam's razor applies as wine tainted with lead can explain Beethoven's hearing loss, abdominal pain, and diarrhea, cirrhosis, pains in the extremities, and eye symptoms.

References

11. Thayer AW. *Life of Beethoven*. Princeton (NJ): Princeton University Press; 1967.
12. Anderson E. *The Letters of Beethoven*. New York City: St. Martin's Press; 1961.
13. U.S. Department of Energy. News Release of the Argonne National Laboratory. Research Proves Beethoven Suffered from Lead Poisoning. October 17, 2000.
14. U.S. Department of Energy. News Release of the Argonne National Laboratory. Argonne Researchers Confirm Lead as Cause of Beethoven's Illness. December 6, 2005.
15. Mai FM. *Diagnosing Genius: The Life and Death of Ludwig Van Beethoven* Montreal (Canada): McGill University Press; 2007.
16. Forster W. *Beethovens Krankheiten und ihre Beurteilung*. Wiesbaden (Germany): Breitkopf & Härtel; 1956.
17. Stevens MH, Jacobsen T, Crofts, AK. Lead and the Deafness of Ludwig Van Beethoven. *The Laryngoscope*. 2013; 123: 2854-8.
18. Jesserer H, Bankl H. Was Beethoven's Deafness Caused by Paget's Disease? Report of Findings and Study of Skull Fragments of Ludwig van Beethoven. *Laryngol Rhinol Otol*. 1986; 65: 592-7.
19. Castellanos MJ, Fuente A. Adverse Effects of Heavy Metals With and Without Noise Exposure on the Human Peripheral and Central Auditory System: A Literature Review. *J Envir Res Pub Health*. 2016; 13: 1223.
20. Schindler A. *Beethoven as I Knew him*. Mineola (NY): Dover Publications; 1996.
21. Reubens O, Logina I, Kravale I, et.al. Peripheral neuropathy in chronic occupational inorganic lead exposure: a clinical and electrophysiologic study. *J Neurol Neurosurg Psychiatry*. 2001; 71: 200-4.
22. Bader TR, Beavers KL, Semelka RC. MR imaging features of primary sclerosing cholangitis: patterns of cirrhosis in relationship to clinical severity of disease. *Radiology*. 2004; 226: 675-85.
23. Kemner K. Physicist and Group Leader at Argonne National Laboratory. Personal telephone conversation with Stevens MH. February 8, 2010.

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Response from Dr. Mackowiak

I appreciate Dr. Stevens' interest in my analysis of Beethoven's illness. In his letter, he makes a number of provocative points.

Stevens asserts that many patients who work with lead are prone to deafness, however the plethora of studies analyzed by Castellanos and Fuentes found an inconsistent association between lead exposure and a "reduced hearing threshold," not "deafness" of the degree suffered by Beethoven.

I agree with Dr. Stevens that the high levels of lead found in Beethoven's hair and bone raise the possibility that his colic might have been due, in part, to plumbism,

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but only later in life after he began consuming substantial quantities of wine purportedly contaminated with lead. I would suggest that chronic lead intoxication is, at best, an unlikely explanation for Beethoven's deafness, macronodular cirrhosis, abnormal pancreas, irritable bowel, recurrent headaches, and rheumatism. None of these is seen in typical cases of plumbism.

If Occam's razor, rather than Hickam's dictum, is applied to Beethoven's case summary, syphilis alone emerges as a diagnosis capable of explaining all of the features of his multifaceted illness, except for the papillary necrosis identified at post-mortem.

I guess we will have to agree to disagree.

Reference

1. Forbes E. Thayer's Life of Beethoven. Volume II. Princeton (NJ): Princeton U. Press; 1967; 1059-60.

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Correction

In the Summer issue of *The Pharos*, the references for Dr. Mulberg's and Ms. Suciu's Letter to the Editor were printed incorrectly. The online edition has been corrected, accurate references are:

1. Ovid, Roman poet. <https://www.britannica.com/biography/Ovid-Roman-poet>.
2. Ovid, *Metamorphoses*. <http://classics.mit.edu/Ovid/metam.html>.
3. Ovid's exile to the remotest margins of the Roman empire revoked. <https://www.theguardian.com/world/2017/dec/16/ovids-exile-to-the-remotest-margins-of-the-roman-empire-revoked>.