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Biden's revamped cancer moonshot doubles down on advancing cures

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The race to put a man on the moon — "Moonshot 1.0" — was the crowning achievement of NASA's Apollo program that catapulted Americans onto the lunar surface between 1969-1972. Its ultimate success came after years of incremental advances, offset by budget constraints, hardware glitches and a deadly explosion.

The race to find cures for deadly cancers — heralded by the passage of the National Cancer Act in December, 1971 (as NASA crews gazed back at Earth), is likewise a marathon, characterized by gains and setbacks, and critically dependent upon public support. Since 1971, the National Cancer Institute (NCI), the beachhead for coordinated scientific discovery has mightily supported biomedical researchers and, together with significant investment by industry, produced previously unimaginable breakthroughs, even as total victory against the disease has remained tantalizingly on the horizon.

As the head of the Lasker Foundation and a physician scientist, I have deep appreciation for the life-changing advances achieved by remarkably inventive and resourceful colleagues working on cancer research across this country to develop new diagnostic tools and treatments.

Among them, some 20 have received a Lasker Award — a distinguished prize in American medicine. Doug Lowy and John Schiller developed the first HPV vaccine that can protect all women from cervical cancer, and men from related ones. Michael Shepard, Dennis Slamon and Axel Ullrich invented Herceptin to treat the 50,000 women in the U.S. each year diagnosed with HER2+ breast cancer, while the intrepid Mary-Claire King identified the BRCA-1 gene linked to hereditary breast cancers. Thanks to the contributions of Emil J. Freireich, childhood leukemia (which was once a death-sentence) now has an 85 percent survival rate. New checkpoint-inhibitor immunotherapies, developed after paradigm-shifting discoveries by Jim Allison, now eradicate advanced renal cell carcinoma and melanoma in one out of four patients.

In a recent Oval Office meeting, President Biden — whose first Cancer Moonshot initiative in 2016 after the tragic death of his son Beau from glioblastoma — alerted policymakers that a reinvigorated Moonshot 2021 will be a top priority for his administration. Under the leadership of a new cabinet-level director of science and technology policy, the country's top scientists will receive the funding and bureaucratic relief to develop a DARPA-like advanced research focus.

"When Nixon declared the war on cancer in 1971, he had no army, no troops … But we're now in the position where things are changing so drastically," said the president, adding that the country would, "invest considerably more money in research and [in National Institutes of Health] — and I mean make a major, major effort."

In the battle against cancer, the president has taken on an equally important role — "comforter in chief." He highlighted the pain that many families experience in his book, "*Promise Me Dad: A Year of Hope, Hardship, and Purpose,"* a tribute to his son. His insights helped my own family as my sister-in-law Susan endured a tough fight with the same disease. She died last year, at the age of 59, and now our family faces the sadness of the empty chair at the dinner table.

NCI Director Norman Sharpless, reflecting on the strides made in the 50 years since the signing of the National Cancer Act and the promise of what's next, points to the "tremendous research portfolio" of over 240 new

research projects across more than 70 cancer science programs spearheaded by the 2016 Moonshot. As we turn the corner on COVID-19, he urges, we must continue to break down silos across the biomedical research enterprise, advance important pre-clinical investigations into clinical trials, and increase the NCI budget so that at least 15 percent of the most highly rated applications can be funded.

Other colleagues, such as David Agus, Susan Jaffee, and Chi Van Dang, have promulgated additional recommendations for a "Moonshot 2.0," to include the creation of new data repositories to facilitate data sharing, implement machine learning and enhance innovative diagnostics such as noninvasive liquid biopsy. All point to signs that more important advances are within reach.

On my office wall is a black and white photo of Mary Lasker taken five decades ago, at the first meeting of the National Cancer Advisory Board. She is flanked by over a dozen important looking men in three-piece-suits — all top medical researchers of that era. The NCI credits Lasker's tireless advocacy with achieving passage of the National Cancer Act of 1971: "It could not have happened without her."

I too am continually inspired by her grit, guts and determination to do whatever it took to tug, push and pull the bow of the U.S. government leviathan to assure we galvanize effective, concerted biomedical research investment on behalf of us all. Colon cancer killed her husband Albert, a nationally prominent philanthropist who played a major role in expanding the National Institutes of Health and endowing the Lasker Foundation with the goal of advancing the role of biomedical science in society.

Mary Lasker was unstoppable in her passion for prioritizing and urging action in the race to conquer cancer. Inspired by her fierce determination, and on behalf of the 17 million cancer survivors and their families, on this the 50th anniversary of the signing of the National Cancer Act, we urge renewed vigor in public support for this newest phase of the Cancer Moonshot.

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