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Marching for science: Scientific progress improves our everyday lives and our world

By Marcel Bruchez

Marcel Bruchez is a professor of biological sciences and chemistry at Carnegie Mellon University, director of the Molecular Biosensor and Imaging Center, and founder of Sharp Edge Labs and Quantum Dot Corp.

It was a massacre. As an 11th-grader in sweltering Valdosta, Ga., I had managed to kill every fly in my experiment. All I had to show for an entire summer of work was a trail of fly corpses and three boring pie charts (100 percent dead). The feeling of failure was raw, the embarrassment was overwhelming, but I had learned something important: I wanted to be a scientist.

Twenty-seven years later, I have seen science save many more lives than I took that summer and the failure to use science nearly cost the life of someone I love. These experiences are why I will join the March for Science on Saturday. I hope you will join me.

My first year of graduate school in chemistry was a challenging time. The sense of opportunity, terrifying independence and complete ignorance comes as a cold shock when you're pursuing something completely new. Never enough time, always more to do. The work was satisfying: I made materials that were colorful, glowing brilliant colors in arrayed flasks, which we would ultimately develop for medical diagnostics.

The hardest part of that year had nothing to do with my schooling though: My father was diagnosed with lung cancer that year, which we now know was the result of years of smoking.

Terrified, my scientific instincts immediately kicked in, and I began to research. Reading the scientific literature and poring over statistics maintained by the National Cancer Institute, I was confronted with a grim reality. Less than 5

An engaging first sentence catches the reader's attention.

The opening paragraphs (short paragraphs are typical in news media) express the primary focus of the op-ed.

Body paragraphs are short, each containing a singular point to develop the author's story and build support for the conclusion.

In this op-ed, the author develops these paragraphs into an emotional narrative illustrating his main argument: evidence-based policy saves lives while ignoring evidence costs lives.

percent of people with my father's diagnosis survive five years and most only make it one. Within five months, my father passed away: barely enough time to plan the funeral. My brother and sister still living at home bore the largest burden, thrust abruptly from a healthy nuclear family into a single-parent, financially precarious situation. We were strong for each other when needed; not everyone has that luck.

Medical science was not able to save my father, but years of research linking smoking to lung cancer has saved hundreds of thousands of others. Public policy informed by science has decreased both the incidence of lung cancer in men and the deaths resulting from lung cancer by approximately one-third. Simply put, far fewer families now face this diagnosis. For those that do, cancer researchers are tirelessly striving to develop better therapies and new ways to provide more high-quality time for families like mine.

Years later, technology, enabled by scientific research, was able to save another person I love: my sister. She was a college senior at the time and found herself surprisingly sore while studying for finals. The doctor at the school health center determined that the severe flashes of pain in her back were more than a pulled muscle and referred her for imaging.

The intake doctor rejected the imaging order. Working on intuition instead of evidence, he sent her home, undiagnosed, where she nearly died.

She did not get better at home, but thanks to friends who recognized she was dealing with something serious, she ultimately received the treatment she needed for a severe blood-borne bacterial infection. She spent weeks in the hospital, going through multiple procedures with state-of-the-art medical imaging equipment and taking lifesaving antibiotics. Scientific research helped create every aspect of her treatment, but a refusal to examine, indeed even collect, the evidence nearly rendered all those solutions useless.

The past 60 years have been a remarkable time in the history of science and technology. The burden of cancer has been reduced, medical mishaps are increasingly avoided, and fantastic new technologies are improving our lives and

The closing paragraph reiterates the main point and states a final call to action.

The final sentences are memorable and stick in the readers' minds.

our world on a daily basis. For this to continue, we must inform our decisions with scientifically tested results. We still have a ton of work to do, and I will be standing up for it at the March for Science. I hope to see you there.